

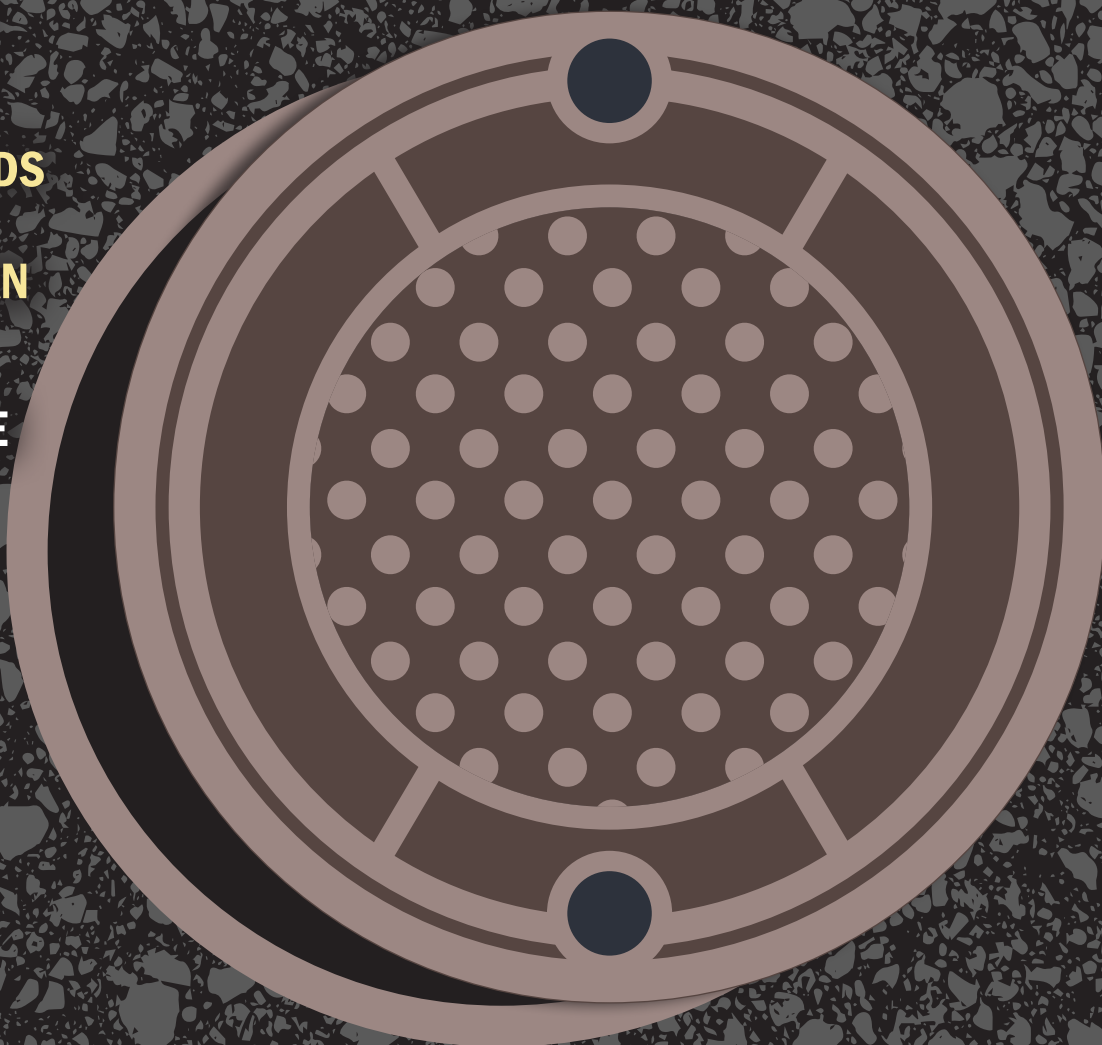
the importance of
Wastewater
maintenance

**NARROWING IN
ON OVERFLOWS**

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A PREVENTIVE
MAINTENANCE PLAN**

**TREATMENT
UNDER PRESSURE**

and **MORE**



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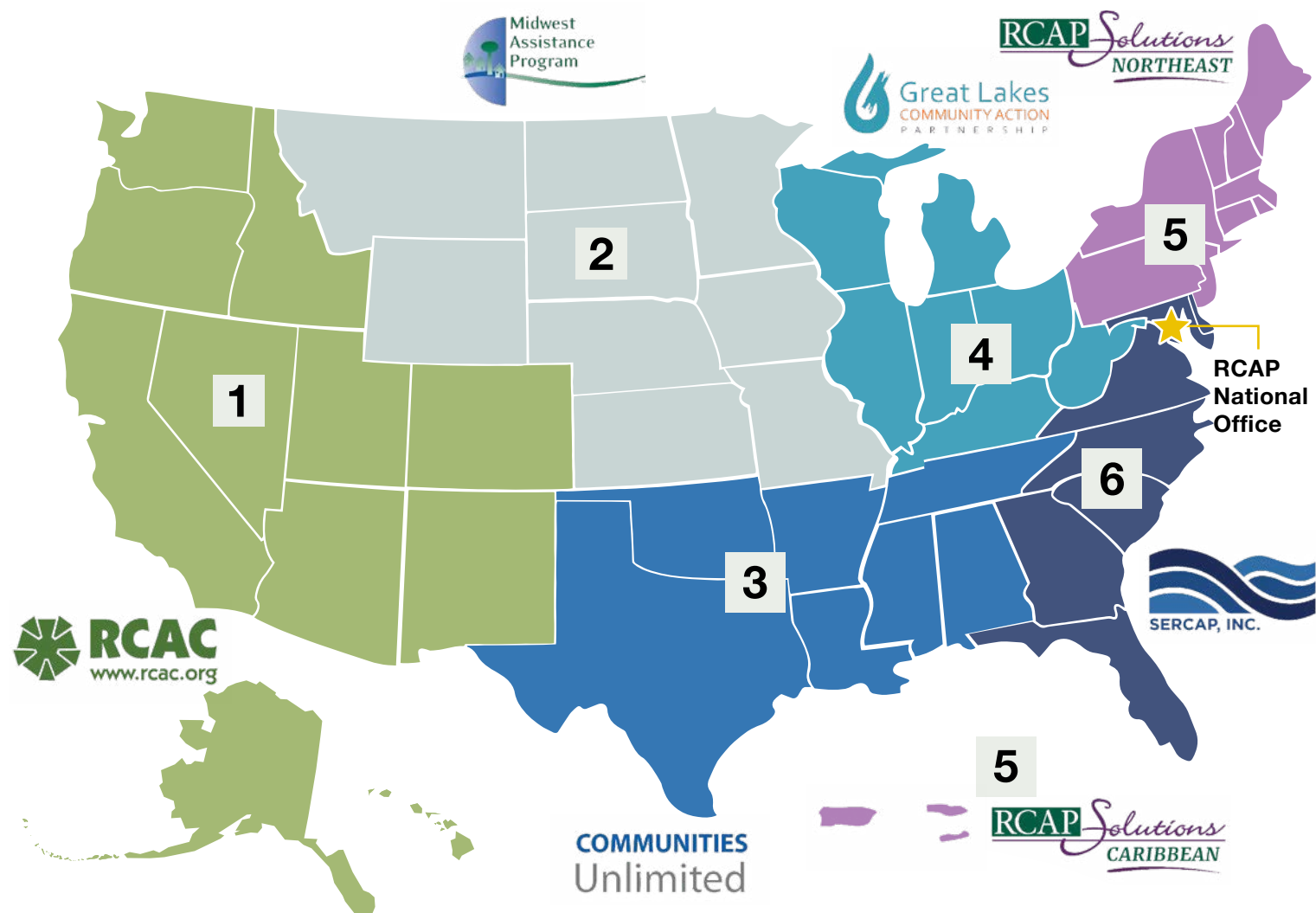
ceo letter

Welcome to 2025! In this issue, you will find articles offering in-depth experiences about wastewater-related issues and how our technical assistance providers (TAPs) worked with various communities to not only ensure compliance but also improve their wastewater systems overall. This issue offers a spotlight on what supporting wastewater systems and treatment looks like in different parts of the U.S., in Tribal nations, and in U.S. territories we support, like Puerto Rico and the U.S. Virgin Islands. You will also notice that the work we do outside of technical assistance is often just as important to supporting access and improvements to wastewater systems and treatment.

As for RCAP's outlook for 2025, we have our first annual State Revolving Fund (SRF) conference in Seattle, Washington, August 18–21. Registration has officially opened, and we encourage all who may be interested to visit our web page to register for the conference. The conference will focus on topics such as co-funding projects, accessing planning costs, and eligible projects that improve both public and environmental health, while also providing opportunities to connect through peer-to-peer development and networking with our partner organizations. Additionally, we are looking forward to our National Conference in October, as well as many other events on the horizon.

As we move through this year, RCAP remains committed to taking a comprehensive approach to assisting these communities and in advocating that the federal government considers the unique barriers faced by rural communities and ensures access to clean water for all residents.

Olga Morales Pate
Chief Executive Officer, RCAP



Rural Community Assistance Partnership

The Rural Community Assistance Partnership (RCAP) is a national network of nonprofit partners with over 350 technical assistance providers across the country. RCAP works to improve the quality of life in rural America starting at the tap.

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sercap.org

WHAT Matters

CONTENTS

SAVE THE DATE

National State Revolving Fund (SRF) Infrastructure Financing and Training Workshop

August 18 - August 21, 2025

Seattle, Washington



4

Rural Round-Up

5

Narrowing in
on Overflows

8

Pipe Dreams

13

Every System Needs
a Preventive
Maintenance Plan

15

Treatment
Under Pressure

18

Planning Ahead
for Growth

21

A Long Time
in the Making

“For many of us, clean water is so plentiful and readily available that we rarely, if ever, pause to consider what life would be like without it.”

Marcus Samuelsson

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RURAL ROUND-UP

Recent wins and happenings

RCAP has been diligently working with the Great Lakes Community Action Partnership (GLCAP) and the community of Glen Dale, West Virginia, to put together a video regarding per- and polyfluorinated substances (PFAS). In 2021, the City of Glen Dale identified PFAS in its drinking water and reached out to GLCAP for assistance. See how this city is battling PFAS contaminants and what its plan is for tackling this issue in our newest released video, vimeo.com/1049103110.

RCAP released its newest guidebook, “Asset Management for Small Drinking Water and Wastewater Systems”, which can serve as a starting point for creating an asset management plan for small water and wastewater systems in rural and Tribal communities.

Every year during the RCAP National Conference, at least one staff member from each of six regions wins an award for their contributions to the RCAP network. Some of the categories include “Rookie of the Year,” “Pillar Award,” and “Outstanding Mentor.” Luckily, we were able to receive some photos from the winners of the awards. See below for some of the winners, and congratulations to all who won.

Winners not pictured include Mat Wiseman from GLCAP, Jennifer Hazard from RCAC, Gaylene Riley from CU, and Lonnie Clark from MAP.



Anna Mahan
Southeast Rural Community
Assistance Project (SERCAP)



Angela McConnell
Great Lakes Community
Action Partnership (GLCAP)



Candace Balmer
RCAP Solutions



Dessa Wells
Rural Community Action
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Training Calendar



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Narrowing in on Overflows

MAP collaborates with the Indian Health Service to measure Tribal lagoon depth.

Kevin Coldsmith, Technical Assistance Provider—South Dakota, Midwest Assistance Program (MAP)

This article was funded under RCAP's EPA Treatment Works 3—Tribal 23–26 grant.

The Winner-South Ideal Community is located just southwest of the City of Winner in Tripp County, South Dakota. This tribal utility is operated by the Sewer Revenue Department of the Rosebud Sioux Tribe of the Rosebud Indian Reservation in South Dakota. Indian Health Services (IHS) estimates the population of this housing cluster to be approximately 225 people in 45 houses with an estimate of five persons per home.

The Winner–South Ideal Community is an intermittent discharge system

currently served by two lagoon cells, which discharge into an unnamed tributary of Sand Creek. Cell one is 2.53 acres with a capacity of 3.74 million gallons (MG) and cell two is 3.26 acres with a capacity of 4.84 MG at highwater level (HWL). The total estimated average daily wastewater inflow is .0169 million gallons per day (MGD), which does not meet the 180-day retention time, for which the maximum average design flow is 0.0335 MGD.

The Winner-South Ideal Community was originally served with a two-cell lagoon system built in 1978, with each cell approximately 1.19 acres in area. Utilizing IHS funding, the system was renovated in 1994, which combined the two original cells into one 2.53-acre cell and added an additional 3.26-acre secondary cell. Additional sewer mains and housing were added to the system in 2000. The Tribal utility reported that the inlet manhole located at the Winner lagoon system regularly overflowed, and the sewer main and inlet piping required routine jetting to keep the piping clear.

It was suspected that the primary lagoon contained excessive sludge, potentially caused by the incomplete removal of a berm separating the two original lagoons that were joined into a single cell in the 1994 project. Additionally, it was suspected that sludge built up in front of the inlet piping and was unable to flow across the entirety of the lagoon bottom, resulting in overflows at the inlet manhole.

IHS labeled this as an existing deficiency due to sludge or weed growth in the lagoon cell(s), limiting the system treatment capacity below design standards. The IHS gave this project a rating of 94 priority points and stated a planning project would be needed to determine the thickness of the sludge blanket, complete a sludge analysis, and verify the depth across the primary lagoon. If the investigation demonstrated that the berm was only partially removed, the proposed project would properly remove the remainder of the berm. IHS contacted Midwest Assistance Program Inc. (MAP) to assist with the technical capacity to measure the sludge using a "Sludge Judge." MAP staff provided the tool and assistance to measure the depth of the cells and the thickness of the sludge blanket in multiple locations in the lagoon. Working together, MAP obtained measurable results of

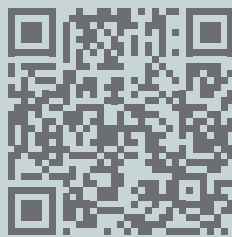


the sediment, determined the condition of the lagoon, and marked the locations of the measurements. These measurements would provide valuable information to the system to identify the cause or eliminate a potential cause of the manhole overflows and system backups. If the investigation determined that the berm separating the two original lagoons was only partially removed, the system would remove the remainder of the berm to eliminate the ongoing problem.

MAP staff provided technical assistance on the proper use of the sludge judge tool to IHS. Working with IHS, measurements were taken down the center of cell #1. The planned approach of taking measurements was not possible at the time of the data collection due to the heavy overgrowth of ground cover. Time constraints and minimal staff led to performing ground measurements located between the lagoons at intervals of 25 to 30 feet. Landmarks and survey flags on the lagoon bank were utilized in the rough distance measurements.



Check out out
training video on
sludge judge



Depth measurements were taken, referencing these landmarks as best as possible utilizing a canoe navigated by IHS personnel and MAP staff referencing the landmarks and positioning from the embankment. After performing six samples running down the centerline of cell #1, it was determined that the remains of the berm were removed and were not restricting the influent as anticipated. It was also determined that the sludge depth was consistent throughout the cell. Two additional random samples were taken from cell #2 for an estimated sludge blanket depth. As a result of these measurements, the decision was made to discontinue any further measurements, as the focus of this task was completed.

The pond depths are between four to five feet with sludge depth less than one foot in both cells across all the measurements. This indicates the sludge is equally distributed in the cells. The theory that the berm was not completely removed was not proven, indicating there is another reason that the inlet is backing up. It appears the lagoon system is performing well

with anaerobic and aerobic digestion process.

MAP made the following recommendations to ensure compliance and maintain a working system:

- Clear the growth around the cells, as it limits the wave action, which promotes evaporation.
- Unless duckweed is specifically introduced to create shade and control algal growth, skim the surface regularly and do not allow it or other vegetation to accumulate.
- Use a boat or take advantage of a windy day to push and collect duckweed in the corner of a lagoon cell, then remove it with a rake or a vacuum truck.
- Mow grass periodically and control weed growth along the edges of lagoon cells, including pulling new growth of cattails and bulrushes.
- Cut and remove trees, shrubs, and dead vegetation on dikes and edges of lagoon cells.
- Gates should always remain locked to secure lagoons and display proper signage to keep out.
- As a last resort, if there is excessive vegetation in the lagoon or on the dikes that can be remedied only by herbicides, identify a licensed pesticide applicator to apply according to label restrictions.

As a result of the collaboration and teamwork between IHS and MAP staff, the theory of the partially removed berm from the prior project can be discounted and a new investigation will be performed. With the availability of federal funds from EPA's Treatment works Compliance grant, the Rosebud Sioux Tribe can progress with the data retrieved from the measurements survey and proceed with other contributors to the situation. If the advice and recommendations from MAP staff are implemented, lagoons will have less overgrowth and conditions at the lagoons will promote a more healthy and safer environment for the community.



Pipe Dreams

Turning challenges into compliance in Montague, Massachusetts.

Rebekah Novak,
Community Specialist, RCAP
Solutions Northeast (RSOL)

This article was funded under RCAP's EPA Treatment Works 2-Compliance 23-26 grant.

The Town of Montague, Massachusetts, is located along the Connecticut River in the upper Pioneer Valley and is made up of five distinct villages. Rich in history and culture, Montague offers a unique snapshot of New England's past and present. To fully appreciate the town's infrastructure challenges, it's essential to first understand its historical context. Montague's history dates back to the establishment of its first village in 1754. The town's development was further shaped by the construction of its first dam in 1792, followed by a second dam and power canal in 1866. This power canal harnessed hydropower for industrial use, fueling the construction of numerous mills along the river.

Spanning 31 square miles, Montague boasts a variety of landscapes, from rolling hills and fertile farmlands to public open spaces, historic mills, and residential villages. The town is also home to three National Register Historic Districts. This diverse mix of environments offers Montague's 8,500 residents a wide range of opportunities for both business and recreation. However, the town's long history also means that its infrastructure faces a variety of challenges. The age of the town's buildings, roads, and systems means constant attention and adaptation are needed to meet the needs of a growing community.

Challenges in the Collection System

Montague's infrastructure has a complex legacy, with many elements dating back to the 1800s. While some systems have been upgraded or lined to extend their lifespan, the historical layout and unique geographical challenges create ongoing difficulties. Areas that thrived in the 1800s remain active today, meaning some of the original infrastructure is still in use. In many parts of town, the combined stormwater and wastewater collection systems have been successfully separated. However, in the downtown area, separation remains unfeasible due to shallow bedrock and the prohibitive costs of excavation. Other areas of town are flat, offering no practical options for diverting flow. The downtown area, which experiences high flow volumes and benefits from significant elevation changes, presents additional complications. A man-made power canal runs through this area, with only a single pipe traversing it. Due to the expense of drilling under the canal, infrastructure upgrades are severely constrained.

One of the most notable pieces of infrastructure still in operation is a 36-inch brick double-barrel siphon that runs under the canal and to the river, constructed in the 1800s and lined in recent years. This siphon continues to carry stormwater to the river. Unfortunately, during high-flow events, it also carries untreated wastewater to the river due to an upstream regulator strategically placed in the sewer collection system. This practice, while historically necessary, poses significant environmental and regulatory challenges today. Addressing these issues requires careful consideration of cost-effective solutions, creative engineering to work within the geographic constraints, and potential collaborations to secure funding for modernization efforts.

The area known as "The Hill" presents significant infrastructure and hydrological challenges due to its unique geological and topographical conditions. The Hill's composition—sand over bedrock with a high groundwater table—creates a situation where groundwater traveling downslope exerts immense pressure, particularly at the base, where much of the town's development has occurred. This groundwater pressure is visibly evident in the collection system. Staff have observed water spraying several feet from small

“It is such a relief to be transitioning from a reactive/non-compliance state to that of proactive management of the town's sewer system.”

TOWN ADMINISTRATOR

cracks in manhole walls at the base of the hill. This indicates severe infiltration and inflow (I/I) issues, which are further exacerbated by the area's historic infrastructure design. Following stormwater pipes uphill reveals a likely original intention: these pipes were installed to collect and channel groundwater to the river, functioning as a form of groundwater relief.

Groundwater has historically been a persistent issue in this town, according to the former Department of Public Works (DPW) superintendent, who has witnessed the problem since beginning his career in 2004. Although the sewer collection system is not undersized under normal conditions, it becomes overwhelmed during significant rain events. The remaining combined sewer portions of the system further complicate the situation, contributing to Combined Sewer Overflow (CSO) events. These events result in the discharge of diluted but untreated wastewater into the Connecticut River via the double-barrel siphon discussed earlier. The system's continued reliance on aging infrastructure to manage groundwater under high hydrostatic pressure highlights the dual challenge of maintaining functionality while addressing environmental compliance.

The town's DPW faces significant challenges in managing the sewer collection system, primarily due to historical understaffing, a lack of proactive maintenance programs, and limited financial resources. These issues compounded over time, resulting in a collection system that struggled to keep pace with operational demands and regulatory requirements. Historically, maintenance had been largely reactive, as the DPW lacked the tools, training, and protocols needed for effective proactive management. This lack of a structured approach created a steep learning curve when the DPW assumed responsibility for the collection system in 2023.

One significant obstacle was the inaccessibility of many critical system components. Numerous manhole locations remained unknown, having been obscured by natural overgrowth in woods, swamps, or dense brush for years. Compounding this, the maps for both the sewer and stormwater systems were incomplete, leaving staff without an accurate understanding of the network's layout. The absence of a Geographic Information System (GIS) database further complicated asset management and tracking, making it challenging to develop a cohesive maintenance strategy or prioritize repairs.

Challenges in the Clean Water Facility

Downstream of the collection system is the Clean Water Facility (CWF), a 1.83 million gallon-per-day (MGD) activated sludge treatment plant serving approximately 4,400 residents and many businesses and industries. The facility is responsible for operating and maintaining eight pump stations and force mains. Funded through an enterprise fund, the CWF operates under a separate accounting and financial reporting system, ensuring its revenues and expenditures are distinct from other governmental activities. The majority of the revenue comes from ratepayers—primarily local residents, many of whom are low-income—along with a significant number of businesses and industries.

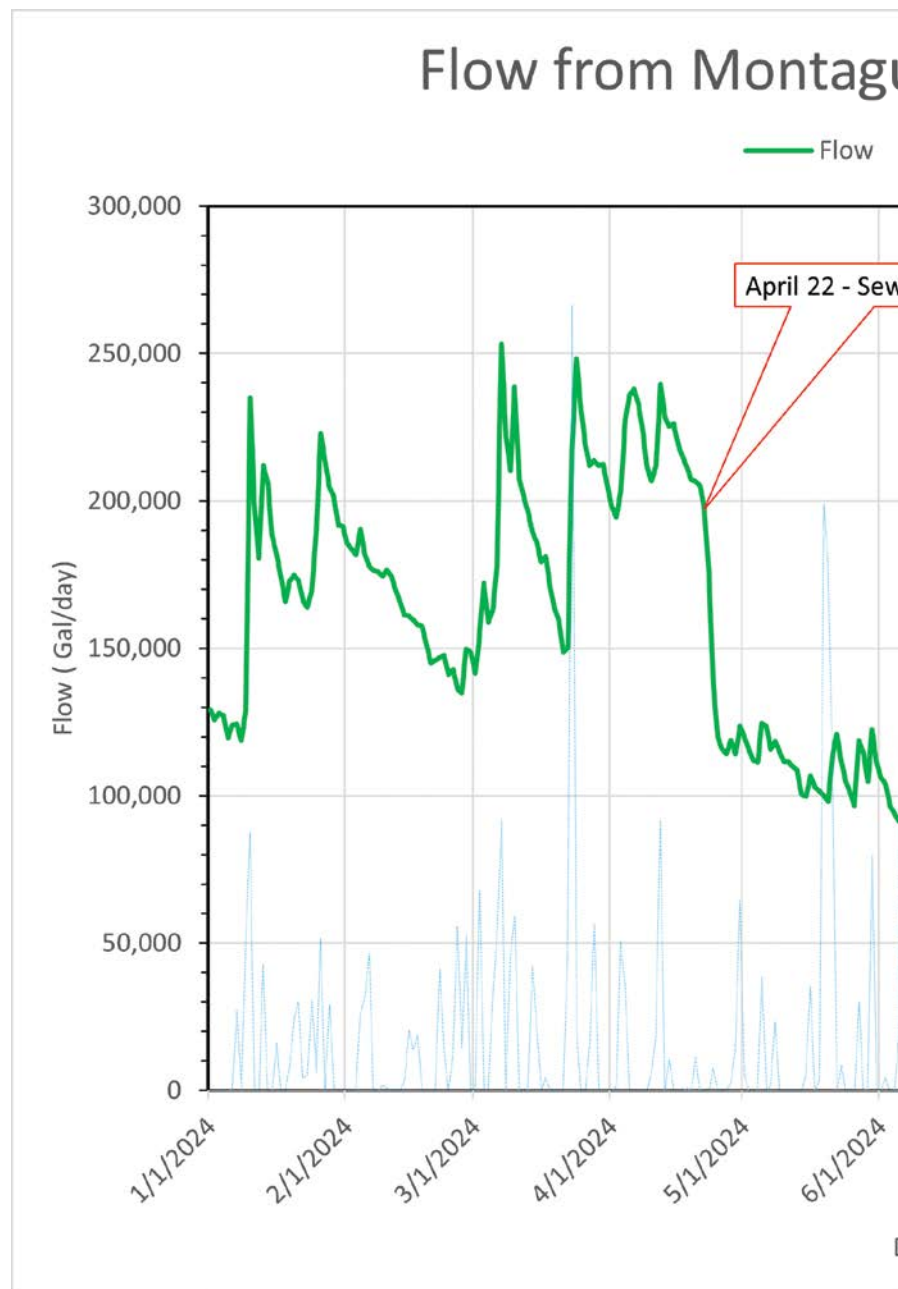
The facility has faced significant operational and compliance challenges in recent years, primarily due to changes in influent composition and the absence of adequate treatment

measures. In 2017, the closure of two major paper mills drastically altered the characteristics of incoming wastewater. This shift was compounded by the operations of a large food production facility, an aquafarm that discharges wastewater with high levels of total suspended solids (TSS), acidic cleaners, and lactic acid. These inputs created sporadic disruptions in the treatment process, making it difficult for operators to maintain stable operations. These combined factors had made it increasingly difficult for the facility to meet effluent limits.

A major contributing factor to these issues was the lack of a robust pretreatment program. Without proper pretreatment measures, high-strength industrial wastewater was entering the system unchecked, leading to disruptions in the treatment process. The facility's inability to adapt to the changing influent, coupled with insufficient pretreatment and missing documentation, resulted in regulatory non-compliance. While the Montague Sewer Commission is involved in all decision-making, it is still adjusting to the complexity of managing the system and facility. The commission, though committed to overseeing operations, is learning the full scope of the work involved in maintaining all facets of a wastewater system, from cleaning and inspecting to making repairs in the collection system as well as upgrades in the facility. As a result, the team was continuously working together to balance operational needs, financial oversight, and saving for necessary capital improvements.

Consent Orders

The line of responsibility between the collection system and the treatment facility was unclear for many years. Staff shortages, high turnover, and a general lack of attention meant that the sewer and stormwater collection systems, as well as the treatment facility, were not receiving the necessary oversight. This allowed the town to fly under the Environmental Protection Agency's (EPA) radar for some time. However, between 2019 and 2022, the town was issued several Consent Orders addressing various concerns, with the primary focus on protecting the health of the receiving river. The collection system required proactive operation and maintenance, and the CWF needed significant upgrades to avoid exceeding effluent limitations, among other issues.



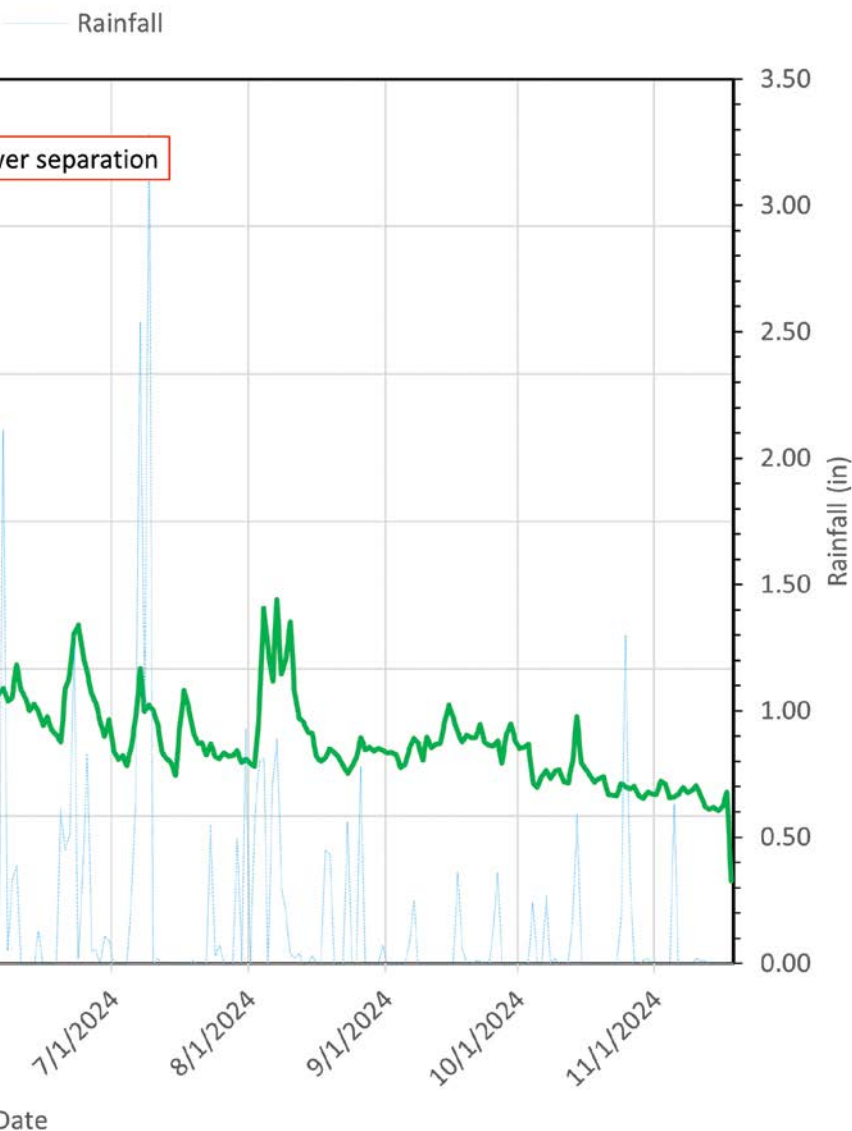
To achieve National Pollutant Discharge Elimination System (NPDES) compliance, the town had to formally delineate responsibilities between the DPW and the CWF. This led to an important collaborative framework between the two departments, with significant investment in asset management systems to enable data-driven decisions and track progress. The collection system's Consent Orders were issued due to documentation deficiencies, such as the absence of critical reports, including costly engineering studies. There was also insufficient documentation of actions taken to address Combined Sewer Overflows (CSOs), minimize I/I issues, and implement pollution prevention programs, including erosion control, street cleaning, and catch basin cleaning. These gaps in documentation not only led to compliance issues but also attracted regulatory scrutiny.

In January 2024, a new NPDES permit was issued, bringing with it an expanded list of requirements. This included additional engineering reports, progress on the GIS database, and the inclusion of satellite systems sending wastewater to the town's system, now listed as "co-permittees."

Action: Sewer Collection System

Addressing the challenges faced by the collection system required significant investment in staffing, tools, training, and infrastructure mapping to lay the foundation for sustainable

Due to Erving WWTP



system management. In the summer of 2021, RCAP Solutions technical assistance providers (TAPs) brought GIS equipment into town to begin mapping the system. This effort involved locating more than 1,320 sewer manholes, 401 stormwater manholes, 1,525 catch basins, and hundreds of culverts, pump stations, outfalls, and other major assets, including traversing woods, swamps, and overgrown fields to find manholes that hadn't been located in 40 years. Now, as new manholes are found, they are added to the GIS database, and errors are corrected. RCAP Solutions staff continue the tedious task of scanning old plans and entering asset data into the GIS system. While this process is slow, the results have been invaluable, as staff can now access system plans from within the field. In addition, a GIS dashboard was created, providing an overview of system health, including the number of manholes inspected, pipes jetted, and more. Staff now use GIS applications in the field to record operations and maintenance and plan upcoming work, eliminating paper reports and simplifying year-end reporting. Having a GIS database in place is required by the NPDES permit, so these efforts contributed to compliance.

In June 2023, the town created a new position, the collection system operator, to oversee the sewer and stormwater collection systems full-time. This position allowed for increased field investigations, jet cleaning of pipes, daily inspections, and the goal of jet cleaning one-third of the town's pipes and CCTV-ing problem areas. Every manhole

inspection now results in a report that flags issues in real-time for the foreman and superintendent to address. Previous consent orders mentioned staffing shortages as a reason for non-compliance, so this addition buffered their compliance.

These proactive efforts led to significant findings and revealed critical maintenance needs, such as clearing root balls from an off-street manhole that hadn't been opened in 40 years and would have soon created a blockage. Another investigation uncovered a full-flowing pipe of groundwater connected directly to the sewer system, which had been sending wastewater to a neighboring town. After reconnecting this pipe to the stormwater system, the town reduced its flow by 75,000 gallons per day, saving \$94,667 in overage fees in 2023 and relieving strain on the neighboring treatment plant.

One of the town's compliance problems was a "dry weather overflow" that unfortunately allowed outflow into the river. Investigations revealed this flow to be groundwater collected from The Hill and a nearby water storage channel, diverted by pipes into an outfall. This issue was removed from the consent order, bringing the town into compliance with this item as well.

Proactive maintenance, including jet cleaning, CCTV inspections and smoke testing identified areas with I/I. To address this, activities such as pipe and manhole lining were added to the Capital Improvement Plan. Some of the projects have been completed, and these efforts have positively impacted the CWF by reducing I/I, therefore removing one more box on the noncompliance item list.

To address the numerous reports required by the consent orders and NPDES permit, the town hired a local engineering firm. The firm developed templates for annual reports, an updated operations and maintenance (O&M) manual, standard operating procedures (SOP), and comprehensive flow model analyses. While these reports were costly, they provided the town with direction and a solid foundation for compliance and helped bring it into good regulatory standing. The collection system is now in compliance and actively addressing the additional requirements outlined in the new NPDES permit. The Sewer Commission has gained a clearer understanding of the tasks involved and is working on budgeting to allocate resources for expanding the staff in this newly established collection systems department.

Action: Clean Water Facility

In March of 2020, a new wastewater superintendent was hired, bringing fresh energy and much-needed attention to the plant. Under her leadership, the facility underwent several upgrades and improvements. She also prioritized community outreach and strengthened relationships with regulators, keeping them informed about the plant's progress and leveraging their expertise to help solve ongoing issues.

With support from the EPA, the plant made significant strides in improving its pretreatment program. It identified industrial users who were in serious noncompliance with pretreatment requirements and implemented a comprehensive compliance schedule. This effort helped stabilize the influent and allowed the plant to regain process control by bringing industrial users into compliance and, in turn, reduced the number of effluent parameter exceedances. However, this progress took time. The facility had previously lacked the staff necessary to run a thorough industrial sampling program. To address this, the Sewer Commission approved the hiring of additional personnel, enabling the plant to better manage the complex issues related to industrial pretreatment. The CWF now has a comprehensive pretreatment program in place to monitor the many industrial companies in the area.

The facility's new mission statement captures its dedication to both environmental protection and public health, ensuring that wastewater treatment supports the broader goals of ecosystem conservation and safe recreational use of the river:

The Montague Clean Water Facility seeks to promote the conservation of local wildlife supported along the Connecticut River by effectively treating the wastewater stream to National Pollution Discharge Elimination Standards. The facility also seeks to promote public health through treatment, reducing pathogens and nutrient loadings, which in turn help to protect the recreational use of the river.

Much of the upgrade work at the CWF was completed in-house, saving the town hundreds of thousands of dollars compared to hiring contractors. For example, the facility replaced two 1-ton chlorine gas cylinders with two 500-gallon liquid sodium hypochlorite tanks, significantly reducing costs. They also mounted a 450-gallon vacuum tank onto a decommissioned two-wheel LED display trailer, eliminating the need for quarterly service calls to vacuum out plant sump chambers.

One of the most notable upgrades was the installation of a 21,000-gallon biosolids storage tank, allowing the plant to become the regional biosolids dewatering hub and generate additional revenue. To further boost revenue, the facility commissioned a feasibility study for opening a regional composting facility. In January 2022, the CWF installed a dewatering press, and staff now compost solids on-site. They also sourced a more environmentally friendly polymer for the dewatering process.

Public outreach became a priority, as the facility had previously been mostly invisible to the community, often only noticed during times of combined sewer overflows (CSOs). To improve its visibility and image, the CWF cleaned up the front of the plant, creating a more appealing view for passersby. A local artist was hired to paint a mural on the road-facing wall, and a pollinator garden was planted, irrigated with plant effluent, and fertilized with composted biosolids. Staff members also began attending community events and town hall meetings to demonstrate their commitment to the environment and remind the public that the CWF staff are professionals who care about local resources, in turn earning the trust of the public.

Since completing these upgrades, the CWF has remained compliant with environmental standards. In recognition of the improvements, the EPA invited the wastewater superintendent to speak at the New England Regional Pretreatment Coordinators Conference about how changes to pretreatment processes can enhance overall process control.

Outcome and Lessons Learned

The Town of Montague's efforts to improve its infrastructure and regulatory compliance have led to a significant turnaround in both the sewer collection system and the CWF. The primary outcome has been the achievement of compliance with regulatory requirements.

One of the key lessons learned from this process is the importance of staffing. The creation of new positions helped transition the system from reactive maintenance to proactive maintenance, allowing for a more robust pretreatment sampling program and general upgrades, which has led to significant improvements in capacity.

Another vital lesson was the value of technological integration. The implementation of a Geographic Information System (GIS) has been a game-changer for the town. By mapping and tracking the collection system, the GIS system has enabled more efficient maintenance and streamlined operations, leading to better compliance with regulatory requirements.

The importance of collaboration between departments also became clear. By formally delineating responsibilities between the DPW and the CWF, Montague was able to create a more organized, cohesive approach to managing both the collection system and the treatment facility. The ongoing communication between these departments has ensured that challenges are addressed in a timely manner and responsibilities are clearly understood.

Finally, the town's efforts to engage with the community and improve public perception through outreach have been invaluable. By raising the CWF's visibility and fostering stronger relationships with regulatory bodies and local residents, Montague has not only ensured the success of its infrastructure projects but also built trust with the community.

In summary, Montague's success is attributed to strategic staffing, technological upgrades, collaborative efforts, and proactive maintenance, all of which have improved both infrastructure performance and regulatory compliance.



Every System Needs a Preventive Maintenance Plan

Groundhog Mountain Water and Sewer Company in Virginia gets preventive advice from SERCAP.

Jermaine Niblett, Technical Assistance Provider, Southeast Rural Community Action Project (SERCAP)

This article was funded under RCAP's EPA NPA 2 22–24 grant.

In June 2023, SERCAP staff members Joey Hiner, Virginia State Manager, and Jermaine Niblett, Technical Assistance Provider, attended a meeting of board members and community leaders of the previous Doe Run Resort. Standing at an elevation of nearly 3,000 feet, the resort is located on the Blue Ridge Parkway near mile marker 189 between Meadows of Dan and Fancy Gap, Virginia. This quiet community, known for its beautiful views, has been a weekend refuge or vacation retreat for over 30 years. The resort features log cabins, villas, chalets, and mill pond units.

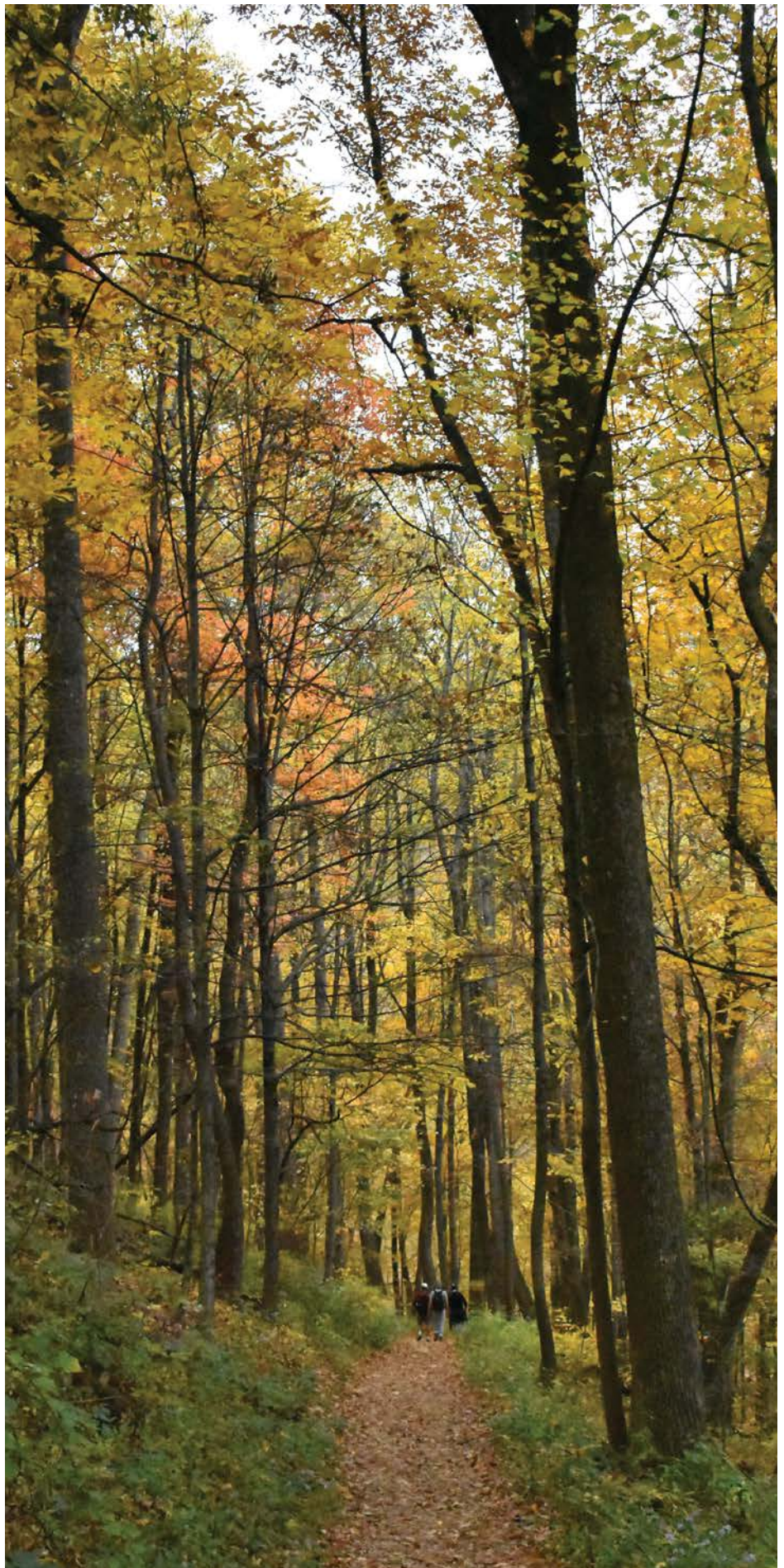
Doe Run was taken over by the current board in 2000, who immediately started making improvements to the community infrastructure, mainly its

water and wastewater treatment facilities. SERCAP was asked to provide an opinion on potential upgrades and preventive maintenance suggestions. The visit was an organized effort to obtain information on the history of the resort along with structural information about its package plant and well systems.

Following the board's takeover in 2000, Groundhog Mountain Water and Sewer Company, Inc. (GMWSC) was incorporated to provide water and sewer services to the Groundhog Mountain Community. According to the board, the community pooled resources to finance GMWSC. The company is managed by its own board of directors and volunteers from the community. GMWSC operates and maintains two active deep-water wells and one emergency backup well that serves as the water supply for 133 connections, largely to seasonal or vacation properties. Additionally, GMWSC installed two Clow Company Corporation packaged extended aeration plants: Buck Hollar and Viele-Reed. Package plants are pre-manufactured treatment facilities used to treat wastewater in small communities or on individual properties.

The SERCAP team toured both facilities. Buck Hollar, the larger of the two package plants, was in great shape with all bench sheets, operations and maintenance (O&M) manuals, personal protective equipment (PPE), and other requirements in place. During this meeting, SERCAP learned that daily operation of the plants was conducted by two licensed water/wastewater operators. The team then toured the Viele-Reed site, which is almost identical in design, although a bit smaller, and was in the same great condition.

The board members and SERCAP staff discussed the findings on their tour of the facilities and, more specifically, discussed the absence of and the need for a preventive maintenance program (PMP). PMPs are equipment checks that are recorded periodically—weekly or monthly, for example—by a licensed operator. Good preventive maintenance can save large sums of money and help avoid catastrophic failures and mistakes. Ultimately, SERCAP staff agreed that the GMWSC was able to fully support its community with its existing infrastructure. They also left with a new respect for the package plant and its importance in supporting small communities.



TAYLOR WRIGHT ON UNSPLASH



Treatment Under Pressure

Abiquiu, New Mexico's fight to restore its water system.

Elliott Bochstein, Staff Writer, Rural Community Assistance Corporation (RCAC)

This article was funded under RCAP's EPA Treatment Works 3–Tribal 23–26 grant.

Jennifer Viereck didn't move to New Mexico's high desert to spearhead a water system overhaul. Like many before her, she was drawn to Abiquiu's sweeping mesas and ochre cliffs that once inspired Georgia O'Keeffe to call the landscape "wider than the sky." She arrived seeking a quiet retirement and a slower pace of life. But when the president of the Abiquiu Mutual Domestic Water Consumers & Sewage Association (MDWC&SA) fell ill, the community turned to her. "I said yes out of ignorance," Viereck joked.

With decades of experience in nonprofits and environmental advocacy, she knew she was a natural fit. "Where I come from, if you're asked to help, you only say 'no' if it's not

ethical or you're not capable of doing it," she added. Now serving as treasurer of the Abiquiu MDWC&SA board, Viereck has spent the past two years navigating a maze of technical, logistical, and financial challenges from a home office cluttered with reports and regulatory forms. "Most days start with sorting through a mountain of paperwork," she says. "There's always

another report due, another grant to apply for, another problem to solve.” It’s a tightrope act familiar to rural water systems: balancing meager resources against critical needs, with no room for missteps.

Deep Roots, Few Resources

Abiquiu, population 181, sits along the Chama River, 50 miles north of Santa Fe. Once a Tewa Pueblo and later a Spanish settlement, Abiquiu became home to Genízaro families—Indigenous people assimilated into colonial society through land grants and servitude. Today, residents rely on traditional water practices like acequia irrigation and rainwater harvesting to flourish in this arid terrain.

With a median household income of \$36,000, less than half the national average, and a poverty rate nearly twice as high, residents face considerable financial strain. Farming and ranching, once the economic backbone of the area, have faded due to economic shifts and prolonged drought. Efforts to build the local economy through tourism and farmers markets have provided some relief, but they haven’t reversed the broader economic decline.

Meanwhile, Abiquiu’s aging infrastructure has faltered, stretching limited resources and testing residents’ patience. In recent years, water pressure often sputtered or failed entirely during peak hours, leaving families scrambling to manage basic tasks. “Try doing laundry, keeping your baby in diapers, and showering before work with no water pressure,” Viereck says, summing up the community’s frustration.

The wastewater system, however, posed an even greater threat. Built in 1998, the plant was designed to last 20 years but had been operating well past its lifespan. Over two decades, sludge had accumulated unchecked, forming a hazardous toxic heap. Heavy rains posed the risk of washing contaminants into the Chama River, endangering both the community’s health and the fragile ecosystem downstream.

Partnering with RCAC

As the new board took stock of the Abiquiu MDWC&SA wastewater system, they felt nearly overwhelmed: broken pumps, failing filtration systems, and looming regulatory deadlines threatened to spiral beyond the board’s control. The association knew they couldn’t tackle it alone, so they turned to Rural Community Assistance Corporation (RCAC), the western arm of RCAP.

Joseph Valdez, an RCAC small utility consultant who had previously worked on Abiquiu’s drinking water system, returned to guide the board through the wastewater crisis. His first priority was the sludge—22 years of buildup that had left the plant severely out of compliance. Valdez drafted detailed sludge management and emergency response plans, covering everything from transport logistics to spill protocols. “He wrote the whole plan, down to what we’d do if something fell off the truck on the freeway to Albuquerque,” Viereck says.

Abiquiu’s remote location added to the challenges. “When you need those kinds of resources, you’re always on a waiting list,” Valdez explained. “That waiting list may not reconcile with what the state or EPA expects.” For rural systems, this disconnect between resources and regulatory timelines is all too common.

“It’s hard to explain to officials that we can’t meet their deadlines because we’re literally waiting on a backhoe to free up,” Viereck says. “It’s not that we’re lazy—it’s just a different world out here.”

The sludge removal itself became an almost surreal challenge. Transporting it required careful orchestration, from securing a fleet capable of hauling heavy loads to navigating disposal regulations. For Viereck, it was as daunting as it was bizarre. “It was thick as tar and almost fossilized,” she recalled, laughing. “If it didn’t pose a contamination risk, it would be a museum piece.”

With the sludge finally cleared, the plant regained compliance—a major milestone for the community. “Having this little community manage a \$1.7 million project, secure the three grants it took, and actually cross the finish line—that’s pretty amazing,” Viereck reflects.

Valdez attributes much of the success to local leadership. “I don’t know what that community would do without her and the others at the Mutual Domestic Water Consumers & Sewer Association,” he says. “But Jennifer is the glue that keeps this board focused.”



Looking to the Future

Viereck and the board are now focused on restoring the plant’s infrastructure. The work ahead includes replacing corroded pumps, repairing the clarifiers, and maintaining sand filters—all costly projects with no guaranteed funding that are required to maintain compliance and ensure the plant’s continued operation.

“The kind of funding it would take to replace the plant is in the millions, and nobody’s giving that kind of money away to little, tiny communities in northern New Mexico, as far as we can tell,” Viereck says, a hint of resignation in her voice. “We can keep band-aiding things and learning new skills, but what’s the big picture?” The responsibility for piecing together that big picture weighs heavily



on Viereck. “I’m donating about 75% of my professional time to handle what’s required, and I can’t afford to do that forever,” she admits. “This pace just isn’t sustainable.” She hopes to eventually train younger community members to take over the reins. Valdez shares her concern. “The only thing that worries me about this board, like with all boards, is burnout,” he says. “But with their capability, know-how, and drive to serve their community, I don’t see anything standing in their way.”

At the same time, regional collaboration offers hope. Abiquiu MDWC&SA participates in the Aguas del Norte Alliance, a coalition of northern New Mexico water associations aiming to become a mutual aid network. If successful, the alliance could help rural

systems like Abiquiu’s secure funding, strengthen local control and address infrastructure challenges—including treatment upgrades.

A New Sense of Community

Beyond the technical challenges of rebuilding infrastructure, the wastewater project has brought Viereck closer to her neighbors. “I feel much more connected to the community,” she says. “I know what’s going on with different people and where they might need help.”

Valdez sees the project as a point of pride for locals. “Some folks may not realize how important it is to have reliable sewer service, especially in a remote area,” he says. “But I know there are people who are really, really happy this board has turned things around.”

As the sun dips below the hills, casting a golden glow over the Chama River Valley, Viereck steps outside. The work ahead looms large, but she’s encouraged by how far they’ve come. “We didn’t really have a clue how we’d do it,” she admits. “But with help from RCAC and the New Mexico Rural Water Association, we’ve gotten this done. We’re definitely moving in the right direction.”

Her phone buzzes—a new message, a new problem to solve. She exhales, steadies herself, and heads back inside. For now, she’s content with progress, knowing tomorrow will bring another challenge, and another step forward for Abiquiu’s water future.



Planning Ahead for Growth

Communities Unlimited helps Atoka, Oklahoma, secure \$8 million for wastewater and water infrastructure.

Derek Shore, Staff Writer, and Gaylene Riley, Special Projects Area Director, Communities Unlimited (CU)

This article was funded under RCAP's EPA Treatment Works 3–Tribal 23–26 grant.



The City of Atoka, a small community in southeastern Oklahoma with a population of just under 3,000, is undergoing a significant transformation. Rich in history and deeply connected to the Choctaw Nation, Atoka has become a focal point for rural revitalization and infrastructure development. The town's wastewater and water systems are at the core of this transformation, with the City recently securing a combined \$8 million in the United States Department of Agriculture (USDA) Native American Set-Aside grants for the first phase of upgrades. These infrastructure improvements, paired with a revitalization of the downtown area, showcase Atoka's commitment to providing a higher quality of life for its residents while preserving its historical and cultural roots.

Atoka was founded in 1867 by the Choctaw people, following their relocation along the Trail of Tears. The city's location at the crossroads of two major U.S. highways has made it a crucial hub in the region, with tens of thousands of vehicles passing through each day. This connectivity, combined with recent efforts to restore the downtown area, has helped position Atoka for future growth. These efforts have been driven by the partnership between the City of Atoka, the Atoka County Chamber of Commerce, local small business owners, and the Choctaw Nation. This collaboration has breathed new life into the town's original downtown district, which now attracts visitors from near and far.

The wastewater treatment plant for the City of Atoka was upgraded in 2012 but, due to budget constraints, a new headworks with screens and grit removal was not constructed. This has created operational issues, leading to premature failure of equipment such as pumps. As a result, continual maintenance of the manual screen and grit removal at the primary lift station is required. The City's

project engineer has developed a phased approach to the needs of the wastewater treatment plant. Phase I will construct a new headworks with mechanical screen and grit removal, replace or rehabilitate several components, and replace the pumps. A new generator will also be installed. Phase II will continue improvements to the treatment plant with the construction of a belt filter press and other electrical and mechanical components. Phase III will address the collection system needs, such as replacement of old clay tile and concrete piping, rehabilitation or replacement of manholes, and upgrades to some of the lift stations that have higher horsepower pumps.

The Environmental Services Team at Communities Unlimited (CU), including Oklahoma State Coordinator Gaylene Riley, played a pivotal role in securing the necessary funds for these improvements. CU staff provided technical assistance in navigating the complex USDA grant process, from gathering the necessary documentation to preparing USDA RD 442-3 Balance Sheet forms. They helped separate cash reserves for the wastewater and water systems and ensured that all required USDA eAuthentication IDs were in place for the application. Moreover, CU guided the City through the submission of its public meeting notice, ensuring compliance with the USDA's requirements.

Phase I of the wastewater treatment improvements, estimated at \$4 million, was successfully funded through the USDA Native American Set-Aside program. Atoka was eligible for this grant due to the fact that its population is more than 50% Native American and it meets specific per capita income and unemployment criteria. This funding, combined with the successful completion of the necessary Technical, Managerial, and Financial (TMF) Assessment and Asset Management Plan, will allow the City to move forward with the project.

Atoka's water system, which was first constructed in 2009, saw significant improvements in 2022. However, budgetary constraints left several important upgrades unfinished. The need for improvements became evident as the City worked to ensure its water system could meet both current demands and future growth. Its water treatment plant required a comprehensive overhaul to rehabilitate filters and package units, line the backwash basins with concrete, and replace valves, actuators, and air wash blowers. In addition, the backwash decant lift station and water storage tank needed repairs.

Wastewater system improvements are just the beginning of Atoka's infrastructure overhaul. The City also secured additional funding for water treatment plant upgrades. These grants, part of the same USDA Native American Set-Aside program, will be used to modernize the water treatment plant. Phase I, which focused on immediate plant needs, received \$4 million in funding, and Phase II will address future improvements, including storage and Supervisory Control & Data Acquisition (SCADA) systems. The ultimate goal of these improvements is to ensure that both the water and wastewater systems are capable of meeting Atoka's current and future needs without placing an undue financial burden on residents.

In addition to the application assistance, CU has helped the City develop an asset management plan for each system. This cataloged all of the City's wastewater and water system assets, their condition, and anticipated replacement costs, and will serve as a roadmap for future upgrades. Additionally, it provides Atoka with the financial foresight to plan for future asset replacements, utilizing cash reserves rather than emergency loans or taxpayer funds.

These infrastructure improvements come at a crucial time for Atoka, as the town continues its downtown revitalization efforts. In addition to the work being done on the wastewater and water systems, CU assisted Atoka in applying for grants to build public restrooms in the downtown area. This addition will support local businesses and attract more visitors to the area.

Atoka City Manager Danny Delay expressed his excitement about the transformative potential of these grants.



"This funding will allow us to do what's important, and that is to improve our outdated infrastructure," Delay said. "The more grant money we can obtain to reach our goals, the fewer loans and tax dollars we'll have to rely on."

Riley echoed Delay's sentiments, noting that the success of the grant applications is a testament to the collaborative effort between the City and CU. "I'm so very pleased that the work of CU staff has resulted in the City of Atoka successfully securing \$8 million in grant funding to meet their infrastructure needs," Riley said. She highlighted that the water and wastewater improvements go hand in hand with the City's downtown revitalization efforts, ensuring that Atoka is not only preserving its heritage but also preparing for future growth.

Looking ahead, the infrastructure improvements in Atoka will provide a stable foundation for the town's future growth. With a like-new water treatment plant, enhanced wastewater facilities, and an asset management plan in place, the City is prepared for the challenges of tomorrow. By planning ahead for future replacements and using cash reserves to fund them, Atoka is reducing the need for emergency loans and keeping water rates affordable for its low-income residents. As Atoka continues to grow, CU's ongoing support will ensure that the project remains on track, benefitting its residents for years to come.

Atoka is a prime example of how small, rural communities can thrive through strategic partnerships, thoughtful planning, and targeted investment in infrastructure. The work being done today will have lasting benefits, helping the City maintain fiscal sustainability while providing better services to its residents. Through collaboration with the Choctaw Nation and assistance from CU, Atoka is not just preserving its past but building a stronger, more prosperous future.

Delay was quick to credit the work of CU in helping the City of Atoka make progress toward overhauling its wastewater and water systems.

"Gaylene with Communities Unlimited has provided the City of Atoka with a great amount of information, insight, advice, guidance, and overall assistance with everything we have asked her for help on," Delay said. "Her vast knowledge and experience, especially with water and wastewater and asset management, has been a game changer for us. She has helped us with several of our grants, which expedites the whole process due to her expertise. She and everyone else with Communities Unlimited have been phenomenal with their caring attitudes and genuine commitment to helping us attain positive outcomes in whatever we are striving to achieve."



A Long Time in the Making

Through decades of effort and the collaboration of multiple funders, Iaegar, West Virginia, gets wastewater treatment.

Mary Hutson, West Virginia State Coordinator, Great Lakes Community Action Partnership (GLCAP)

This article was funded under RCAP's EPA Treatment Works 1–Management and Finance 23–26 grant.

West Virginia is the only state that is located entirely within the Appalachian Mountains and is known as the Mountain State. It is characterized by steep mountainside slopes, ridgetops, and narrow floodplains along streams, which present numerous challenges in developing water and wastewater infrastructure.

McDowell County is located in the southern coalfields of West Virginia and lies almost entirely within the Tug Fork River watershed. McDowell County has left a permanent mark as the center of

coal country and, with the declining use of coal as a fuel source, now faces complex and longstanding issues. According to the West Virginia Department of Environmental Protection (WVDEP), it is estimated that 67% of households in McDowell County lack wastewater treatment. Many homes use PVC pipe to discharge wastewater from toilets and washing machines directly into streams. This process, called straight-piping, results in high fecal bacteria counts in water bodies in the county. The Tug River is listed by the WVDEP as a degraded waterway on its 303(d) list—a list of impaired and threatened stream or river segments and lakes that states are required to submit for EPA approval every two years—due to unidentified biological (sewage) contamination.

McDowell County Public Service District (MCPSD) was created in 1990 by the county commission to provide adequate and sanitary water services to all unincorporated communities within the county. Over the past 30 years, MCPSD has grown to encompass many unincorporated areas, along with failed water utilities in the county. No other PSD in West Virginia is responsible for more systems. Providing adequate water and wastewater services to residents and businesses is a top priority for MCPSD and, in 2023, the PSD stepped into the wastewater business by completing the Coalwood Sewer Project. Fast forward a little more than one year later, and the PSD celebrated a groundbreaking ceremony in the Town of Iaeger.

Incorporated in 1917 in the western part in McDowell County, Iaeger was named for Colonel William G. W. Iaeger, an early settler, and is now one of 10 municipalities in McDowell County. The MCPSD acquired a system to provide water to Iaeger in 1999. The town remained part of the 67% with no formal wastewater treatment; however, in 2018, MCPSD was awarded grant money to construct a wastewater treatment facility in Iaeger.

This led to the Iaeger Sewer Project, which has been in the works for more than two decades. The project is truly an example of funders working together in order to provide approximately 100 residents sanitary sewer services through a 60,000 gallon-per-day wastewater

“It’s going to help the environment and public health in this area by eliminating straight pipes of raw sewage from entering the waterways of West Virginia.”

KATHY EMERY, DIRECTOR OF THE WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF WASTEWATER MANAGEMENT

treatment plant. This \$13.46 million, fully grant-funded project was sponsored by seven different funding agencies:

- HUD Community Development Block Grant: \$1,300,000
- Appalachian Regional Commission Distressed Counties Grant: \$1,800,000
- West Virginia Infrastructure & Jobs Development Council: \$1,000,000
- USDA Rural Development Persistent Poverty Grant: \$1,400,000
- West Virginia Department of Environmental Protection Abandoned Mine Lands Economic Revitalization Grant: \$4,610,000
- West Virginia Department of Environmental Protection Clean Water State Revolving Loan Fund Principal Forgiveness Loan: \$2,000,000
- West Virginia Water Development Authority Economic Enhancement Grant: \$1,350,000

The MCPSD has limited staff and approximately 300 square miles of water and wastewater coverage. RCAP has assisted with the Letter of Conditions for the funding agencies and will continue to assist with documentation of standard operating procedures (SOPs), operation and maintenance (O&M) plans, asset management plans (AMPs), operator training needs, and any other assistance requested. RCAP has developed an incredibly good working relationship with the MCPSD, but this relationship is remarkably similar to the project—it took years to gain the trust of the PSD and communities in McDowell County. The time and effort to get to this point and to be part of the future growth of McDowell County is priceless.

A place that doesn’t have reliable water and sewer service can’t grow and develop, MCPSD General Manager Mavis Brewster observed. “This project is a step in that direction. We have a lot of activity, with Hatfield–McCoy trails coming into the county, a lot of four-wheeling and tourism,” she said. “And, you know, we’re proud of the place that we live. McDowell County [now has] good water and sewer so that businesses can come in and McDowell County can grow.”

Kathy Emery, director of the WVDEP Division of Wastewater Management, noted other benefits. “It’s going to help the environment and public health in this area by eliminating straight pipes of raw sewage from entering the waterways of West Virginia.”

Projects like this one improve the quality of life for local residents and help support businesses not only in the town, but in southern West Virginia. Strong water and wastewater systems are critically important to the health and economic well-being for all McDowell County communities.

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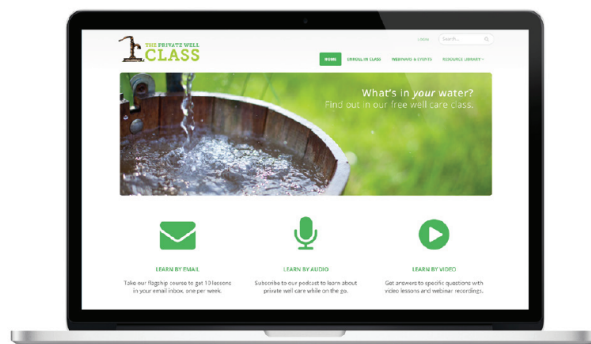
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