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Nicole Bartlett
Manager, Engineering Division
Charlotte Water

THINKING REGIONALLY

Charlotte Water's expanding footprint will pave the way for growth while protecting local resources

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Luke Laggis

Luke Laggis

WORKING FOR THE GREATER GOOD

Cooperation with neighboring communities makes objectives more attainable

It's easy to see how multiple groups working together toward a common objective might accomplish more than either one on its own. Let's say your local mountain bike group wants to build a trail in some public woods. On their own, they don't have a loud voice, but if a hiking club with shared objectives joins the campaign, the voice grows and so do the odds of attaining the goal. Add another stakeholder and the voice grows even stronger.

In the municipal world it's a little more complicated, but the upside can be even greater. And since water knows no boundaries, be they shorelines, basements or city limits, partnerships can go a long way in taking a broader approach to management.

Charlotte Water in Charlotte, North Carolina, profiled in this issue, is a great example. The utility has begun construction of a $380 million wastewater treatment facility to prepare for projected population growth.

The Stowe Regional Water Resource Recovery Facility will expand the water and wastewater utility's service footprint westward to the neighboring communities of Mount Holly and Belmont. Without the Stowe facility, the utility would have to upgrade an extensive portion of its collections system and replace more than 20 miles of wastewater sewer lines at considerable cost and disruption to the community. Since the facility will also serve Mount Holly and Belmont, it will eliminate the need to replace aging wastewater treatment infrastructure in those communities. It is a more cost-effective, efficient and environmentally friendly solution for all involved.

The utility took working for the common good in another direction last year when two water treatment plants failed in Jackson, Mississippi.

Interestingly, the new treatment plant couldn't exist without the partnership. Without their permits, there wouldn't be any allocations left for the Stowe facility to discharge treated water.

About 200 miles south of Charlotte, the Mount Pleasant Waterworks in Mount Pleasant, South Carolina, knows the value of municipal cooperation, too. The utility recently connected its system to neighboring Charleston through a new line bored under the Intracoastal Waterway to nearby Sullivan's Island. The connection reduces Mount Pleasant's reliance on the Charleston Aquifer and gives each community an alternative water source in emergency situations. The communities split the $8.5 million cost of the project, which included 5,000 feet of 18-inch-diameter steel pipe.

The utility took working for the common good in another direction last year when two water treatment plants failed in Jackson, Mississippi. After flooding crippled the already-struggling facilities, experts from outside the state raced to help. A four-person team from Mount Pleasant was among the first to arrive.

Whether in the case of emergency or in the context of better planning and development, both Charlotte and Mount Pleasant provide excellent examples of how far cooperation and partnerships can go in helping you meet your objectives. I hope you find some inspiration in their stories. ✦

Comments on this column or about any article in this publication may be directed to editor Luke Laggis, 800-257-7222; editor@mswmag.com.

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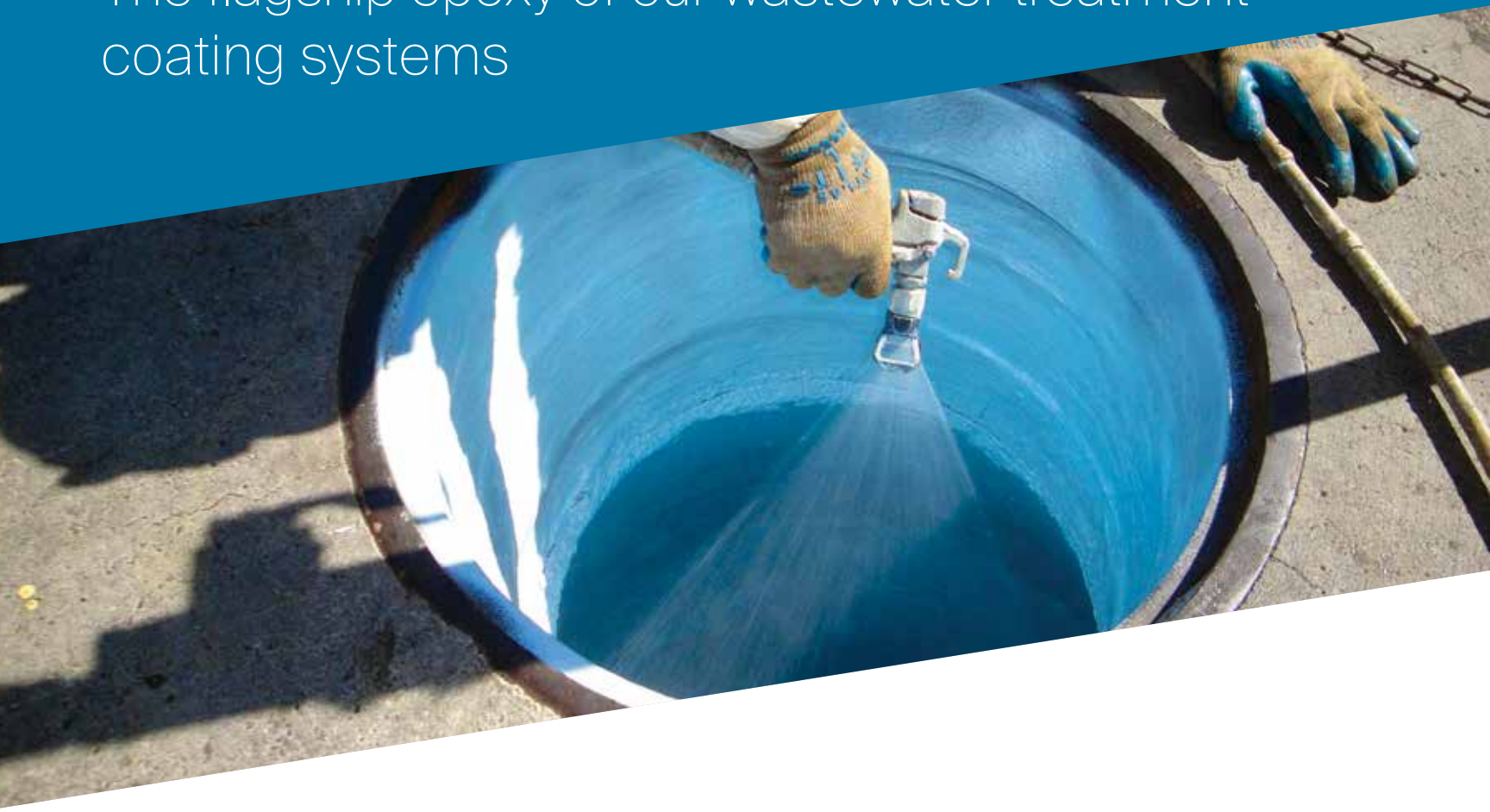

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PUBLIC OUTREACH

Utility Develops Video Games

The California city of Davis engaged an environmental consultant to brainstorm ideas on how to educate the public about water conservation. The result is an interactive online video game designed to engage students and ultimately parents.
mswmag.com/featured

OVERHEARD ONLINE

"The Infrastructure Investment and Jobs Act is a once-in-a-generation opportunity to correct decades of underinvestment in disadvantaged communities, especially with the EPA pushing the states to do so."

— ***How to Steer Money for Sewer and Water Upgrades to the Communities That Need It Most***
mswmag.com/featured

MANAGING EMPLOYEES

Documenting Performance

By documenting your employees' policy infractions, customer service issues or particularly meritorious acts, you're better positioned to provide coaching and professional development opportunities. That said, there are right ways and wrong ways to approach employee behavior documentation. **mswmag.com/featured**

IDENTIFYING LEAKS

New York Launches Robot Sub

The New York City Department of Environmental Protection is launching a remote operated vehicle to assess previously identified leaks in a portion of the Catskill Aqueduct that runs several hundred feet below the Rondout Creek in Ulster County. The vehicle uses high-definition video cameras, acoustic equipment and other instruments to examine the aqueduct.
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THINKING REGIONALLY

Charlotte Water's expanding footprint will pave the way for growth while protecting local resources

By Ken Wysocky

Spurred primarily by projections for a significant population increase in the coming decades in greater Charlotte and surrounding Mecklenburg County, Charlotte Water has begun construction of a more than $380 million wastewater treatment facility.

With an expected completion date in 2026, the Stowe Regional Water Resource Recovery Facility will expand the water and wastewater utility's service footprint westward, across the Catawba River, to two neighboring communities: Mount Holly and Belmont, located in eastern Gaston County, says Nicole Bartlett, a division manager within the utility' engineering department.

Named after the late Joseph C. Stowe Jr., a former director of Charlotte Water, the new facility is notable because it's the biggest and most expensive project the utility has ever tackled. In addition, it will require drilling six bores that will hold 26- to 42-inch-diameter force mains made from high-density polyethylene pipe.

At least four of the bores will be drilled by Michels Corp., a global energy and infrastructure construction contractor based in Wisconsin, using horizontal directional drilling.

"A preliminary engineering study showed this was the best option to get from Point A to Point B, as well as the safest and least impactful method in terms of its effect on wildlife and recreational use of the river," Bartlett says.

"This big of an HDD project is a pretty big deal for us. On a scale of one to 10, it's pretty high up there. It's also a massive project, with lots of moving pieces and many stakeholders and multiple general contractors."

> **"It's also a massive project, with lots of moving pieces and many stakeholders and multiple general contractors."**
>
> **Nicole Bartlett**

A boring situation

HDD begins by boring a pilot hole that's smaller than the final bore, followed by more bores (a process called reaming) with increasingly larger-diameter drill bits. The final bore is about 12 inches in diameter larger than the pipe it will house — about 36 inches for this project.

After that, sections of HDPE pipe are fused together, pressure tested for leaks and then pulled through the bore.

Two of the bores are 3,100 feet long and travel through bedrock 65 to 76 feet below the Catawba River and nearby Long Creek, connecting a new pump station in Mount Holly to Charlotte Water's existing Long Creek Pump Station.

The second set of bores will be around 1,142 feet long and about 70 feet deep. They'll travel under Long Creek to connect the Long Creek Pump Station to the Stowe facility, which will be located on a 79-acre parcel on a peninsula bordered by the river and Long Creek, right across the river from Mount Holly.

The third set of force mains will be installed roughly 50 or more feet deep under the river and will connect a new pump station in Belmont to the utility's existing Paw Creek Pump Station. The distance of those bores has yet to be determined.

The two Mount Holly bores are already complete. The remaining bores are expected to be finished in 2023 for Long Creek and 2025 for the Belmont portion of the project.

Boring two force mains for each of the three legs of the project provides redundancy that allows for continuous service without disruption in case one main must be taken offline for maintenance or repairs, Bartlett says.

More efficient treatment

The project — funded by bonds that will be paid back via user fees, with no rate increase for Charlotte Water customers — made sense for several reasons. The first is an expected 50% population growth in the Charlotte metro area by 2050, to 4.5 million people from 3 million, according to a study performed in 2021 by the Charlotte Regional Business Alliance.

Without the Stowe facility, the utility would have to upgrade an extensive portion of its wastewater collections system, including replacing more than 20 miles of underground wastewater sewer lines at considerable cost and disruption to the community.

"This is a far better solution for our environment and for our ratepayers," Bartlett notes.

The Stowe facility will initially process and treat 15 million gallons

Nicole Bartlett, Engineering Division manager for Charlotte Water, at the construction site of the Stowe Regional Water Resource Recovery Facility.

"This is a far better solution for our environment and for our ratepayers."

Nicole Bartlett

PROFILE: Charlotte Water, Charlotte, NC

SERVICE AREA:
Mecklenburg County, roughly 546 square miles

POPULATION SERVED:
About 1.12 million people

WASTEWATER INFRASTRUCTURE:
About 4,526 miles of sanitary sewer mains; 5 treatment plants; 78 lift stations, 115,518 manholes; 58 flowmeters; 277 "smart" manhole covers

WASTEWATER TREATMENT CAPACITY:
Around 124 mgd

AVERAGE DAILY WASTEWATER TREATED:
Nearly 80 mgd

WATER INFRASTRUCTURE:
About 4,525 miles of water mains; 319,124 meters; three treatment plants; 18,128 fire hydrants; 13 water tanks; four pumping stations

WATER-TREATMENT CAPACITY:
174 mgd

AVERAGE WATER PUMPED:
117.5 mgd

MAIN WATER SOURCE:
Catawba River

EMPLOYEES:
About 1,050

WEBSITE:
www.charlottenc.gov

> **"This also will improve the water quality in the Catawba River and minimize wetland impacts from treated water discharges into the river."**
>
> **Nicole Bartlett**

Construction of the $380 million Stowe Regional Water Resource Recovery Facility outside of Charlotte is expected to be complete in 2026.

per day and will eventually expand to handle up to 25 mgd, which is enough to accommodate regional growth far into the future, Bartlett notes.

The new facility also will improve operating efficiency and environmental sustainability. Waste currently generated in northern Mecklenburg County must travel more than 20 miles — aided by the Long Creek and Paw Creek pump stations — to get treated at the utility's McAlpine Creek Wastewater Management Facility, the largest of the utility's five existing treatment plants.

"It's more energy efficient to treat wastewater closer to where it's generated," Bartlett says. "It'll reduce our carbon footprint because the utility will use less electricity to operate the pump stations."

Reducing the distance wastewater travels also decreases the chances of wastewater spills, she adds.

Cost-effective approach

Another compelling reason to go ahead with the project was the high cost of replacing aging wastewater treatment infrastructure in Mount Holly and Belmont. Studies performed during the planning stage of the project showed that it would be more cost-effective, efficient and environmentally friendly to build the Stowe facility and retire two treatment plans, one in Belmont and the other in Mount Holly.

"The new facility also supports Charlotte Water's philosophy of consolidating existing plants — taking a regional approach to wastewater management," Bartlett says. "This also will improve the water quality in the Catawba River and minimize wetland impacts from treated water discharges into the river."

Furthermore, the state-of-the-art Stowe facility will use a process called densification — essentially an enhanced settling process — which will more effectively process and purify wastewater to meet heightened state and federal water quality standards.

"Stowe will be the first greenfield wastewater treatment plant in the country to use densification," she says.

Essential partnerships

Mount Holly and Belmont secured Clean Water State Revolving Fund loans to pay for their portions of the project. Each community will pay for a new pump station and Mount Holly is paying for its force mains.

"Residents in those communities won't get a bill from Charlotte Water," Bartlett explains. "Each city will become a single customer

NEW FACILITY WILL FEATURE NATURAL, EDUCATIONAL ELEMENTS

When Charlotte Water's new Stowe Regional Water Resource Recovery Facility goes online in 2026, residents of Charlotte and Mecklenburg counties will get more than just a state-of-the-art wastewater treatment facility.

They'll also have access to a new 90-acre nature area adjacent to the property where the facility will be built. The area will provide access to the Catawba River and a tributary, Long Creek, and will feature an educational walking/biking trail, says Nicole Bartlett, a division manager within the utility's engineering department.

In addition, the utility will partner with two nearby schools — an elementary school and a STEM magnet middle school — to provide hands-on opportunities to learn about the Catawba River ecosystem.

The partnerships also could even spark students' interest in careers in the water and sewer industries.

"We would absolutely love that," Bartlett says. "At a minimum, it will expose students to career opportunities and instill passion for the environment. Our main objective is to protect the environment and raise awareness of water-quality issues, as well as stress the importance of protecting natural resources, so a program like this meshes very well with our values."

The walking trail will feature interactive educational components themed around protecting the river, local natural history and the role wastewater treatment plays in preserving the area's ecosystem. It also will feature an extra-wide bridge over Long Creek, which flows into the river.

To get a handle on what area residents would want included in the recreation area, located on a peninsula formed by Long Creek and the river, the utility utilized Zoom meetings, public presentations and 40,000 mailers to see what elements people felt were lacking. The feedback overwhelmingly favored a nature space, Bartlett says.

"When asked what was missing, people time and time again said there's nowhere to go to enjoy the Catawba River, especially at low cost," she says. "So we started thinking about what we could do to help that."

A crew from Michels Corp. bores a tunnel under the Catawba River to connect a new pump station in Mount Holly to Charlotte Water's existing Long Creek Pump Station.

"We're going to keep those connections functional, just in case a ton of flow would unexpectedly come down the line or if we have to do maintenance work (upstream). When the Stowe facility goes online, we'll be well-positioned to handle future growth and also will have greater flexibility with how wastewater flow is managed in our collections system." ✦

known as a significant industrial user (SIU).

"We will send a single monthly bill for wastewater treatment services to each municipality and after that, it will be up to each one to figure out how much to charge their customers and set user rates as they see fit."

Partnering with the two communities was instrumental to the project moving ahead because their state discharge allocations will eventually be transferred to the discharge permit for the Stowe facility.

"Stowe couldn't exist unless we partnered up because without their permits, there wouldn't be any allocations left for the Stowe facility to discharge treated water," she says.

Members of city councils in both Mount Holly and Belmont formally approved interlocal agreements that formalized the partnerships in 2018 and 2019, respectively.

Staggered implementation

Mount Holly and Belmont will be phased into the Charlotte Water collections system. Mount Holly is expected to start sending its wastewater to the Long Creek Pump Station by the end of 2024. But for the first two years, it will be treated either at the McAlpine treatment facility or the utility's Irwin Creek Wastewater Treatment Plant.

"That's because the Mount Holly wastewater treatment facility is in worse condition than Belmont's, so the city wanted to be taken offline earlier, before the Stowe facility is complete," Bartlett explains. "We made the Mount Holly hookup a priority so they could send waste to Charlotte Water as soon as possible."

Belmont's wastewater will initially get pumped to the Paw Creek Pump Station and then to the McAlpine facility, starting in 2006. In five to 10 years, when the Stowe facility expands enough to handle up to 25 mgd, Belmont's waste will then flow north from the Paw Creek facility to the Stowe facility.

"In the end, Stowe will end up serving all of western Mecklenburg County and eastern Gaston County," Bartlett says.

However, the Long Creek station still will be able to send wastewater to the Irwin or McAlpine treatment facilities and the Paw Creek station still will be able to send wastewater to McAlpine if needed, she points out.

We invite readers to offer ideas for this regular column, designed to help municipal and utility managers deal with day-to-day people issues like motivation, team building, recognition and interpersonal relationships. Feel free to share your secrets for building and maintaining a cohesive, productive team. Or ask a question about a specific issue on which you would like advice. Call editor Luke Laggis at 800-257-7222, or email editor@mswmag.com.

THE ART OF THE I-DEAL

Managers should embrace specialized work arrangements — with a few caveats.

By Ken Wysocky

The pandemic has changed many things over the past three years, particularly in the workplace, where untold thousands of empty office cubicles bear mute testimony to the seismic shift created by employees who either left jobs or now work remotely.

And employees who stayed on board have significantly more leverage than they did before COVID-19. Emboldened by their newfound power, they're increasingly inclined to ask for special circumstances and treatment.

Denise Rousseau and Laurie Weingart, professors at prestigious Carnegie Mellon University, have coined a name for it: Idiosyncratic deals, or i-deals.

How should managers and organizations react to these requests? If they're smart, they'll do whatever they can to meet these employee demands — with a few caveats, says Rousseau, a professor of organizational behavior and public policy at Carnegie Mellon's Heinz College of Information Systems and Public Policy and the Tepper School of Business.

"Employers used to be reluctant to offer flexibility and alternative ways of working but many have come to accept it as normal. And in truth, there's no going back."

Benefits abound

There's compelling evidence to support that stance, says Rousseau, who's spent a good portion of her academic career studying the workplace ramifications of customized work arrangements. Employees that receive i-deals are 22% more likely to say they're satisfied with their jobs and are graded 4% higher in work performance by supervisors.

In addition, i-deals can help minimize turnover — no small thing in today's pinched labor market — and make employees more productive by granting requests to eliminate certain responsibilities that aren't critical to their jobs, she says.

Moreover, i-deals can enhance managers' bona fides as supportive and nurturing bosses as well as make organizations more appealing places to work. Furthermore, i-deals are fairer than giving pay increases, Rousseau adds.

"One advantage of giving people i-deals instead of more money is you're not changing the basic compensation system, which employees use as a barometer of fairness," she points out. "Just giving people more money is unfair because the person getting more money isn't necessarily a better performer than those who aren't getting more money for doing the same job.

"So this is a troubling approach from both an ethical and a justice perspective. But if you can give employees other things to make them feel appreciated, like special training or customized work hours, that's more likely to be seen as fair by their peers."

Denise Rousseau

It's not about money

As a matter of fact, when employees request i-deals, making more money actually ranks lower than other considerations.

"Employees certainly still bargain for more money," Rousseau says. "But it's usually a secondary concern — about fifth on a list of the most common things for which they bargain."

So what do employees usually ask for? New duties with a particular focus on career development. Flexibility to accommodate burdens in their personal lives, such as caring for elderly parents, children with special needs, daycare pressures or even illness. Less traveling to reduce family pressures. Remote work to eliminate stressful and time-consuming commutes. Or even a reduction in work hours, perhaps to pursue an advanced academic degree or achieve more work-life balance.

Most i-deals are bargained by people with their current employer. But managers also can use them to "sweeten the pot" to attract new employees and get them on board quickly, since employees are harder to find these days and many human resources departments are currently understaffed and less able to help with hiring, Rousseau adds.

Transparency is critical

It's easy to understand how i-deals might be unsettling to both managers and organizations. After all, making exceptions for employees can lead to jealousy and

"Individual employees aren't exactly the same," she notes. "So offering them a little flexibility can make a huge difference in their quality of life."

Denise Rousseau

resentment from colleagues compared to a one-size-fits-all approach.

Moreover, many managers don't know the ins and outs of how to make special arrangements work and this unfamiliarity makes it easier to dismiss such requests rather than grant them.

But Rousseau refutes those rationales, noting that standardized, well-designed systems only work if they meet all employees' needs.

"Individual employees aren't exactly the same," she notes. "So offering them a little flexibility can make a huge difference in their quality of life."

Transparency is critical to successful i-deals. At staff or team meetings, managers should make a point of explaining why certain employees get i-deals approved. In addition, i-deals should only be approved for valued and high-performing employees; doing otherwise runs the risk of a negative reaction from co-workers.

The bottom line: Keeping i-deals a secret isn't a good idea, Rousseau says. (Though some things must be kept private for legal reasons, such as medical issues, for example.)

"I would use the public scrutiny test," she advises. "If you tell the person to whom you're giving an i-deal not to tell anyone else, you probably shouldn't do it. Or think about how people would react if you posted the terms of the deal on a bulletin board."

Everybody wins

The best i-deals should create a win-win-win or a win-win-no-lose situation. In other words, it should be good for the employee, good for the organization and not create any burdens for co-workers and/or clients, Rousseau points out.

An i-deal also should be perceived as fair by co-workers and should fit well into an organization's mission and values.

It's also a good idea to carry out some i-deals on an experimental basis, with periodic checks to see how they're working out. This enhances the chances the co-workers will perceive i-deals as fair because they know adjustments will be made if problems arise, she says.

On the other hand, managers should deny i-deal requests if employees are unreliable or underperformers. This offers a teachable moment where managers can explain to employees what they need to improve in order to qualify for an i-deal — effectively not saying no, just not yet.

Timing is everything

What should employees keep in mind as they try to successfully negotiate i-deals? First, it's important to do some homework and determine if other employees have been granted i-deals and what the terms were; it always helps when a precedent has already been established.

"Managers always worry about setting precedents, so doing due diligence is important," she says.

And like so many things, timing everything. Asking for an i-deal after an employee successfully finishes an important assignment can increase the odds of success. This also gives managers an opportunity to show how good work is rewarded and makes it easier for co-workers to accept because they see the i-deal was deserved.

"The completion of a successful project is the best time to ask for an i-deal," Rousseau says. "And few things are more valuable to employees than well-timed rewards and recognition." ✦

BETTER MOUSETRAPS

PROBLEM:
Producing an accurate inventory of lead service lines

UTILITY:
Smyrna Public Works Department

PROJECT PARTNER:
120Water

BENEFITS:
Effective, organized approach to Lead and Copper Rule compliance

GETTING A JUMP ON LCRR REQUIREMENTS

Smyrna Public Works finds a better way to get a handle on its lead service line inventory

By Lowell Huffman

When the U.S. Environmental Protection Agency announced the first stages of requirements for the Lead and Copper Rule Revisions in December 2021, the city of Smyrna, Georgia, decided to get a jump on mapping out its service line inventory. In early 2021, the city began organizing its approach, starting by contracting with a private company, 120Water, for a turnkey solution for lead program management.

The update to the Lead and Copper Rule, first published in 1991, is extensive. By Oct. 16, 2024, all public water systems must complete a lead service line inventory that accounts for every service line in their systems — and a plan to update that inventory going forward. A three-year compliance window is, for many public water systems, challenging at best due to small staff and small budgets.

For more than a year, 120Water helped Smyrna collaborate with other local government departments and utility offices to launch their preliminary inventory, which has put them in a prime position to be compliant by October 2024. Their success is charting the map for how to effectively mobilize a utility to comply with the new regulations and deliver safe drinking water.

High consumer expectations

Smyrna is a suburb located northwest of Atlanta in Cobb County. Its citizens are highly informed and engaged, so the Public Works Department knew it needed to get started immediately on a solid LCRR compliance plan. With a population of 55,000 and 16,000 service connections, Bo Jones, the city's assistant director of public works, did not want to wait for additional state guidance to get started and risk missing the federal deadline.

A main component of the October 2024 deadline is a service line inventory, which is a map of all lines in a water system and what they are made of. Over the life of a water system, service lines can be added or removed, often without documentation, and records become lost. Furthermore, a very small number of U.S. water system service line maps have been digitized.

While Smyrna was ahead of the game regarding certain elements, Jones was well-versed in the length of time most compliance programs take from start to finish, so his first step was to engage the services of 120Water.

Working with specialists

One way for utilities with a small staff to quickly ramp up their compliance response is to invest in a solution that can help them meet their inventory and program execution needs efficiently and effectively. To that end, the city of Smyrna asked for help from 120Water, a digital water company with software, kits and services that supports government agencies and public water systems in managing their drinking water compliance programs. With a focus on LCRR compliance management and service line inventories, 120Water was able to accelerate the city of Smyrna's compliance response.

Developing Smyrna's lead service line inventory began with data collection from a variety of sources including GIS and billing data and historical tap cards. As part of their contract, program managers from 120Water ran down every avenue to better understand the status of all 16,000 connections in the system, which culminated with the preliminary inventory. In Smyrna's case, the preliminary inventory revealed approximately 5,000 "unknowns" — about one-third of the entire system and a wildly larger number than expected. Smyrna plans to eliminate as many of those unknowns before the compliance deadline, while also immediately replacing every city-side lead pipe and connection when they find it.

Bo Jones is the City of Smyrna's assistant director of public works.

Mapping out its service line inventory was the first step in Smyrna's lead pipe removal program.

While the inventory work was being managed by 120Water, the Smyrna Public Works Department also collaborated with other departments to advance their efforts. For example, in the midst of a construction boom, they collaborated with their building codes department to require renovations of greater than 50% of a building, including teardowns/rebuilds, to replace their service line, a practice that was not codified previously. This already has resulted in more than 100 service lines being updated to current standards, having a reductive impact on inventory "unknowns."

The EPA has prioritized schools and daycare centers in the LCRR, so the city of Smyrna sent its first batch of test kits to all such buildings in the system to test their service lines. To date, 80% of these facilities have participated in the testing program.

Under LCRR, unknown service lines must be classified as lead until the material of the line can be validated using an accepted method. So, to tackle the long list of customers with an unknown lead service line status, 120Water deployed a residential testing campaign using a multi-liter method. Sequential sampling allows Smyrna to detect if there is a lead line present on the public or private-owned portions of the line, or both, and is a significantly less invasive method compared to potholing or excavation. Jones knew his community would not be agreeable to their lawns being torn up and wanted to ensure he had the community on his side throughout his inventory efforts.

The testing program, which is now underway, includes an educational postcard informing customers of the need to test for lead pipes, followed two weeks later with a free testing kit delivered to their doors. Customers are encouraged to take water samples and send them back to the utility — at no charge. A $25 billing credit is offered to encourage customers to complete the test.

To differentiate between lead coming from customer supply lines vs. city pipes, the testing kits instructed customers to fill five 1-liter bottles after waiting at least four hours without using water. The bottles are then returned postage-paid to an EPA-approved testing site and results are sent from the lab directly to 120Water's digital platform, where Smyrna officials can login to view the results. With this method, the utility ensured that water from both the home's piping (first liter) and the city's piping (fifth liter) would be tested, helping to narrow down the source of any lead detected.

Funding challenges

The potential costs for the inventory and line replacement can be daunting, especially for small water systems. The Association of State Drinking Water Administrators estimates that the revisions could add five million hours of workload for systems over the next five years and cost more than $47 billion to enact.

For Smryna, the worst-case scenario — replacing all city-side supply lines — would be an approximately $12 million price tag. This incentivized the utility and the city of Smyrna to invest in getting help with the LSL inventory, which would identify a significant portion of lines that would not need replacing. Using 120Water would cost the city of Smyrna a tiny fraction of their worst-case scenario. In fact, verifying service line materials rather than assuming replacement for 5,000 lines

has resulted in a 1,200% savings to date.

To pay for inventory support from 120Water and subsequent lead service line replacement, Public Works allocated a portion of its own operating budget and successfully requested a capital improvement line from the city of Smyrna. The department also applied for and received a $4 million federal American Rescue Plan Act grant due to eligibility as an infrastructure improvement project. Going forward, the city of Smyrna plans to apply for funds from the recently enacted Infrastructure Investment and Jobs Act (also known as the Bipartisan Infrastructure Law), which includes $15 billion for lead remediation.

Lessons learned

For most water utilities, mapping their service lines and identifying all lead service lines will be an enormous project, made even more challenging by the requirement for it all to be publicly available. Getting expert help is paramount to both the quality of work and meeting the compliance deadline.

The work is arduous, and utilities shouldn't delay in getting started. For most public works departments and water utilities, the LCRR is not the only priority staring them in the face, and yet missed compliance deadlines mean fines. Departments and utilities need to act together and act now to jump-start their LCRR compliance effort. Don't wait on final state guidance, Jones advises, because doing so will likely not give your utility enough time to complete its LSL inventory.

> **"The process will take much longer than you think, so starting early and getting professional help is critical."**
>
> **Bo Jones**

"Get started immediately," Jones says. "The process will take much longer than you think, so starting early and getting professional help is critical."

While doing the inventory, take advantage of the opportunity to get as granular as possible, documenting every detail available to you, such as precise physical addresses, line replacement and/or repair dates and detailed pipe material notes. The more documentation you do now, the better off you'll be down the road.

Significant federal funds are available from both ARPA funds (which must be obligated by December 31, 2024) and the Infrastructure Investment and Jobs Act/Bipartisan Infrastructure Law. Portions of these federal funds are designed expressly to help utilities improve their systems and comply with regulations, so utilities should take full advantage of the opportunity to get grant assistance. Each state also has unique funding opportunities for water systems, so be sure to check with regulators on state and local funding avenues.

Eligibility for accessing these funds, however, depends on certain digitalization requirements and in some cases, a fundamental understanding of existing lead service lines. States are starting to announce assistance programs to help water utilities make the necessary investments to be eligible for federal funds. And even if your state isn't yet offering assistance, apply for federal aid anyway.

"When you apply for federal funds, be human," Jones says. "Help them get to know your community as people, sharing details of the challenges your neighborhoods face and how the ARPA or BIL funds would make a positive impact on human lives." ✦

Lowell Huffman is the director of partnerships and business development for 120Water.

PREPARED FOR ANY STORM

Investing in staff development helps coastal utility stay ahead of problems

By Giles Lambertson

One can't look long at Mount Pleasant Waterworks without seeing a pattern of responsible management. The South Carolina utility has a penchant for positioning itself to function reliably.

General Manager Allan Clum doesn't take the credit for the utility's performance — in fact, he generally attributes it to his staff. After all, Clum has only been in charge since July 2021. However, he was a Waterworks staffer himself, beginning in 2006 when he was hired to manage the utility's laboratory. The lab scientist eventually was promoted to manage wastewater, then operations, then the entire organization — another pattern worth noting.

Inside jobs

Much of Mount Pleasant's underground infrastructure dates from the 1990s when the Charleston suburb doubled in size. Most of the town's water and sewer pipe is PVC or ductile iron and generally in good shape, according to Clum.

Yet keeping a thousand miles of sewer and waterlines (the typical water main is 8-inch pipe), 164 wastewater pump stations and 4,100 hydrants performing at a high level is a challenge. The utility budgets between $20 million and $30 million year for maintenance and capital projects, most of which the Waterworks crew takes on itself.

"We sort of have a philosophy here," says the 48-year-old general manager. "Any task related to sewer and water, we can do as well as anyone else. We take pride in really trying to do any needed work ourselves. That offers us the best control of a project and at a better price most of the time."

> **"Any task related to sewer and water, we can do as well as anyone else. We take pride in really trying to do any needed work ourselves."**
>
> **Allan Clum**

To that end, crews have at their disposal a variety of Caterpillar equipment along with a Vacall AJV 1215 jet/vac truck with a 12-cubic-yard debris tank and 1,500-gallon water tank, and a US Jetting combo unit.

To check pipe conditions before and after cleaning, they have an inspection van outfitted with CUES camera equipment. If their inspection shows damaged-but-repairable pipe, they contract the lining work.

One such project was the connecting of the water systems of Mount Pleasant and Charleston via a pipe threaded under the Intracoastal Water-

Carlos Smalls connects a vacuum tube extension while cleaning a wastewater wet well for Mount Pleasant Waterworks in South Carolina.

way to nearby Sullivan's Island, which is part of Charleston's water system. The project followed a South Carolina environmental agency's ruling that Mount Pleasant reduce the amount of water it draws from the Charleston Aquifer.

The project gave Mount Pleasant its third point of delivery to an alternate source of water and each community a water backup in emergencies — again, redundancy and resiliency. The town and city split the $8.5 million cost of the project. It involved boring a tunnel some 90 feet beneath the Intracoastal Waterway using a horizontal directional drill and pulling back 5,000 feet of 18-inch-diameter steel pipe.

The project is evidence of the utility's good relationship with area water systems, including Charleston, where Clum worked for a while. "I have personal relationships there and the two utilities are invested in each other," he says. "We have a 30-year reciprocal agreement with the city for water purchases as needed. Both utilities have benefited from the relationship."

Mount Pleasant Waterworks is a separate entity from the town, so maintaining a working relationship with the town government also is essential. The utility's governing board includes the mayor, a councilman who heads the water supply committee, and five publicly elected board members. "We have very good relations with the town," Clum says, including cooperation on capital projects. "Our engineers meet frequently with the town engineering team."

PROFILE:
Mount Pleasant Waterworks, Mount Pleasant, South Carolina

POPULATION SERVED:
100,000 population; 45,000 water/sewer connections

AVERAGE WATER DEMAND:
9 mgd

SERVICE AREA:
52 square miles

WATER SOURCE:
5 deep wells

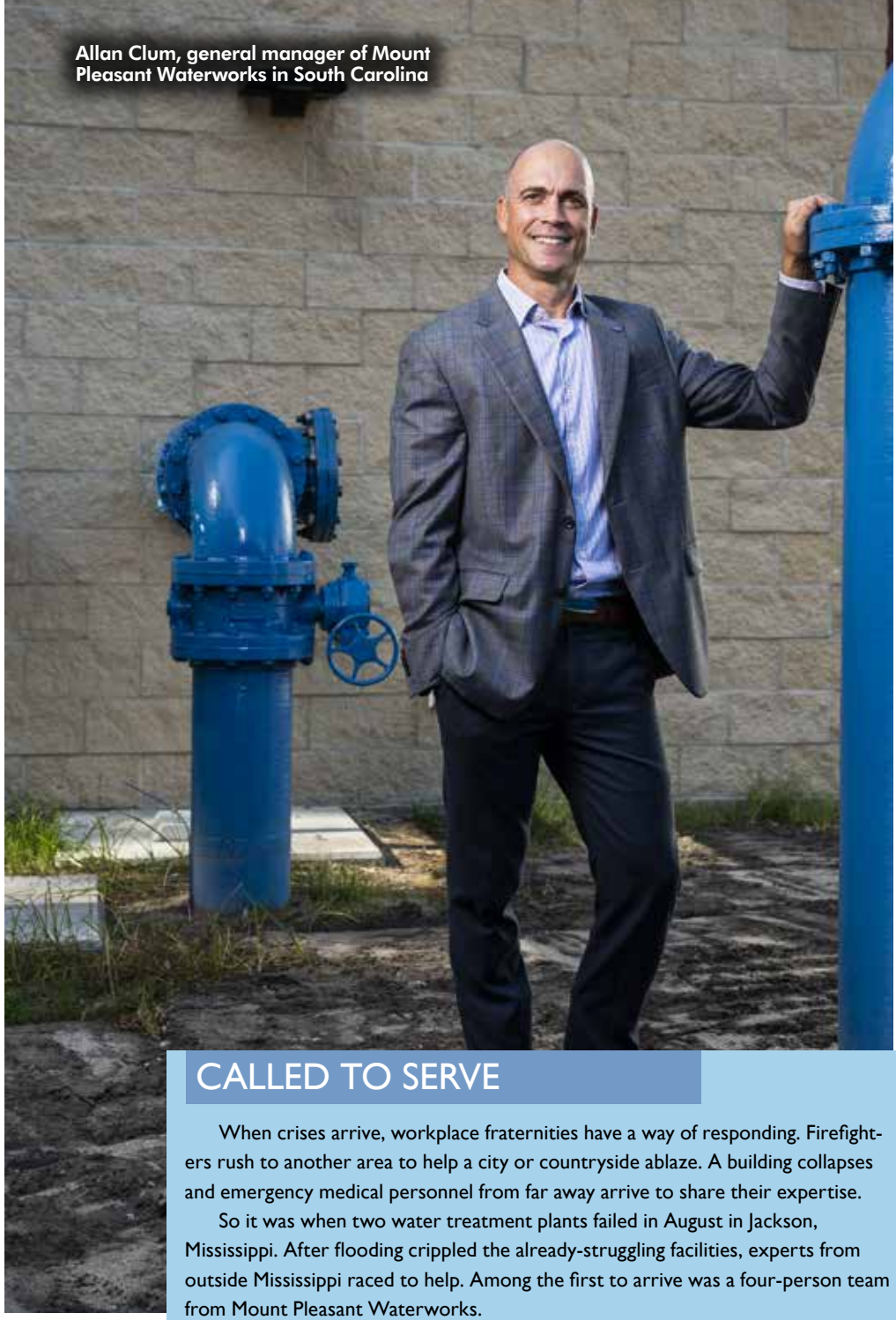
WATER INFRASTRUCTURE:
560 miles of waterlines, 8 water storage tanks with total capacity of 12 mg, 4,100 hydrants, 4 reverse osmosis treatment plants with 12.5 mgd production capacity.

WASTEWATER INFRASTRUCTURE:
500 miles of sewer line, 164 pump stations, two treatment plants with capacities of 3.7 mgd and 9.2 mgd.

EMPLOYEES:
161

WEBSITE:
www.mountpleasantwaterworks.com

> **"We are well-equipped and experienced with storms. We really didn't have any major issues."**
>
> **Allan Clum**



Allan Clum, general manager of Mount Pleasant Waterworks in South Carolina

Well equipped

The Lowcountry is vulnerable when ocean storms come ashore. Hurricane Ian struck Mount Pleasant Sept. 30 as a Category 1 storm, having expended much of its energy across Florida the previous two days. Despite 85 mph winds that created 3- to 6-foot surges of seawater, the community was not severely damaged.

Clum says the utility took the storm in stride. "We did close the office for three days, but we're pretty accustomed to hurricanes and emergency operations." Though half of the sewer system pump stations lost power, backup generators kicked in as programmed and kept sewage moving. "We are well-equipped and experienced with storms. We really didn't have any major issues. I think we managed the storm very well."

The surge of ocean water had no impact on the town's water supply. While the utility does purchase treated surface water from Charleston Water System, most of its water is still pulled from the Charleston Aquifer some 2,000 feet underground, far away from disruptive storms. Clum is a South Carolina native and recalls when Hurricane Hugo — a Category 5 storm — battered the Charleston area in 1989 and pine trees were blown into reservoirs and tainted the water. That wasn't a factor in 2022.

Mount Pleasant Waterworks does serve a couple of hospitals — critical-need customers. The utility makes sure that such customers have uninterrupted water and sewer service during and after storms. Because the town is a residential suburb, with no industries aside from a craft brewery, the utility generally isn't pressured to meet industrial water demands.

"The revenue side of the house might enjoy some industrial base load, though," Clum quips, acknowledging the upside of having industrial customers to worry about. The town's residential customers are not taxing the system — half of them using less than 3,000 gallons a month. Mount Pleasant Waterworks' average residential bill is $74.

Ice storms visit the region periodically, with one of the worst striking a half dozen years ago. That storm uncovered an ironic weakness in the town's water system. Waterworks built its reverse osmosis water treatment plants in four areas of the town and interconnected them for resiliency and to better serve the system. The conscientious spacing of plants became problematic when roads got icy.

"In the ice storm, our biggest concern became moving equipment along the streets to reach the treatment plants," Clum recalls. "A geographically dispersed treatment system became a problem for us because we couldn't drive to them." While operating the plants remotely proved

CALLED TO SERVE

When crises arrive, workplace fraternities have a way of responding. Firefighters rush to another area to help a city or countryside ablaze. A building collapses and emergency medical personnel from far away arrive to share their expertise.

So it was when two water treatment plants failed in August in Jackson, Mississippi. After flooding crippled the already-struggling facilities, experts from outside Mississippi raced to help. Among the first to arrive was a four-person team from Mount Pleasant Waterworks.

The South Carolina utility sent two water plant operators (Graham MacDonald and Raoul Edjoo) and two water pump professionals (Jerrard Pusha and Quinn Tolbert).

The call for assistance came to Mount Pleasant from South Carolina emergency response agencies. Costs associated with the volunteer missions are covered by federal agencies, but the utility sending the volunteers is left to deal with any disruption of service back home.

Mount Pleasant Waterworks' proffered help was not the first time the utility has responded to such emergencies, according to General Manager Allan Clum. He credits the utility's cross-training with giving it the ability to flex and cover the temporary absence of its employees.

The good news: On the last day of October, federal Environmental Protection Agency officials declared water from both treatment plants in Jackson safe for human consumption. Job completed — partly because Mount Pleasant Waterworks showed up.

to work, the inability to have eyes on the process caused consternation.

In any event, with monster hurricanes not the rule and freeze-thaw damage to waterlines not an issue, focus is on two long-term concerns.

One is the future need to increase the quantity of water available to the system. A partial remedy is to grow the water reuse program. Nonpotable treated water currently is used to irrigate ballfields in the town's sports complex. Reusing treated water in potable situations — for cooking and drinking — is the focus of pilot studies, but there is no timetable for it being a significant factor in the system's potable water supply. More urgently, the town is looking at tapping a second aquifer.

The second issue is closer to finding resolution: a long-term plan to accommodate biosolids. In Mount Pleasant, the nutrient-rich organic material is generated by two wastewater treatment plants with the combined capacity to process nearly 13 mgd of sewage.

"We have to do better with our biosolids," Clum says. "We are landfilling it now, but that's not sustainable and not the right answer. Land application has its own concerns. We're partnering with others to come up with a regional solution."

A regional authority has been formed to locate a site for a solids-handling center. What is envisioned is the waste material eventually feeding several processes, including a compost operation, anaerobic digestion, natural gas production and even a pelletized product.

Building culture

The most important relationships are within an organization and Mount Pleasant Waterworks has "a very long history of longevity of employees," Clum says. He attributes it to the utility's family culture. When he became general manager, he built on that culture.

"Coming in, the most important thing to me was the workforce," he says. "It was my first initiative. Putting people in the right places. Cross-training. Getting our bench strength as robust as it could be. People understood that we were investing in and taking care of them."

Having worked his way up through the ranks, Clum wanted to facilitate similar movement in team members. In his first year as general manager, the utility had 35 internal promotions out of 161 total employees. "What was really cool about that was, overall, we saved $200,000 by consolidating and realigning staff," he says.

> **"People understood that we were investing in and taking care of them."**
> **Allan Clum**

"The women and men on the staff are solving problems every day. We need to give them tools and encouragement. My general philosophy is, if we take care of staff, the staff will take care of our customers."

The general manager says the investment in utility staff, including cross-training, has resulted in a culture in which people have a desire to learn. The message the environmental scientist-turned-manager routinely sends to his team members is simple: Show up and work hard.

"I often say the key is, if you show up mentally and physically, there will be opportunities for you here." ✦

FROM TOWER TO REEF

Shortly after Allan Clum became general manager of Mount Pleasant Waterworks in 2021, he was handed a controversy.

An iconic water tower dating from 1934 that was utilized only as a cellular tower had become dangerously unstable. Though repairing the 100,000-gallon tower would cost about a million dollars, residents of Old Village, an historic area in the South Carolina town, resisted removing it from their skyline.

"It was very controversial, and there I was in my first month on the job and tasked with finding a solution," Clum recalls. Ultimately, the utility team preserved the tower. Sort of.

Collaborating with other agencies, the tower indeed was taken down. However, as a compromise, it was towed 8 miles out to sea, along with some old barges and other metalwork, and sunk 60 feet to the ocean floor.

While it thus is out of sight, it will not be out of mind: The tower helped create an artificial reef that will provide habitat for several varieties of fish — and an annual fishing tournament at that location will be staged.

All in all, Clum is satisfied with how the matter was resolved. More important, the solution was widely applauded in the community and won a National Environmental Achievement Award.

"The tank had to come down and everyone was upset at first, but we perpetuated our environmental mission. That reef will function as habitat for sea life for a long time."

Andrew Hitchcock and Joseph Hammock do a routine valve inspection in a residential area of Mount Pleasant.

TURNING PRESSURE INTO POWER

Rocky Mountain utility will use hydroturbines to take advantage of elevation change

By Steve Lund

Having its main water supply at a high elevation has always been a mixed blessing for Pueblo Water.

There is no need to pump the water to the plant because it flows downhill, but it comes in at a much higher pressure than the treatment process can handle.

The solution for many years has been pressure relief valves, but now the utility, at the base of the Rocky Mountains, is looking to turn that pressure into electricity, installing two hydroturbines to capture the power of the high-pressure flow.

"With the elevation difference, the water coming into our treatment plant is somewhere around 85 psi," says Matt Trujillo, director of operations. "When we originally installed the raw water pipeline from the Pueblo Reservoir, about five miles of pipe, we had to install energy dissipation through a pressure dissipation building.

"We have three valves that have been in operation since 2003 that break that 85 psi down to 10 to 12 psi so it's able to go through the treatment process. Now we can use that high pressure to our advantage to create power."

This 1.0 MW Gugler hydroturbine, along with a 0.5 MW unit, will be installed at Pueblo Water's Whitlock Water Treatment Plant.

> **"We've been looking at this for 15 years. The biggest hurdle was more on the regulatory side."**
>
> **Matt Trujillo**

Old system remains

The pressure relief valves, in a 30-by-30-foot building, get the job done, but they don't do it quietly. "You drive by and you can just hear the wasted energy, the noise and vibration coming out of there," Trujillo says. The hydroturbines will be installed in parallel to the existing pressure-dissipation plumbing, so the old valves can still be used if needed.

"A majority of the flow will be directed through the turbines," says Trujillo. "If we need supplemental flow, or if we have to take down the turbines for maintenance, we can still run through the pressure dissipation building." Pueblo's Whitlock Water Treatment Plant, with 84 mgd capacity, has average flows of 22-25 mgd in summer and 10-12 mgd in winter.

Significant savings

The utility purchased 1.0 MW and 0.5 MW hydroturbines. Peak generation is expected to be 835 kW, and annual energy production is projected at 3,500 MWh. "That's a relatively small fraction of what we use," Trujillo says. "It's probably in the 10-20% range." Neverthe-

less, it's a significant savings — an estimated $400,000 a year when coupled with other metering changes.

The plant's raw water comes in through a 66-inch pipe buried about six feet underground. The turbines will be connected to that pipe underground, and the connecting pipes will come up through the floor of a new building. The pipes will then turn horizontal and run through the turbines. Then the water will be piped back underground to connect with the supply pipe that feeds the treatment plant.

The smaller turbine will be used in winter, when water demand is lower. Although it won't produce as much electricity, it will run more efficiently. In summer when the flow is higher, the water will flow through the larger turbine.

Pueblo Water serves a large distribution area (580 miles of buried pipelines) at a variety of elevations, so it has multiple pressure zones and storage tanks. "We try to get a healthy pressure for everybody in town, 40 to 100 psi," Trujillo says. "The only way to do that is to move water to secondary storage tanks."

That creates a substantial power demand for pumps and motors to move the water through the system; the new hydropower will help meet that demand.

Long time coming

Trujillo always thought generating power from the water supply pressure was inevitable, but it hasn't been a smooth road: "We've been looking at this for 15 years. The biggest hurdle was more on the regulatory side. When we got really serious, we called in a professional."

Although the Lake Pueblo Reservoir from which the utility draws most of its supply is managed by the federal Bureau of Land Management, the permit for the hydropower project came from the Federal Energy Regulatory Commission.

Pueblo Water has already purchased the turbines, but the project has been delayed because the installation cost exceeded original estimates. "We did the procurement for the turbines ourselves, and next we sent out for bids for the construction," Trujillo says. "Costs came back quite a bit higher than we expected. Now we are working to minimize the amount we have to contract out."

He estimates construction will begin late in 2022 and take six to eight months, if there are no material shortages. "On paper it looks simple," he says, "but it's a little complicated to have all the equipment in place where we're taking power generated on site, blending it with power coming from the municipal electric company, and making sure the power we generate doesn't go back onto their grid, causing them potential issues."

Once this project is fully operational, the generators will make noise, of course, but not as much as the energy dissipation valves. And when people hear noise as they drive by the treatment plant, it will be the noise of energy produced — not wasted. ✦

LOOKING OUT FOR EACH OTHER

Workplace safety requires everyone on the team to do their part

By Ronnie Freeman

Am I my brother's keeper? That was the first thing uttered by Cain after he killed his brother Abel in the book of Genesis in the Bible. It's a question that's been asked many times since and has a direct correlation to workplace attitudes toward safety. This sentiment is often presented in the phrase "that's not my job," which basically says the same thing.

When it comes to workplace safety, we'd certainly better be our brothers' keepers. Since we spend on average eight-plus hours a day with each other and develop bonds over time, we have to be able to depend on our co-workers. We need to go the extra mile to look out for each other and speak up when something isn't safe.

OSHA has some regulations that make it a requirement to keep a watchful eye on one another. These watchful positions are generally set up for high hazard situations and activities.

The positions include the competent person, confined-space attendant, work zone flagger and fire watch.

Competent Person

OSHA defines the competent person role as "one who is capable of identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them."

Situations where a competent person should be available include work zones, confined spaces, fall hazards, scaffold erection, cranes and trenching and excavation work. Generally, the competent person is authorized by the employer to ensure safety on a job site and has the expertise to recognize those hazards that need immediate attention and lastly can shut the job down until the hazard is corrected.

Confined-Space Attendant

When entry into a permit-required confined space is needed then OSHA requires that an attendant be present the entire time another employee is in the space. There can be several hazards or potential hazards present in a confined space and the primary role of an attendant is to watch the entrants and alert them when they need to leave the area due to a potential hazard. The attendant can also be responsible for calling emergency services when there has been an incident or employee that has succumbed to the hazards that might be present in the confined space. The attendant will also monitor the meter being used to ensure the atmosphere is safe.

Work Zone Flagger

Like the confined-space attendant, this responsibility can be a little mundane at times, but that does not mean it isn't an important role in a work zone. In fact, it is the most important role at a work zone. Flaggers need to be highly trained because they are responsible for the safety of the entire work zone including fellow employees. They must also guide traffic through the work zone. Should there be a wayward vehicle, the flagger needs to be able to communicate to their fellow workers in a timely manner so that they can respond and get to a safe place. The flagger also needs to be able to move quickly, so this isn't a position for someone with an injury or disability.

How would you feel if you didn't speak up and your co-worker got seriously injured?

Fire Watch

The main responsibility of the fire watch person is to ensure that the area is safe from fire hazards. Generally, when another worker is conducting hot work, the fire watch is necessary. Welding, burning and grinding can produce fire related hazards. If there are any flammable substances within 35 feet of the hot work, then a fire watch is necessary. The fire watch is also responsible for making sure that firefighting equipment is ready and available should a fire start. At the end of the task, the fire watch needs to stay in the area for 30 minutes to ensure a fire doesn't start after the work is completed.

Again, these are the OSHA-required positions that have us watching out for each other. However, there are many other reasons to watch your fellow employees to make sure safety is a priority every day. Don't let complacency or apathy cause you to miss an opportunity to watch your co-worker's back. Be willing to speak up because you might be saving a co-worker's life, or at least preventing an injury from occurring.

When we are convinced that watching out for each other is the right thing to do, it's easier. How would you feel if you didn't speak up and your co-worker got seriously injured? Don't let that be you. Always be your brothers' and sisters' keeper. ✦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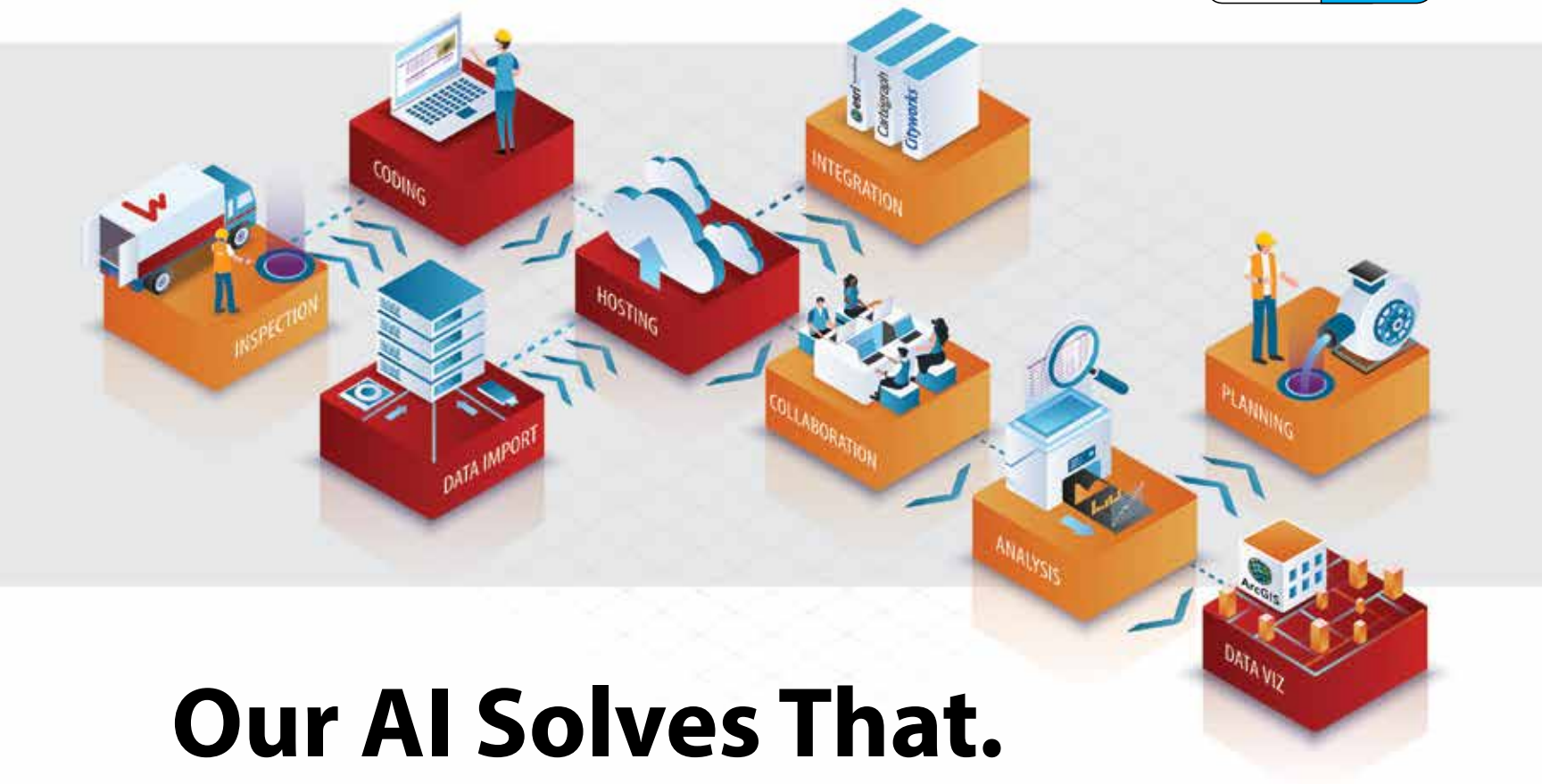

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A COLLECTIONS SYSTEM'S SILENT KILLER

Knowledge and awareness are keys to getting a handle on I&I

By John Manijak

National studies have shown that laterals contribute as much as 50% to more than 80% of a system's I&I.

You've heard the phrase "I&I," but do you truly know how much they influence your collections system daily and, ultimately, how they determine where the increased budget you are going to need will be spent? Like a pandemic, I&I starts off small and silent but, if left uncontrolled, they will become the most influential factor on the operation, maintenance and condition of a system.

So, let's define it. The term "I&I" stands for "inflow and infiltration." Inflow is the surface water that enters a wastewater collection system through roof, yard and footing drains. It also comes from storm drain cross-connections and openings in manhole covers. Where does the surface water come from? It is a result of rain, snowfall and spring melt events. Inflow is the immediate injection of that excess water into a system. It can be easily identified on a sewer flow monitor as that initial high point during and shortly after such events.

Infiltration is groundwater that enters a wastewater collection system through holes, cracks, fractures, open joints, break-in connections or dead-end, open pipes — anywhere water can find its way in. This includes not just the mainlines but also manholes and laterals. Infiltration originates from surface water that is filtered through the ground. It can also come from other sources such as natural springs, lakes and leaking water mains.

According to ASCE's 2021 Report Card for America's Infrastructure, the U.S. wastewater footprint includes 800,000 miles of public sewers, 500,000 miles of private sewers and approximately 21.6 million manholes. This vast system was installed within interconnected trenches that form a superhighway for groundwater, allowing it to easily flow throughout and encapsulate underground pipe systems seeking open points to enter.

There is a twofold detrimental effect caused by I&I. First is the initial impact of a surge of water into a treatment system, contributing to sanitary system overflows and an outpouring of capital funds needed to treat this excess water. The long-term effects of I&I on a system are less obvious. If you are monitoring charted sewer flow data before, during and after an event, your actual flow has an initial quick increase followed by a gradual return to a normal level. This is inflow. On the other hand, infiltration is hidden within what is known as the normal flow level. As water flows within the trench and enters the system it breaks down and carries with it bedding materials contributing to sewer debris and the long-term destabilization of a pipe system due to the loss of trench backfill. Over time, pipes begin to shift and eventually break, leading to other costly situations in the form of blockages, emergency repairs and replacement.

A classic example of the amount of clean water that you are unnecessarily treating because of infiltration is this: If you have a 300-foot section of sewer pipe with 3-foot joints (100 total), and 10% are leaking at 0.25 gallons per hour, the excess amount of water in that section is 2.5 gallons per hour or 60 gallons per day. Over 365 days the total amount of excess water has reached 21,900 gallons for that single section of pipe. And this older analysis doesn't include the No. 1 contributor to I&I. National studies have shown that laterals contribute as much as 50% to more than 80% of a system's I&I. It also does not include manholes and cross-connections.

Where do we begin? Cutting the head off this two-headed snake may not be a priority for you yet because you may be planning a multi-million-dollar plant expansion or too busy chasing down sanitary sewer overflows and pipe failures. But knowledge and awareness are keys to a good start.

This is the first article in a series from NASSCO's ICGC committee focusing specifically on infiltration in the collection systems — mainlines, laterals, lateral connections and manholes.✦

John Manijak is a member of NASSCO's infiltration Control Grouting Committee.

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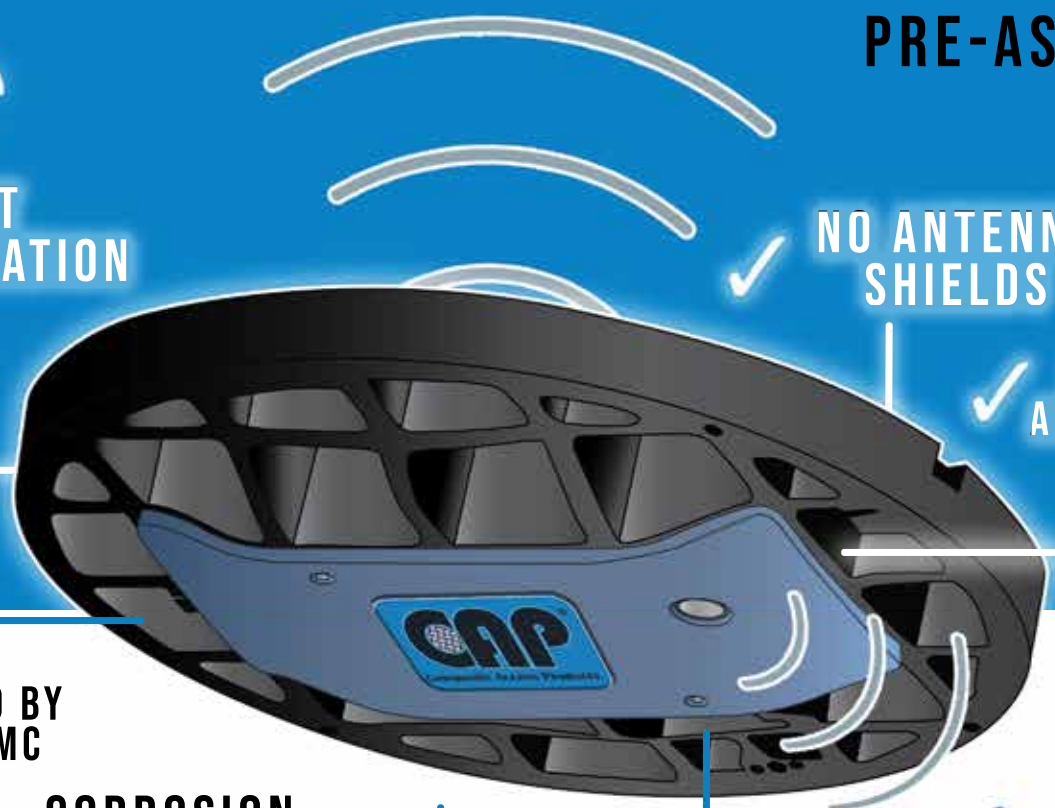

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REGIONAL EXCHANGE EVENTS RETURN

Municipalities, contractors, engineers and others come together to learn from NASSCO leaders and each other

By Sheila Joy

NASSCO is located at 5285 Westview Drive, Suite #202, Frederick, MD 21703; 410-442-7473; www.nassco.org

Sheila Joy is executive director of NASSCO. She can be reached at director@nassco.org.

For many years, NASSCO identified the need to bring education and networking to local communities throughout the country. While the spring Annual Conference and fall membership meeting at WEFTEC bring together the majority of NASSCO members, an opportunity to share ideas and industry trends on a more regular and regional basis was needed.

In 2019 NASSCO launched the first-ever regional NASSCO Exchange event in Detroit, Michigan. Titled "The NASSCO Motor City Exchange," the one-day event brought together local municipalities, contractors, engineers and others aligned to the industry to learn from NASSCO leaders and each other. The intention was to host these educational events regularly throughout the year, but COVID presented an unanticipated pause to this plan.

Luckily, 2022 opened the door to reinstate these events with two hosted last November. The first event found us back in Detroit on Nov. 3 with the 2022 Motor City Exchange, hosted by Doetsch Environmental Services and held at the beautiful Lovett Hall on the grounds of The Henry Ford Museum. The second Exchange event, the 2022 Circle City Exchange, was held Nov. 15 in Indianapolis at the NCAA Hall of Champions. This event was hosted by Inliner Solutions.

The curriculum for each event was based on some of the top accomplishments of NASSCO committees from 2021:

- NASSCO's Government Relations Committee provided an overview of federal and state funding of underground infrastructure and a guided discussion of the Build America, Buy America Act and how it impacts the underground infrastructure industry.
- NASSCO's Infrastructure Condition Assessment Committee shared 2023 updates to NASSCO's Pipeline Assessment Certification Program Version 8, which will include coding for pressure pipe as well as a review of the committee's recently released PACP QA/QC document.
- NASSCO's Infiltration Control Grouting Committee walked attendees through the committee's Grouting Unified Safe Operating Practices Program and introduced a new online exam available to test an individual's basic knowledge of grouting safety. The findings of a test cell research study on grouting were also shared.
- NASSCO's Pipe Rehabilitation Committee shared a video on the basics of spiral wound technology and reviewed the features and benefits of spiral wound technology based on the NASSCO Spiral Wound Pipe Liner Performance Specification Guideline which was released in 2021.
- NASSCO's Pressure Pipe Committee provided an overview of various trenchless rehabilitation technologies available for force mains and reviewed a matrix of pressure pipe rehabilitation options which details structural classifications, diameter ranges, typical values and more.
- NASSCO's Health and Safety Committee shared recent concerns regarding styrene used in the cured-in-place process and presented findings from third-party research results to date, along with specific recommendations to keep workers and the environment safe.

The one-day events allowed attendees to earn CEU/PDH credits and were presented in a format that encouraged participants to test their knowledge and exchange ideas. The events were made possible by NASSCO member sponsors Doetsch Environmental Services, Inliner Solutions (Gold Sponsor), Phoenix/PipeLogix, SAK and Vortex Companies.

If you are a NASSCO member and would like to host a future NASSCO Exchange event in your town, please contact me at director@nassco.org. For information on attending future NASSCO events, please visit nassco.org/events. To download free specifications and other technical resources, please visit www.nassco.org. ✦

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Feb. 1, 8 am EST
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Trainer: Brandon Comley

Feb. 7, 8 am EST
Pittsburgh, PA
Includes: PACP, MACP, LACP
Trainer: Michael Kerr

Feb. 23, 8 am MST
Virtual
Includes: PACP
Trainer: Brandon Conley

ITCP TRAINING

Feb. 2, 8 am CST
Virtual
Includes: ITCP-CIPP
Trainer: Michael Lukas

Feb. 7, 8 am PST
Carson City, NV
Includes: ITCP-CIPP
Trainer: Rocky Capehart

Feb. 9, 8 am PST
Virtual
Includes: ITCP-CIPP
Trainer: Michael Lukas

Feb. 9, 8 am PST
Carson City, NV
Includes: ITCP-Manhole Rehab
Trainer: Rocky Capehart

Feb. 15, 8 am EST
Virtual
Includes: ITCP-Manhole Rehab
Trainer: Tim Back

Feb. 16, 8 am EST
Virtual
Includes: ITCP-CIPP
Trainer: Lou Krch

Feb. 23, 8 am CST
Virtual
Includes: ITCP-Manhole Rehab
Trainer: Rocky Capehart

Mar. 14, 8 am CST
Virtual
Includes: ITCP-Manhole Rehab
Trainer: Tim Back

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OTHER CLASSES FORMING
Contact one of the trainers listed above if you are interested in having a class at your facility or in your area.

PIPELINE AND INFRASTRUCTURE, HYDRANTS

By Craig Mandli

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Hydrant/Component

1. Echologics EchoShore-DXe Leak Monitoring Sensor

The **EchoShore-DXe** acoustic leak monitoring sensor from **Echologics** is a valve-based sensor that extends the leak monitoring capabilities of the EchoShore-DX system. The sensor can attach magnetically to various appurtenances, including valves, boundary boxes, and underground hydrants — and works in tandem with the EchoShore-DX hydrant-based sensors — so utilities can get coverage where they need it. The sensor performs a scheduled, systemwide correlation to monitor, detect and locate leaks — even small and growing leaks. Sensors have 10-year battery life and support communications via LTE Cat-M1 and Narrowband Internet of things (NB-IoT) networks. Both the hydrant-based and valve-based sensors work together to provide optimal sensitivity and reliability.
866-324-6564; www.echologics.com

Pipe

2. REHAU MUNICIPEX reclaim pipe

REHAU's MUNICIPEX reclaim pipe is intended to facilitate water conservation through transporting nonpotable reclaimed water from the graywater treatment plant to point-of-use applications. Graywater reuse provides a drought-proof water source that eases water scarcity concerns and lightens the demands placed on alternative water sources. MUNICIPEX reclaim is meant for use across various markets aiming to participate in graywater reuse, such as irrigation and recreation, industrial applications, fire protection service, residential homes and commercial buildings.
800-247-9445; www.rehau.com

Pipe Parts/Fittings

3. AGRU America PE Pipes and Fittings

AGRU America offers pipes and fittings made from polyethylene 100/4710 for durability and corrosion/abrasion resistance, used in many municipal and industrial applications. Products include large-diameter pipe, HDPE pipe fittings, Mine-Line pipes, electrofusion fittings and equipment, ball valves, metric solutions, and semi-finished products. Product benefits include long-term service life and reduced operational costs, superior flow and weight characteristics, manufacturing in both butt fusion and electrofusion fittings, and proven performance in gas, water, industrial and municipal applications. **800-373-2478, www.agruamerica.com**

4. Dallas Specialty & Mfg. Shielded Pipe Couplings

Dallas Specialty & Mfg. manufactures a large variety of **Shielded Pipe Couplings** in sizes ranging from 1 1/2 to 60 inches in diameter. They are designed for sewer and drain piping systems. Where a connection requiring extra rigidly, such as a deep burial or where the soil moves a lot, the Shielded Flex Coupling will provide a strong connection. Couplings are a low- to no-pressure fitting and approved for above or below ground appli-

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cation, including under sidewalks and driveways. They transition any piping material to any dissimilar piping material of any size. The four hose clamps on the shielded coupling are 60 psi torque bands, providing a tight seal on the pipe. **800-222-5644; www.dallasspecialty.com**

Pumps

5. A.Y. McDonald E-Series DuraMAC Water Pressure Booster System

A.Y. McDonald's E-Series DuraMAC Water Pressure Booster System comes complete with easy setup instructions, all metal connections, a half-gallon pressure tank, and check valve. In addition, users experience a quiet operation due to the TEFC single phase motor. Designed to shut off when no flow is detected, this solution gives an extra boost to water pressure. **800-292-2737; www.aymcdonald.com**

6. Boerger BLUEline Nova Rotary Lobe Pump

The **BLUEline Nova** rotary lobe pump from **Boerger** sets new standards in pump technology and achieves ideal volumetric efficiencies. The newly developed DIUS rotors combined with a flow-optimized pump chamber ensure smooth running even at high pressures. It is available with or for the first time without a casing protection. **612-435-7300; www.boerger.com**

7. Crane Pumps & Systems Barnes RAZOR

The 2 hp **Barnes RAZOR** grinder pump from **Crane Pumps & Systems** is suitable for light commercial and residential solids-handling applications. It is designed with axial cutting technology to reduce solids like flushable wipes, diapers and other nonbiodegradable items. Maintenance is convenient with only a single tool needed for disassembly. The plug-and-play cord also provides easy servicing without requiring removal of epoxy in the conduit. Its 1.25-inch discharge is suitable for preconfigured packaged systems and turnkey solutions. It is available in the Barnes EcoTRAN Pressure Sewer System for grinding in tough terrain. It provides a practical and environmentally safe alternative to traditional gravity systems. Numerous configuration options are available. **937-778-8947; www.cranepumps.com**

8. Franklin Electric FPS NCX Series

The **NCX Series** of explosion-proof submersible non-clog pumps from **FPS,** a brand of Franklin Electric, are certified for use in Class 1, Division 1 and Group C and D hazardous location requirements for municipal markets as well as any commercial or industrial application that requires an explosion-proof rating. The pumps are available in single- and three-phase power options to accommodate flows up to 625 gpm. Each unit is designed for serviceability and reliability with features including a field-adjustable wear plate, factory-standard dual-silicon carbide mechanical seals and chemical-resistant components. **866-271-2859; www.franklinengineered.com**

9. Gorman-Rupp Super T Series

Super T Series self-priming centrifugal trash pumps from **Gorman-Rupp** are available with Eradicator Plus solids-reduction technology for 3-, 4- and 6-inch sizes. The product was designed for extreme-duty applications in municipal, industrial and agricultural markets. For liquids containing trash bags, wipes, mop heads, hair, industrial byproducts and agricultural wastes, it cuts and tears organic solids entering the pump. Pumps include an easily


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removable lightweight inspection cover, a back cover plate incorporating an obstruction-free flow path, a heavy-duty hard iron continuous vane impeller with thick back shroud to prevent debris buildup, an extra-thick hard iron wear plate with notches, grooves and oversized lacerating teeth to cut and shred organic solids, and an upgraded stainless steel, load-bearing shaft. Complete units are available in cast iron construction. Upgrade kits are available-for pumps currently in use.
419-755-1011; www.grpumps.com

10. Industrial Flow Solutions OverWatch

Industrial Flow Solutions' OverWatch pump system lifts influent at the point of entry, eliminating the wet well. Effluent is contained, eliminating odors and reducing maintenance. The stainless steel body is designed to withstand the effects of corrosion from harsh materials and solutions, making OverWatch an ideal solution for the municipal, industrial and commercial industries. In addition, the system has HMI touch-screen controls to further simplify operations. **860-631-3618; www.flowsolutions.com**

11. Pulsafeeder Pulsatron MP Series

Pulsafeeder's Pulsatron MP Series has an optional 4-20mA output signal that provides a remote indication of pump speed, so the user can remotely confirm the pump's speed is adjusting to process parameters, to more accurately estimate chemical usage over time. The pump transmits a 4-20mA signal proportional to the actual speed of the unit and is factory calibrated for easy installation in the field. It is a true microprocessor-controlled instrument, delivering precise and accurate metering control. It includes automatic control via 4-20mA or 20-4mA inputs, an external pace function with a stop feature, and a graphical LCD display with support for English, French, German and Spanish languages. Models are capable of flows ranging between 3 and 504 gpd and pressure ranges from 20 to 300 psig, and a turndown ratio of 1,000-1. **800-333-6677; www.pulsafeeder.com**

12. Saniflo Sanicubic 2VX

The **Sanicubic 2VX** lift station from **Saniflo** provides above-floor drainage for multiple plumbing fixtures for a commercial structure, eliminating the need for pit installations. It is a suitable solution for projects where conventional, below-floor drainage is impossible or too costly to install. Equipped with two 1.5 hp duplex motors, the lift station is capable of discharging effluent through either 2- or 4-inch rigid pipe and offers a shut-off head of 43 feet. It employs an internal air pressure switch for automatic on-off cycling. The unit also comes with a wired control panel, as well as an external audible and visual LED indicator alarm in the event that a pump experiences overload or ceases to operate. Featuring easily removable circular panels on top, the IP68 enclosure permits access to every major component inside.
800-363-5874; www.saniflo.com

13. Smith & Loveless CAPSULAR Underground Pump Station

The **CAPSULAR Underground Pump Station** from **Smith & Loveless** provides an operator-friendly and economical solution for large-flow pumping up to 20,000 gpm. With a Safe-Stair entryway module and integrated HVAC, the pump station design meets the OSHA definition of "designed for continuous human occupancy" and therefore does not require classification as confined space entry. It comes with simplified, yet powerful QUICKSMART Touchscreen Controls and a spacious interior offering a variety of user options including shelving, work desks, sinks and storage. The station is pre-engineered and fabricated, allowing for simple installation and future flow capacity increases via adaptation of additional pumps or larger rotating assemblies.
800-898-9122; www.smithandloveless.com

14. Trillium Flow Technologies Floway VTP

The **Floway VTP** (Vertical Turbine Pump) from **Trillium Flow Technologies** has supported pipeline and infrastructure projects for over 80 years and is available in a variety of material combinations for multiple applications across the water and wastewater industries. This pump has a top-mounted motor and operates in both closed suction and wet pit designs. It is available in a colleted or double keyed impeller design. Other options include a semi-open impeller for solids handling capability, or a flanged column for easy service. The product line can be manufactured to strict requirements of API, HI and NSF as required.
559-442-4000; www.trilliumflow.com


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15. Vaughan self-priming Chopper Pump

Self-priming **Chopper Pumps** from **Vaughan** are designed to be easily accessed outside of the wet well while pumping waste solids at heavy consistencies, without plugging or dewatering of the solids. They eliminate the loss in production and mess, along with making it easy to service the pump to get it back in operation.
888-249-2467; www.chopperpumps.com

16. Vertiflo Pump Company Series 1600

Vertiflo Pump's Series 1600 horizontal close-coupled, vortex end-suction pumps have a wide range of applications including food processing solids, wastewater treatment, pollution control, slurries and solids. They have capacities to 1,600 gpm, heads to 170 feet TDH, and operate at temperatures up to 250 degrees F. These pumps are designed with a variety of constructions such as cast iron, 316 stainless steel fitted, all 316 stainless steel, alloy 20 or CD4MCu. They are designed with a convenient back pull-out cost-saving feature to allow for easy inspection or maintenance without disturbing the piping to the pump. The impeller has a fully recessed design, which accommodates passage of solids. All impellers have wiping vanes, which reduce axial loading and prevent dirt from entering the sealing area. The impeller is keyed to the shaft and an impeller locking screw assures positive attachment. **513-530-0888; www.vertiflopump.com**

17. Zoeller Engineered Products 72 HD Series

The **72 HD Series** of 10 and 15 hp grinders from **Zoeller Engineered Products** offers 3,450 rpm, and is available in 208, 230, 460 or 575 volt, three-phase. Currently available in a high head model, the shut-off head for the 15 hp is 250 feet and the 10 hp shuts off at 215 feet of head. Both pumps have a max flow of 150 gpm at a minimum head requirement of 50 feet. Using a 3- or 4-inch ANSI flanged horizontal discharge will allow for easy adaption to competitor grinder or solids-handling rail systems. The legs are removable, reducing any obstructions being in the way of the debris going into the cutter assembly. The 440 SS cutter assembly with a Rockwell C hardness of 55-60 uses a scissor-like cutting motion that reduces solids down to 1/8 inch in size. **800-928-7867; www.zoellerengineered.com**

Valve

18. Flomatic Model 4082S6 Stainless Steel Ball Check Valve

With today's increasing use of nondegradable sanitary products, **Flomatic** offers the AIS compliant **Model 4082S6** ball check valve. It is now available in a full 316 stainless steel 8-inch design. It is designed according to AWWA C508 standard lay lengths, and incorporates a self-cleaning nitrile (Buna-N) covered metal ball featuring no sharp edges or snag points — helping to prevent clogging from nondegradable sanitary products. There are no moving parts except for the Buna-N vulcanized metal ball, which moves out of the flow path, resulting in reduced head loss.
800-833-2040; www.flomatic.com ✦

Product Spotlight

Air-filled pump motor designed to create premium efficiency

By Tim Dobbins

The fear of dry running a submersible pump is not an issue with Crane Pumps & Systems Envie3 air-filled pump motors.

Elizabeth Weiler, senior multimedia graphic designer for Crane, says the company saw a rising demand for an efficient submersible pump that could attain IE3 motor ratings, which is an international standard indicating the product meets premium efficiency.

Envie3 pumps took Barnes' and Deming's proven nonclog and chopper wet ends and outfitted it with a premium efficient, IE3 motor," Weiler says.

The new series provides lower energy cost in a platform that can be run in wet applications and in dry pits. "These pumps can be used in collections systems, treatment plants, stormwater systems, agricultural waste streams, among others," Weiler says. "Because these pumps can operate both submerged and unsubmerged, horizontal or vertical, and are available in nonclog and chopper configurations, the applications for them are almost endless."

Designing the product started with customer contact and listening to what they like and dislike, what works well for them, and what they look for in a submersible pump. After that, it went to the drawing board, followed by prototype building and testing before eventually launching the final product.

"We do performance testing on site," Weiler says. "This consists of laboratory testing and field prototype testing to introduce the pumps into real applications to find failures before launch."

The product of that research and testing is a floodproof design and integrated cooling system to run the motor cooler, resulting in longer motor life. It is built with a stainless steel outer shell, carrying handle and hardware. The rest of the pump body is finished with Resicoat R4 powder coating and each unit comes standard with a plug and play quick connect cord.

Envie3 pumps are explosionproof, use a tapered keyed shaft and commercially available high-capacity sealed bearings and mechanical seals for easy maintenance.

"The design of Envie3 pumps enables lower continuous minimum submergence where the water can be pumped down to the top of the volute, which helps prevent debris build-up and keeps the lift station cleaner reducing vacuum truck visits," Weiler says. "So far, our feedback has been positive. Customers like the easy installation and the chopper option that solves tough clogging problems."

937-778-8947; www.cranepumps.com

SPECIAL REPORT

OZ Lifting Aluma-Lite davit cranes

OZ Lifting Products announces the new Aluma-Lite davit crane for wastewater and water operators. The Winona, Minnesota-based manufacturer has released the ultra-portable davit crane in 500- and 1,000-pound capacities, each available with three bases: pedestal, socket (flush-mount) or wall-mount. The Aluma-Lite 500 weighs in at 24 pounds with a maximum capacity of 500 pounds and the Aluma-Lite 1,000 weighs in at 47 pounds with a maximum capacity of 1,000 pounds. Both fold flat for easy storage or transportation, and are made of aerospace/military grade aluminum. The cranes are available with a manual winch (including drill drive adapter), AC or DC electric winches. The Aluma-Lites have a durable, powder-coated finish, no tools are needed for assembly/disassembly, and they are made in the U.S.A.

800-749-1064; www.ozliftingproducts.com

SPECIAL REPORT

Patterson Davit Crane at WWETT Booth 4540

The Patterson Davit Crane will be in action at February's WWETT Show, Booth 4540. Designed for ease of use, durability and reliability, the cranes incorporate the highest quality components and finishes. The low-maintenance, easy-to-assemble design is portable so multiple locations can be serviced with a single piece of equipment, minimizing upfront investment. Additionally, the crane is designed with adequate reach to lift large loads within tight spaces, and a boom that can be adjusted to nearly 45 degrees to allow for clearance over obstructions such as handrails. It also comes standard with a hot-dipped galvanized finish, stainless steel hardware and steel sheaves, making it ideal for wet work environments. Available in 1/2- and 1-ton capacities, Patterson Davit Cranes are made in the U.S.A. and deliver on the company's promise of keeping employees safe and positively impacting your business's bottom line.
800-322-2018; www.pattersonmfg.com/davit-cranes

SPECIAL REPORT

Superior 5-E Electric Smoke Blower Finds Faults, Odors, Leaks and Inflow

When testing laterals, building plumbing or pumping or inspecting septic tanks, smoke testing is a quick and effective way to find plumbing faults that lead to odors, leaks and inflow. Superior Signal Company's Superior 5-E Electric Smoke Blower easily connects to any clean-out, port or vent to smoke test the entire system in just a few minutes. The Superior 5-E Electric smoker gently pushes smoke throughout a system to find cracks or leaks and quickly identify problems. Made in the U.S., the durable Superior 5-E Electric smoker is competitively priced and comes complete with 8 feet of industrial-grade hose. Used with Superior Smoke Candles, this cost-effective solution is ideal for hard-to-find odors, leaks and other faults in commercial, residential and municipal facilities.
732-251-0800; www.superiorsignal.com/MS5

Pulsafeeder Pulsatron MP Series pump

Pulsafeeder's Pulsatron MP Series pump now features an optional 4-20mA output signal that provides a remote indication of pump speed. The allows for remotely confirming the pump's speed and adjusting to process parameters, to more accurately estimate chemical usage over time. The pump transmits a 4-20mA signal proportional to the actual speed of the unit and is factory calibrated for easy installation in the field. Packed with standard features, the Series MP includes automatic control via 4-20mA or 20-4 mA inputs, an external pace function with a stop feature, and a graphical LCD display with support for English, French, German, and Spanish. With models capable of flows ranging between 3 and 504 gpd and pressure ranges from 20 to 300 psig, and a turndown ratio of 1000:1, there is a Pulsatron MP Series pump to fit every process. **800-333-6677; www.pulsatron.com**

McElroy Tritan 560 fusion machine

The Tritan 560 combines features of three of McElroy's machines: the rugged portability and technology of the TracStar iSeries, pipe loading capabilities of the Talon 2000, and the ability to meet the pipe where it lays, found in the Acrobat QuikFit carriages. With a full 360-degree rotation and a boom that can raise, extend, and curl the carriage to approach and load pipe, the Tritan boosts jobsite efficiency and improves workplace safety by eliminating the need to top-load pipe into the fusion machine. The 560 aids in pipe positioning, allowing for more flexibility and increased performance and productivity. With the same rugged, dual rubber tracks found on McElroy TracStar machines, the Tritan offers all-terrain mobility to easily travel across a variety of terrains and can be driven directly to and from the pipe itself. **918-836-8611; www.mcelroy.com**

Try-Tek OX transport system

The OX transport system from Try-Tek can be used as a camera transporter or adapt the TRY TEK T150 Reinstatement Cutter to a "tractor" driven system. The OX was designed to work in 8-, 10-, 12- and 15-inch pipes. It has a robust tractor design to pull/push heavy loads. It features a universal camera cradle for 2 1/4- to 3 1/4-inch diameter mounting tubes and has free-wheel capability for fast retrieval using a camera cable reel. The system has solid connection hubs with zero hub-to-tire slippage and quick-change durable rubber tires, adaptable wheel configurations and risers that accommodate pipe size variation, from lined or unlined 8 to 15 inches in diameter. The system also features an all eight-wheel drive system with electronic load leveling and a drive speed of 45 feet per minute under a full load. **717-428-1477; www.trytek.com**

ADS ParaDepth noncontact depth sensor

The new ParaDepth noncontact depth sensor from ADS Environmental Services is designed for use with ADS TRITON+ flow monitors and ADS PRISM software. The ParaDepth sensors, in combination with TRITON+ monitors and PRISM software, provide a seamless, end-to-end solution for depth data collection and analysis. ParaDepth is an ultrasonic sensor that precisely focuses the output via a patented parabolic reflector design. Its recessed sensor and polycarbonate housing provide exceptional durability in sewer flows. It has an in-air operating range of 144 inches and has no deadband. ParaDepth can be mounted above the flow in a pipe, while a bracket mounted to a metal ring secures it. A second mounting option uses the all-new Topside Retrieval System, where the bracket is positioned above the flow and secured to the manhole chimney. This method enables removal and replacement of the sensor without manhole entry.
877-237-9585; www.adsenv.com ✦

InfoSense appoints R.H. Borden as California service rep

InfoSense has appointed R.H. Borden & Co. as its sole factory-authorized service provider for the state of California. InfoSense CEO Alex Churchill said in a release, "R.H. Borden has developed an impressive track record of success in the four years we have worked together. They have rapidly grown their acoustic inspection service line to over 130 municipal customers in their existing territory, so it was only natural to partner with them in expanding to California."

Aries Industries adds Tampa dealer to sales network

Aries Industries added Tampa, Florida-based Evervac Equipment to its dealer network. The company represents Aries Industries in all Eastern time zone counties in Florida. The Aries Industries dealer network has added nine U.S. dealers coast to coast, and three in Canada, since 2019.

Super Products announces new rental location

Super Products is broadening their reach with a new rental and service facility in Elkridge, Maryland, to cover the Baltimore and Washington, D.C., metro region. This is the ninth location for Super Products since its expansion into the rental market in 2011. At the new facility, there is a service manager to process vacuum truck rentals and parts sales as well as a mechanic to perform preventive maintenance and repairs. The Baltimore location will serve as a satellite facility to Super Products' Newark, New Jersey location, under the leadership of Rental Regional Manager Tom DeVita.

Logiball hires new sales representative


Joe Fenstermacher

Logiball has hired Joe Fenstermacher as its new U.S. sales representative. With over 15 years' experience, he has worked mainly in the residential/commercial construction and stormwater industries. Some of his previous responsibilities included helping on spec plans with commercial, residential and city municipality engineering, as well as working on installations and troubleshooting with contractors. He is also experienced in working with distribution on pricing and bidding.

Kimberly Cornett joins LAN

Kimberly Cornett has joined planning, engineering and program management firm Lockwood, Andrews & Newnam as its regional stormwater manager. Based in the Fort Worth, Texas office, Cornett will be managing stormwater initiatives to improve drainage and flood control. A certified floodplain manager, Cornett will also be providing solutions to lessen soil erosion and strengthen floodplain management on projects across Texas.

Tnemec names winner of annual Tank of the Year contest

Tnemec Company announced Bossier City, Louisiana, as its winner of the 2022 Tank of the Year competition. Over 350 water tanks were nominated with thousands of online votes cast from across the U.S. and Canada. The finalists were chosen by a panel of water tank enthusiasts based on criteria such as artistic value, the significance of the tank to the community and challenges encountered during the project.

Avanti adds grouts to NSF/ANSI/CAN 61 certified product line

Avanti International's AV-150 Acrylate Gel and AV-278 Low Vis Hydro are now certified by the Water Quality Association as complying with NSF/ANSI/CAN 61: Drinking Water System Components. These two products join Avanti's growing line of products that are NSF/ANSI/CAN 61 tested and certified including AV-202 Multigrout, AV-248-LV Flexseal LV, AV-275 Soilgrout, AV-315 Microfoam, AV-330 Safeguard and Ultrafine SD. ✦


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•800 cc EFI Honda Engine
•200' x 3/8" Jet Hose on Manual Reel
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NEW
LJ4008H
•8 gpm @ 4000 psi
•800 cc EFI Honda Engine
•200' x 3/8" Jet Hose on Manual Reel
(NARROW DESIGN)
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VM4008H
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•690 cc Honda Engine
•50' x 3/8" Washdown Hose on DC Reel
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 By Craig Mandli

Manhole risers fit metropolitan community

Problem:

"We were having problems in the city with cast iron manhole risers," says Samir Amin, P.E., Milwaukee's engineer in charge. "They're usually fine, but on occasion they would slip or rattle out, and that led to car damage and claims — there was definitely room for improvement."

Solution:

Several years ago, Amin was approached by a representative from **American Highway Products**, who demonstrated the company's adjustable riser, the **Pivoted Turnbuckle Manhole Riser**. These sturdy galvanized steel risers are precisely sized to order. Using a screwdriver as a lever, the turnbuckle transmits thousands of pounds of force to the flexible rim, seating the riser into the original utility rim securely. Installation typically takes five minutes or less. And unlike risers that depend on set screws or other mechanisms for adjustment, the pivoted turnbuckle riser connects tightly around its entire circumference, like a pressed-in bearing.

RESULT:

Costs didn't go up. "Risers aren't really a big item in most of our mill-and-fill bids, and I didn't notice any significant increase in costs due to the required use of adjustable risers," Amin says. By now, close to 1,000 are installed. Milwaukee has emphasized milling and repaving in recent years, and Amin estimates that between 200 to 300 risers are installed annually. And in all that time, none have rattled out or failed in any way. "They're a successful product, and we're very happy with them," Amin says. "They cost a bit more compared to cast iron risers, but now we have no worries about them coming loose, and that means a lot." **888-272-2397; www.ahp1.com**

City relies on manhole replacement system to complete massive repair and restoration project

Problem:

Several years ago, the city of Ames, Iowa, began a massive-scale repair and restoration of its sanitary sewer system. The team was warned that with projects such as this, residents can get anxious when their street is shut down and the sewer is torn up, especially when the repairs drag on and on.

Solution:

In an effort to reduce the project's timeline, materials, labor and overall costs, the city's engineering team decided to use a **Mr. Manhole cutter** to complete the work.

RESULT:

The Mr. Manhole system transformed the way that Ames executed this large-scale project. The system is incredibly fast, and on a good day, depending on the depth of the rehab that was being done, contractors completed eight to 12 manholes. Everything was done quickly and efficiently with minimum impact to the public.
567-242-2221; www.mrmanhole.com ✦

WORTH NOTING

PEOPLE/AWARDS

The **city of Barrie** (Ontario) received a Healthy Water Award from the Lake Simcoe Region Conservation Authority for a retrofit and upgrade of the Sunnidale Stormwater Management Facility.

The Water Environment Federation named recipients of its National Municipal Stormwater and Green Infrastructure Awards. They included:

- Phase I MS4: **Anne Arundel County** Department of Public Works, Maryland (overall winner); **city of Colorado Springs** Stormwater Enterprise, Colorado (program management winner); **Anne Arundel County** Department of Public Works, Maryland (innovation winner)
- Phase II MS4: **City of Frisco**, Stormwater Division Texas (overall winner); **St. Louis** MS4 Co-permittee Group, Missouri (program management winner); **city of Richmond,** Stormwater Utility, Virginia (innovation winner)
- Program Management: Gold Recognition
  - Phase I: **City of Colorado Springs** Stormwater Enterprise, Colorado
  - Phase II: **St. Louis** MS4 Co-permittee Group, Missouri; city of Frisco, Stormwater Division Texas; **city of Alexandria, Virginia**
- Program Management: Silver Recognition
  - Phase I: **Anne Arundel County** Department of Public Works, Maryland; **city of Dayton** Department of Water, Ohio; **Fairfax County** Government, Virginia; Louisville Metropolitan Sewer District, Kentucky
  - Phase II: Kansas Department of Transportation, **Kansas**
- Program Management: Bronze Recognition
  - Phase I: **Jefferson Parish** Environmental Affairs, Louisiana
  - Phase II: **City of San Marcos, Texas**
- Innovation: Gold Recognition
  - Phase I: **Anne Arundel County** Department of Public Works, Bureau of Watershed Protection & Restoration, Maryland
  - Phase II: **City of Richmond** Department of Public Utilities, Stormwater Utility, Virginia; **city of Frisco,** Stormwater Division Texas
- Innovation: Silver Recognition
  - Phase I: **Fairfax County** Government, Virginia; **city of Colorado Springs** Stormwater Enterprise, Colorado
  - Phase II: **St. Louis** MS4 Co-permittee Group, Missouri; **city of Alexandria, Virginia**
- Innovation: Bronze Recognition
  - Phase I: **Jefferson Parish** Environmental Affairs, Louisiana
  - Phase II: Kansas Department of Transportation, **Kansas**

The **city of Albemarle** (North Carolina) received $250,000 in funding from the Golden LEAF Foundation to assist with the city's proposed stormwater management program planning.

Burns & Levinson announced that partner **John F. Shea** received the William H. McGinnis Award from the Massachusetts Water Works Association, of which he has been an active member for nearly 20 years. Stormwater topics are among Shea's specialty areas.

The American Public Works Association awarded Storm Water Services two top honors. **Daryl Hammock,** assistant manager, was awarded the H. Rooney Malcom Stormwater Professional of the Year Award. The **Cedars East Storm Drainage Improvement Project** won the North Carolina Stormwater Project of the Year Award. ✦

CALENDAR

March 1-3
Michigan Stormwater-Floodplain Association Conference, H Hotel, Midland, Michigan. Visit www.mifloods.org.

March 28-31
American Water Works Association / Water Environment Federation Utility Management Conference, SAFE Credit Union Convention Center, Sacramento, California. Visit www.awwa.org or www.wef.org.

April 16-19
American Public Works Association North American Snow Conference, Omaha, Nebraska (hotel TBA). Visit www.now.apwa.net.

April 16-19
American Water Works Association Sustainable Water Management Conference, Minneapolis (site TBA). Visit www.awwa.org.

April 24-27
Center for Watershed Protection 2023 National Stormwater and Watershed Conference, The Westin San Diego Gaslamp Quarter, San Diego. Visit www.cwp.org.

May 1-3
International Erosion Control Association Municipal Wet Weather MS4 Stormwater Conference, Doubletree by Hilton Hotel, Chattanooga, Tennessee. Visit www.ieca.org.

May 10-12
Ohio Stormwater Association Conference, Kalahari Conference Center, Sandusky, Ohio. Visit www.ohioswa.com.

June 11-14
American Water Works Association ACE23, Toronto, Canada (site TBA). Visit www.awwa.org.

June 27-29
Water Environment Federation Stormwater Summit, Kansas City Convention Center, Kansas City, Missouri. Visit www.wef.org.

July 17-19
American Water Resources Association Summer Conference, Hyatt Regency Denver Tech Center, Denver. Visit www.awra.org.

Municipal Sewer & Water *invites your national, state or local association to post notices and news items in this column. Send contributions to editor@mswmag.com.*

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BUSINESS

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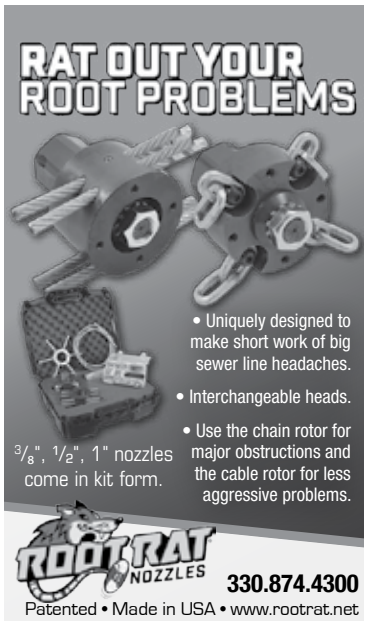

USING HDPE RINGS TO Eliminate Manhole Infiltration & Inflow Quickly and Inexpensively

STUCK IN THE I&I RUT

The number one problem for wastewater collection systems is infiltration and inflow (I&I) and its associated costs.

The degradation of manhole grade adjustment rings contributes to I&I and related significant expenses to a city's public works department due to water system and road damage, high maintenance and wasted capacity on water that should be kept out of the system.

ITS CAUSES AND ITS COSTS

Over time, manhole grade adjustment rings made from concrete degrade due to freeze and thaw cycles, increased traffic, impact loading and chemical attack, leading to the infiltration of soil and water through the ring interfaces and manhole chimneys. All these forces exert pressure on the manhole to push the concrete riser rings and other components apart, eventually resulting in settlement, cracking of the roadway surface or structural failure of the manhole.

According to 13 years of studies researched by the City of Bryan, Ohio, the largest amount of I&I – up to 60% – enters the sanitary sewer system through cracked manhole chimneys. During a rain event, seepage through a single broken chimney can be as much as 50 gallons of water per minute.

The cost to cities is multi-faceted:

1. Cost to repair or replace damaged manholes and manhole chimneys
2. Cost to repair roadway cracking
3. Cost to repair damage to water system caused by excessive flow caused by I&I
4. Environmental and public health cost and regulatory fines of sanitary sewer overflows (SSOs) that occur when untreated sewage discharges into the environment due to exceeded capacity caused by I&I

A LONG-TERM SOLUTION

If inflow & infiltration are ongoing problems and existing manhole fixes don't last, a change in approach is necessary. Specifiers of the Ladtech System® have praised its easy installation, effectiveness at preventing I&I and zero repair work. Learn more by reading about projects in Revere, Massachusetts and Apple Valley, Minnesota.

CITY OF APPLE VALLEY, MN

Tim, the current supervisor in charge of the road construction projects in Apple Valley, MN just reiterated what Mr. Jim Fruechtl a retired Apple Valley City Engineer, has confirmed back in 2011 and even in the last few years when he inspected the existing manholes that were installed in 1998. He states 'The beauty of the Ladtech rings is that they indeed prevent I&I and also eliminate reconstruction, which has benefited the city of Apple Valley. Jim Fruechtl was so impressed back in 1998 he connected Dave Hanson, area supervisor for Bonestroo Rosene Anderlik & Associates a consulting and engineering firm in Minnesota. Dave Hanson field tested the Ladtech System® in two different locations in 1998.

This is what Dave Hanson had to say, "We were concerned about how the rings would hold up during the spring thaw. Because of the success of this evaluation we have specified LADTECH rings in twelve additional residential street projects. "The LADTECH rings last longer and they don't cost any-more and are much quicker and easier to install." Dave said he was always concerned about the quality control of concrete rings. "We were not able to obtain consistency with installation of concrete rings. Construction companies would use different mortar mixes, sometimes causing deterioration of the concrete. With the LADTECH rings, we eliminate this variable."

"Jim Fruechtl has told us all along, with the Ladtech rings there is no I&I, no rehab, no deterioration in the pockets and the rings endure freeze thaw. The rings actually do what they say they will do."

Tim, the current supervisor in charge of the road construction projects in Apple Valley, MN

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