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Paul Graham
Water and Wastewater
Utility Manager
Heber Springs, Arkansas

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INSIDE:

ACE PRE-SHOW ISSUE,
PUMPS, LIFT STATIONS AND CONVEYANCE



ON THE COVER: Heber Springs (Arkansas) Water and Wastewater Utility Manager Paul Graham and his team have made big strides in customer relations while taking on significant capital improvement projects to provide more efficient service. (Photography by Martin Cherry)



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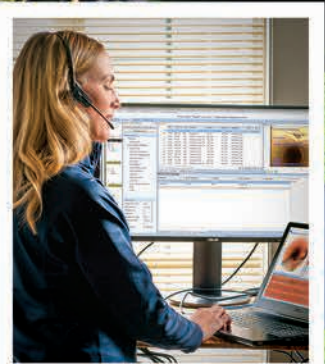
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Everything costs money. We pay for everything we own, use and consume. We don't bat an eye at the cost of some things, while others pain us to open our wallets or slide our cards.

It's easier — or at least more enjoyable, certainly — to spend money on the things we want rather than necessities. A new bike, boat, vacation or nice dinner are all fun ways to spend money. They're all rewards for your hard work. Utility bills don't make that list for most people. Water and wastewater services tend to be just another bill that has to be paid, often with mumbled complaints about the price or increasing rates. Seldom is much thought given to the value or convenience of those services. We expect them. An understanding of why rates are rising is even rarer. After all, water comes from the ground or falls from the sky — why should I be paying any more for it today than I did yesterday? It's not as if the earth is charging the utilities more for the raw product.



FROM THE EDITOR

Luke Laggis

We willingly pay for enjoyment and convenience. We begrudgingly pay for necessities because the necessities are things we expect. And not to pull out the whole “there are starving kids in wherever” refrain we all heard at some point when we didn't want to eat what our parents put on the dinner table, but that enjoyment-over-necessity perspective is horribly askew.

In terms of what it means to our lives and lifestyles, we should all gladly pull out our checkbooks when the monthly water bill arrives, but I'm guessing that's not the response you get from your customers. But I know for certain that many, many of those same customers don't bat an eye at spending \$2 for a bottle of water when they stop at the convenience store. You know, because, convenience. Never mind the convenience of having clean, safe water every time they turn on the taps at home. Or throwing in a load of laundry and having the machine fill itself with clean water that magically flows away after cleaning and rinsing their clothes. Or showers. They're at times every bit as enjoyable as necessary. The people in developing countries washing their clothes — and themselves — in rivers of waste would probably appreciate that convenience.

You'll probably never be able to fully change some customers' negative attitudes toward the services you provide, but the two utilities profiled in this issue of *Municipal Sewer & Water* offer a couple examples of how to build stronger relationships and greater appreciation among your customer base.

When the Heber Springs (Arkansas) Water and Wastewater Utility went to a new automated metering system, it not only improved efficiency, it gave customers the ability to log in and see their own water usage so they can better understand how much water they're using and detect potential problems. Customers also get information and a better understanding of where their money is going through the utility's Facebook page, where updates on projects, repairs and other initiatives are posted daily.

Advanced metering infrastructure is also providing a level of education and transparency in Round Rock, Texas, a fast-growing community outside Austin. But for the residents who've long called Round Rock home, as well as the people flocking to new developments, it's the city's impact fees that are demonstrating value. Rather than raising rates to pay for new infrastructure to accommodate all that new development, the city is placing the onus on the developers through impact fees. That way the existing customer base doesn't shoulder the cost of extending services to new residents. Those new residents get something, too: city services that provide a significant savings over putting in private wells and septic systems.

On top of it all, the strategy has helped the utility eliminate most debt service, which customers also appreciate.

So while your customers may never feel quite as good about paying their water bills as they do that new boat, you can help them appreciate the water a whole lot more.

Enjoy this month's issue. ♦

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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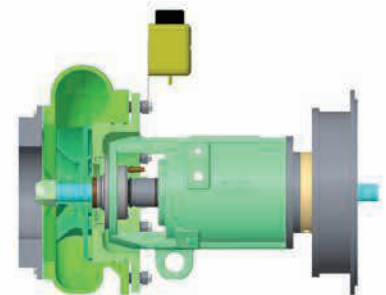
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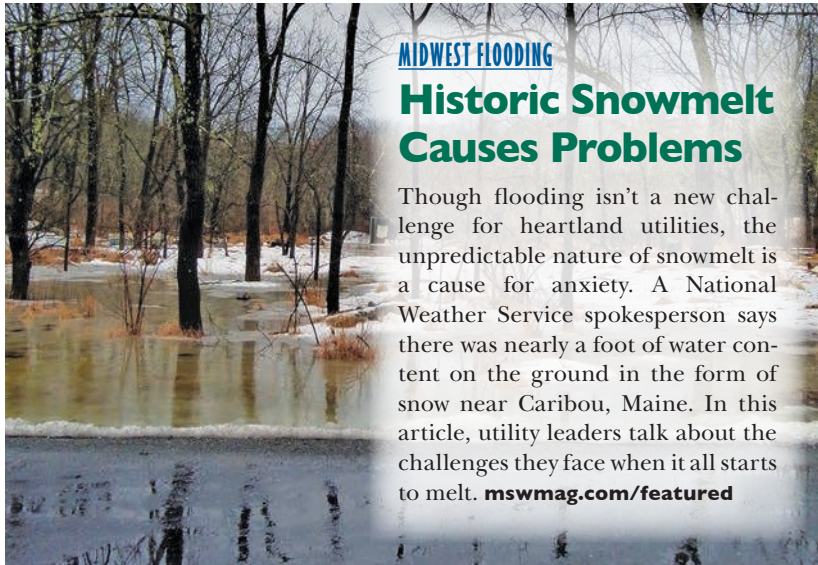


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MIDWEST FLOODING

Historic Snowmelt Causes Problems

Though flooding isn't a new challenge for heartland utilities, the unpredictable nature of snowmelt is a cause for anxiety. A National Weather Service spokesperson says there was nearly a foot of water content on the ground in the form of snow near Caribou, Maine. In this article, utility leaders talk about the challenges they face when it all starts to melt. mswmag.com/featured

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— *New Whiteboard Animation Helps Consumers Protect Against Lead in Drinking Water*
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PROJECT SUCCESS

Communication Is a Must

A city engineer, heavy equipment, foremen, operators. They're all important factors on any job that a water or sewer utility might undertake in a community, but the most important tool out there is something much simpler: Customer service. In this online exclusive article, read about how municipalities and contractors agree that informing residents and visitors of route changes, water stoppages and more goes a long way toward celebrating a successful job. mswmag.com/featured



FACING DROUGHT

Renewable Water Sources

The water management goal in Marana, Arizona, northwest of Tucson, is to use renewable water resources whenever and wherever possible. The utility relies on Colorado River water through the Central Arizona Project, groundwater and reclaimed wastewater to supply its 8,000 customers. Read about how the community's water department does everything it can to use water wisely in the face of drought and diminishing surface water supplies. mswmag.com/featured



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USING GROWTH TO PAY FOR GROWTH

Impact fees and pay-as-you-go mentality form backbone of Central Texas utility's infrastructure financing

By *Jared Raney*

Round Rock Utilities Services supervisor Jose Galvez (center) feeds a camera through a sewer line while crew leader Mike Pompa looks for problems such as water leakage, cracks and roots. (Photography by Katie Hayes Luke)

The secret to infrastructure improvement while limiting debt may be as simple as two words: impact fees.

Round Rock, neighbor of Texas capital city and tech mecca Austin, has shared in some of the area's explosive regional growth. With a current population of 115,000, it has grown 15 percent since 2010 and is projected to reach 160,000 by 2030.

Never one to settle, Michael Thane, director of the Utilities and Environmental Services Department for the city of Round Rock, is spearheading two major projects to max out the city's water and wastewater capacity. In combination with freshwater reduction programs like advanced metering infrastructure, conservation and water reuse, Round Rock will be on track to meet its maximum infrastructure potential, supporting 250,000 customers, by 2050.

Pay as you go

Thane summarizes the city's financial philosophy with the phrase "pay as you go." Except for two major regional projects, Round Rock doesn't embark on any new infrastructure until all the money needed for its completion is in the bank.

"The pay-as-you-go philosophy means we try to build up our fund balance — in other words, our savings account — and then we utilize this money to go build infrastructure without having to issue debt," Thane says.

The main vehicle for ensuring that the city coffers can bear the burden of any given project is a hefty impact fee for any new development.

"We don't want the people who are living here to have to pay for the cost of expanding our treatment plants," Thane says. "The plants are expanding because of a new developments, not because

“We don’t want the people who are living here to have to pay for the cost of expanding our treatment plants. The plants are expanding because of a new developments, not because of the people who have been living here 30 years.”

Michael Thane

of the people who have been living here 30 years.”

They also utilize careful budgeting techniques to ensure they are meeting their capital budget goals.

“We’re very conservative in our budgeting. We estimate lower than we think we’re going to bring in to calculate our revenues,” Thane says. “We try to be as efficient as possible in order to keep our expenses down and estimate our revenues at a lower amount, so when we bring in more revenue, that extra money we make goes into the fund balance, which pays for the capital projects.”

“But say we don’t sell as much water in a given year — we protect ourselves, we don’t get in this bind where we underrecovered and do not recover enough money to cover our expenses.”

On average, impact fees for water and wastewater systems are a little over \$6,000 for a new house to be built. As Thane says, initially it can be a hard pill to swallow for homebuilders, but the cost is still a lot cheaper than drilling a groundwater well or putting in a septic system.

“That complaint about ‘homebuilding’s going to slow down and growth is going to stop’ doesn’t carry much weight when it comes to these impact fees,” Thane says. “Many of the other cities now have caught us. We had some of the highest impact fees in the state for a long time, with the lowest rates, and now many others have seen the benefits of impact fees, so they’ve raised theirs quite a bit, and now we’re not even the highest in just Central Texas.”

Water conservation

The city is taking a broad approach to growth, implementing new systems they hope will curb water usage, creating some cushion during expansion.

As part of the city’s ongoing master improvement plan, which is a 10-year plan updated every three years, the utility has implemented a process for nonpotable reuse.

“We treated the wastewater, then we’ve stored it instead of discharging the treated wastewater to the creek, and now we’re reusing it by sending it out to customers to use for irrigation purposes,” Thane says.

There are only about 10 reuse customers in the city at this time, but they are large-scale water irrigation customers, including a golf course, minor league baseball field and a city park, among others.



Mike Pompa (left) and Jose Galvez prepare to launch an inspection camera through a sewer line in a residential area of Round Rock.

PROFILE:
Round Rock, Texas,
Utilities and Environmental
Services

POPULATION SERVED:
115,000

WATER SYSTEM:
640 miles of distribution line; 15,000 valves, 6,000 hydrants

WATER SOURCES:
Lake Georgetown – 6,720 acre-feet;
Stillhouse Hollow Lake – 18,134 acre-feet;
Lake Travis – 20,928 acre-feet;
Edwards Aquifer – 4,500 acre-feet

STAFF:
133 employees

ANNUAL OPERATING BUDGET:
\$48 million

AWARDS IN 2018:
State of Texas Environmental Excellence recognition; Texas Water Utilities Association Leadership Award for AMI Program; Texas Water Utilities Association Outstanding Professional award; American Water Works Association Hydrant Hysteria Team – Texas State Champion and fifth place at National Conference

WEBSITE:
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“It helps to prolong our water supply sources because you’re reusing water you’ve already paid for,” Thane says.

But the pride of the water system after its completion last year is the AMI. Despite only just reaching its apex, without the city pushing for its adoption, 18,000 of the approximate 30,000 residential customer accounts have already signed up through the online customer portal.

The last stage of AMI adoption for residential customers was completed in May 2018 — opening the online portal for customers to manage their accounts digitally. Thane hopes to have all of the residential accounts rolled over into the new system by the end of 2019.

It took seven years and \$7.5 million to fully



The Round Rock Utilities and Environmental Services Department team includes (from left) Mark Hurd, Mike Pompa, Michael Thane, Jose Galvez and Francisco Vicent.

integrate AMI. They proceeded in baby steps, first installing the automatic meters, where employees could begin doing drive-by meter readings. Then the infrastructure aspect began with the addition of relay stations, allowing automatic transfer of data back to a central server. Last came the online customer portal, the final piece of the puzzle that was just implemented in 2018. Now it's just a matter of promoting the online option so all residential customers can utilize the digital database.

“That’s what’s very neat about this region: We have good relations with almost every city around us.”

Michael Thane

“It’s a real water education, water conservation tool that if everybody uses it like we hope they will, could have a really good effect on our overall water supply,” Thane says. “It’s really going to help out our utility billing office because the customer portal allows more electronic payments, and so you have less people walking into the billing office to pay, and you have fewer people mail-

ing in checks. You go to this electronic payment, and everything goes faster: The utility billing office will be able to operate more efficiently.”

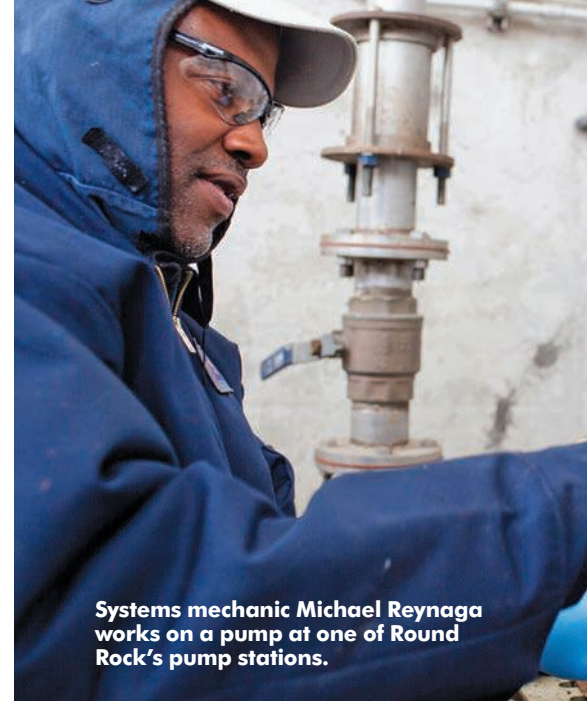
Embracing regionalism

Although they have been very successful with their pay-as-you-go methodology, a few projects that are underway required the city to take on some amount of debt.

The reason for that necessity is in part because they are regional cooperative projects that will be depended on by more than just Round Rock.

First, with the increasingly common drought conditions in Central Texas, on top of rapid growth, many municipalities are finding a need for additional reliable water sources. As part of what they have dubbed the Brushy Creek Regional Utility Authority, Round Rock is teaming up with two other municipalities to build a deep-water intake in Lake Travis.

For Round Rock’s part, they hope this new intake will fill their water needs into the distant future, upping their capacity to the 250,000 estimated population threshold.



Systems mechanic Michael Reynaga works on a pump at one of Round Rock’s pump stations.

“All three cities have water under contract in Lake Travis, and all three cities are growing very fast, so we came together to build the infrastructure as one group,” Thane says. “It’s more cost-effective to partner together — I think we anticipated about a 30 percent savings by building one big system rather than each one building an individual system.”

The intake will pull water from deep in the lake, a little more than 120 feet below the lake-full level and near the river channel, which is the deepest part of the lake.

“It’s a drought protection project and will make sure we have water for the three cities for a long time. Just another example of regionalism. We’re constantly talking to our neighbors about working together and helping each other out,” Thane says. “That’s what’s very neat about this region: We have good relations with almost every city around us.”

It’s a \$160 million project, of which Round Rock is financially responsible for approximately

FIGHTING A MUSSEL INFESTATION

Like many municipalities across the nation in recent years, Round Rock in Texas has had to deal with a proliferation of invasive species in its water sources.

“A major challenge facing our water utility is the infestation of zebra mussels in our water supply lakes. All three source lakes in the past year and a half have been identified with zebra mussels,” says Michael Thane, director of the Utilities and Environmental Services Department for the city of Round Rock. “It reduces our ability to pump water to our treatment plants.”

Zebra mussels have been an increasingly common problem for water utilities. Though not originally native to the United States, the species infested the Great Lakes region and has pushed south along the Mississippi River, even reaching as far west as Central Texas.

“Those mussels attach to metal objects, so the challenge we’re faced with is

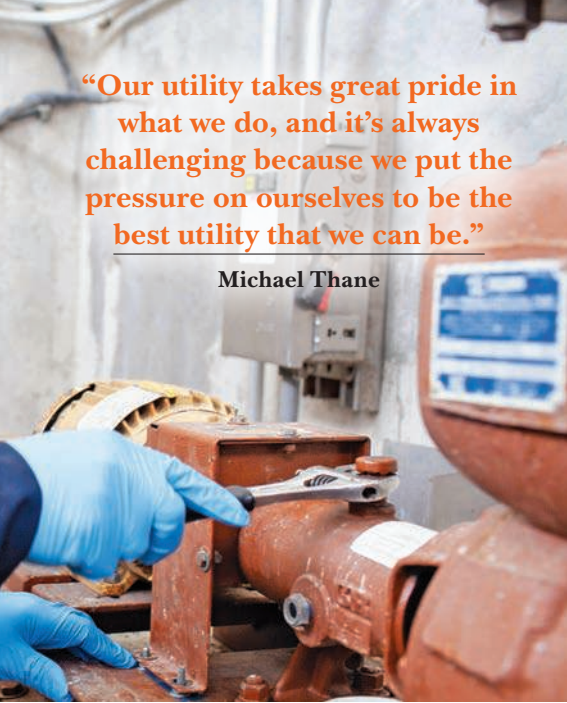
how we keep them off of our intake screens and out of our raw water pipelines,” Thane says. “We are designing a system where we’re going to inject sodium permanganate as a chemical into our raw water pipeline that will help kill the mussels.”

Even with chemical treatment, divers will have to periodically clear the intake screens of mussels, as the city cannot inject the chemical into the lakes themselves.

“The managing authorities for the lakes do not mind if we add chemicals into the pipeline, once it’s leaving the lake, but the concept of adding chemicals to the intake screens in the lake is a whole new concept that is still under consideration. Zebra mussel control is going to be a big challenge for 2019 — not only for Round Rock, but for most utilities that take water out of surface water lakes.”

“Our utility takes great pride in what we do, and it’s always challenging because we put the pressure on ourselves to be the best utility that we can be.”

Michael Thane



ties, but Round Rock has maintained minimal debt while completing innovative projects and maximizing its system capacity for population growth.

“Our utility takes great pride in what we do, and it’s always challenging because we put the pressure on ourselves to be the best utility that we can be,” Thane says. “We want to deliver the best service at the best price, better than anybody else. We don’t have that status quo mentality.”

Every utility wants to provide great service at low rates for their customers, but doing so is often easier said than done. Round Rock’s example shows how impact fees can lighten the burden of

capital improvements for citizens while allowing ambitious infrastructure expansion.

“The city has done a good job over the last 25 years by implementing impact fees and a pay-as-you-go philosophy, positioning us well with infrastructure and low water and wastewater rates, and that’s why you see so many people moving here,” Thane says. “Round Rock is a hot spot — everybody wants to come here — because if you have water and you have infrastructure in place, it makes development of properties a lot easier, and sometimes that gives us a leg up on other cities.” ♦

29 percent. The goal is to have the intake online by 2026, with the project in the engineering design process right now.

Also on their radar is a capacity upgrade for one of the two regional wastewater treatment plants that Round Rock recently took over daily operation.

“Because the two plants are located in the city of Round Rock, it only makes sense for us to manage the operations and maintenance. It is a huge challenge, but we also know that we will be able to identify efficient ways to save money,” Thane says. “If we need some help at the regional plant on any given day, we can bring other staff from our utility, send them out there to help and then they can go back the next day to their normal jobs.”

The costs of operations and maintenance are split between the four cities based on the percentage of wastewater that each contributes.

“Operating and maintaining the regional plants will continue to be a challenge just because it’s new for us,” Thane says. “It’s important when you have other cities trusting in you. By taking over something that large, it’s important for us to deliver what we said we were going to deliver, at the best price.”

Upgrading the larger of Round Rock’s two shared regional wastewater treatment plants will take the existing overall treatment capacity from 24.5 to 33 mgd. Still under design, the project is estimated to cost about \$100 million. They hope to complete it by 2022.

Fortunately, their efforts to keep debt low over time has led to a AAA bond rating, which makes it easy to obtain good loan terms when necessary for projects like these.

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CURING WHAT AILS

A small footprint and low impact makes LED curing a viable new option in CIPP

By *Jared Raney*

CIPP technology is taking its next evolutionary step with the introduction of LED-cured liners.

LED curing has many of the advantages found with UV curing, plus the additional benefit of a single light head. This allows the systems to cure in pipes as small as 4 inches and gives it the ability to cure through tight bends.


Unlike hot-water or steam curing, LED systems don't require large equipment and can perform indoors with minimal disruption. Using a specific light-reactive resin, wet-out liners are stable enough for storage and extended working times.

"This technology is the next step in innovation for lateral lining, and CIP in general," says Matt Gabrielse, product manager for HammerHead Trenchless, which recently became the U.S. distributor for Bluelight LED-curing systems. "It's going to become the new standard, we believe, for CIPP."

Tried and tested in the European market for about eight years, LED-curing technology is now making its leap across the pond.

"We've seen quite a bit of activity there. Europe is typically a few years ahead of us domestically," Gabrielse says.

LED systems cannot currently be used for potable waterlines, but Gabrielse



The compact light head makes LED systems like the Bluelight lining system, shown here, incredibly versatile.



“This technology is the next step in innovation for lateral lining, and CIP in general. It’s going to become the new standard, we believe, for CIPP.”

Matt Gabrielse

The BlueLight LED-curing system.

says Per Aarsleff, owner of BlueLight Technology, and HammerHead Trenchless plan to further develop the system for more diverse applications.

“This system itself is designed for the lateral CIP market, so sanitary sewers, storm sewers and other gravity-fed pipes are all great applications for this product,” he says.

How it works

All that’s required to run LED systems like BlueLight is the light train, power supply and module, control unit, air supply, and inversion drum. BlueLight, like LED UV curing systems, utilizes an inversion method to install the liners, and airflow used to cool the light head also serves to maintain pressure on the liner as it cures. However, BlueLight uses a resin that only reacts to a light range of 450 nanometers, which makes it a very stable resin and allows for the extended storage and working times.

The compact light head, unlike the segmented train of a UV system, makes LED systems incredibly versatile. They can be used with a variety of liners, including glass fiber or felt, and provide the ability to navigate 90-degree bends. They can even work through changing pipe diameters.

“The light head we use is much more compact than a UV light would be,” Gabrielse says. “UV light trains are usually very long and cumbersome, whereas this LED light head is small and compact and can work really well for the lateral market.”

The BlueLight system uses a touch-screen control panel to manage the mostly automated process. A monitoring program will send the operator alerts if issues occur in the pipe.

“The system is similar in size to a pushrod camera system,” says James Stern, director of BlueLight’s U.K. distributor, PBF Drainage Services. “Due to the nature of lining, there are always inherent risks during the installation process. Because the entire BlueLight process is monitored by using an internal camera system, any defects can be seen prior to curing, and these can be rectified before any problems arise.”

Because resins for LED curing are not heat- or ambient-cured and only react to light, liners are typically wet-out in advance away from the job site. Doing so in a controlled facility limits environmental and site impact.

“With this sort of technology, you have a small footprint,” Gabrielse says. “You’re not dealing with water, so that alone is a huge benefit. You don’t have a heavy water boiler or steam unit to tote around, and you don’t need an area to dispose of the water when you’re done curing.

“When you’re using a hot-water boiler or steam machine, much of the equipment is required to be outdoors because of the exhaust and fumes it creates,” he says. “This process can be done completely inside.”

The noise of the air compressor can cause minor disruptions in close quarters, but it is negligible in comparison to alternative methods.

“The actual curing process itself is much faster than when you compare it to traditional hot-water or steam methods,” Gabrielse says. “It depends on the length of pipe, but LED-curing technology can be up to five times faster than conventional curing methods.”

Gabrielse says both the faster curing and pre-wet capabilities make this system much less stressful on operators. “When you compare the LED technology to all of those other options, as soon as you mix the resin and put it in the liner, the clock is ticking. So you have a certain amount of time to get that liner from wet-out to actually getting it in the pipe and curing. It can’t just sit for an extended





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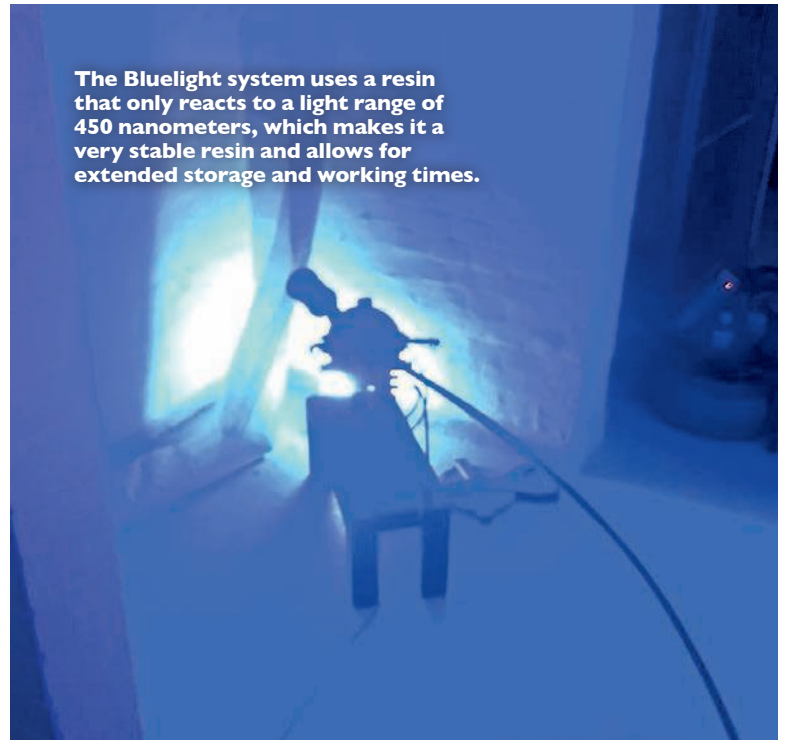
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The Bluelight system uses a resin that only reacts to a light range of 450 nanometers, which makes it a very stable resin and allows for extended storage and working times.



period. With LED technology, you don't have that issue. It allows the contractor or customer to avoid mistakes by not battling the clock."

A promising solution

With something as complex as CIPP, there may never be a perfect solution that can fit every situation, but LED-curing systems provide contractors with an adaptable option that is certain to become a staple of the industry, especially in challenging small-diameter laterals.

"We are always striving to use the most cost-effective and environmentally friendly method available, making sure the correct liner is installed for that particular situation," Stern says. "Not every liner is suitable for all situations, and the Bluelight system increases our capabilities."

The Bluelight system's efficacy and speed were tested when PBF Drainage Services' customer successfully installed dozens of liners in a university setting. With zero odors per the client's request, they completed all work on a tight schedule during holiday breaks with no site impact.

"LED technology is really cutting-edge. It can be used in any type of pipe that a regular CIP liner could be used for gravity applications," Gabrielse says. "It allows the customer to be a lot more versatile all-around and plan out their jobs far in advance without fighting the clock." ♦

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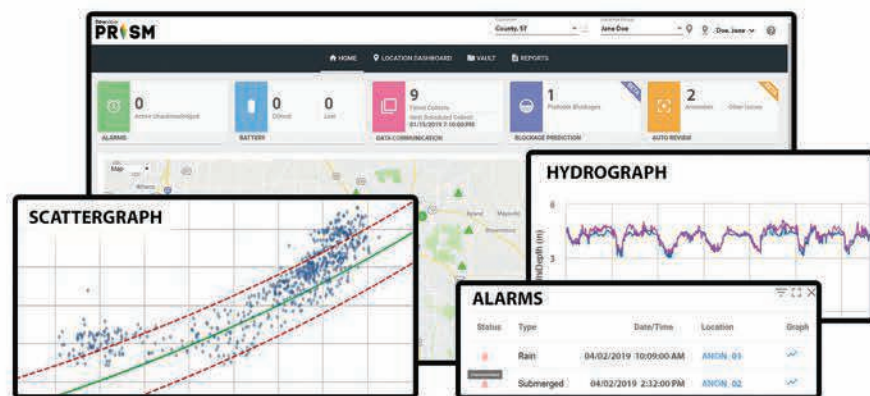
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“In one case, a vacation home customer had a leak in a line to the swimming pool. Over 3,200 gallons per hour had been lost for about an eight-hour span, but we caught it and turned it off on a Sunday morning.”

Paul Graham



IN TOUCH WITH THE COMMUNITY

Arkansas utility manages maintenance and upgrades and keeps customers in the loop

By Jim Force

A quick response to a water main leak is a high priority for the repair crew at Heber Springs (Arkansas) Water and Wastewater Utility. So is providing real-time updates about breaks in service to their customers.

When a crew heads out to a repair job, Noralee Mullady, social media coordinator, posts information about the main break on the utility's Facebook page. A few hours later when the leak is repaired and water service is restored, she reports the repair in another announcement, alongside photos of the crew at work on the break.

It wasn't always this way. In the old days, says Paul Graham, who took over as utility manager in May 2018, Heber Springs wasn't so proactive in communicating with customers. "We tended not to respond to online complaints," Graham says. "The feeling was we were just feeding those who would troll us out there. It wouldn't do any good."

Now, however, Graham feels the utility has a much better image in the community. "By responding quickly on social media, using our own Facebook page and website, we've really cut down on the negative publicity we used to get."

Century of service

Heber Springs, 61 miles north of Little Rock, is accustomed to clean water. Nearby Greers Ferry Lake, known for its pristine shoreline and deep, crystal-clear water, is a 40,000-acre playground for fishing, boating and other water sports.

The town itself was founded as a health resort, and today is a popular site for vacation homes.

Noralee Mullady uploads photos to the Heber Springs Water Utility Facebook page. Mullady also interacts with customers and responds to comments and questions through the site.

The Heber Springs Water and Wastewater Utility has provided both water and sewer service to the town since 1918, when the city passed an improvement bond and installed the first tile and concrete sewer lines, some of which remain in service. The utility staffs two separate crews: one responsible for drinking water, the other wastewater. The utility celebrated its 100th anniversary last year.

Greers Ferry Lake supplies the utility's drinking water, which is directed to three different water treatment plants all at one location. "The old plant dates to the 1970s and consists of a downflow clarifier," Graham says. In addition, the utility maintains two newer plants; one features upflow clarifiers, and the other was recently equipped with fully automated microfiltration membrane units from Pall Water — a \$1.4 million project.

"We were just the second water treatment plant in the state of Arkansas to adopt microfiltration." The membranes are mounted on two

Heber Springs Water and Wastewater Utility crew supervisor Wes Scoggins (right) overlooks the installation of waterlines along a residential street with Tom Stanford and Paul Graham. (Photography by Martin Cherry)



“We have over 67.5 miles of pipe and 1,402 manholes, as well as 31 lift stations. This is a very hilly service area.”

Paul Graham



PROFILE:
Heber Springs, Arkansas,
Water and Wastewater
Utility

FOUNDED:
1918

CUSTOMERS SERVED:
Approximately 11,000

AREA SERVED:
City of Heber Springs;
Clebune and White counties

WATER SYSTEM:
146 miles of distribution lines; three plants, downflow and upflow clarifiers, microfiltration; average of 4.8 mgd produced water; 8.4 mgd maximum

WASTEWATER SYSTEM:
67.5 miles of sewers, 31 lift stations, 1,402 manholes; facultative lagoon, UV disinfection; 1.75 mgd average daily flow

STAFF:
Paul Graham, general manager;
Sam Querry, assistant manager;
Tom Stanford, operations manager;
Nikki Wilson, office manager;
Randy White, water treatment plant manager; Joey Massey, wastewater treatment plant manager;
Noralee Mullady, social media coordinator

ANNUAL OPERATIONS BUDGET:
\$3.6 million

WEBSITE:
www.heberspringswater.com

FACEBOOK:
Heber Springs Water & Sewer Department

Above: Sewer crew supervisor Brandon Harlan (bottom right) starts a Hurco smoke machine to detect inflow and infiltration in a sewer main. **Right:** Joey Massey, wastewater treatment plant manager, checks the UV light bulbs on the disinfection system.

skids, with additional room for two more. Future plans are to phase out the clarifiers in favor of the membrane units.

“With microfiltration, we don’t have to use any coagulants such as alum,” Graham says, noting that savings in chemical costs amounted to approximately \$53,000 during their first two months. “We still use aluminum sulfate and caustic soda for pH adjustment at the old plant.”

The utility uses sodium hydrochloride to meet its chlorine residual requirement. Total output for the three plants combined is about 8.4 mgd.

The distribution system consists of 146 miles of pipe, connecting approximately 10,000 customers and two wholesalers — Tumbling Shoals and Mountain Top Water.

Storage consists of seven aboveground tanks with a total capacity of 3.8 million gallons. Other tanks are planned and will increase capacity by

another million gallons.

Fire suppression is top of mind with Graham. “We flush our system every six months and lube and turn our hydrants diligently. Our Fire Department is getting good ISO (Insurance Service Office) ratings, and we’re giving them a full 40 points on water supply.”

The Fire Department will also be celebrating 100 years in 2019, and the water utility presented the Fire Department with a commemorative table containing a special plaque made just for the occasion. “It was a token of our appreciation for its ongoing support,” Graham says.

Wastewater treatment

Wastewater from approximately 3,300 customers is treated in an older facultative lagoon system, capable of handling about 1.75 mgd. A 2019 bond issue will allow purchase and installation of a

(continued)

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Water Treatment Manager Randy White back-washes the flocculation basin for routine cleaning.

“We’re on Facebook with real people. With our pictures and videos, our customers see us as real people — not faceless, nameless workers.”

Paul Graham

sequencing batch reactor to improve treatment and increase the treatment capacity to 4 mgd.

Currently, the wastewater passes through three sections in the pond, then is disinfected with UV light and released to the Little Red River, a high-quality trout stream.

“We’ve only had to dredge solids from the pond bottom once in more than 40 years,” Graham says.

The utility cleans its sewer mains as needed with a jetter and Vac-Tron. “Recently we purchased a PipeHunter jetter vacuum trailer that will assist us in sewer cleanings, as well as excavations around other utilities.”

Graham adds that the Arkansas Rural Water Association assists in sewer cleaning from time to time, especially with the utility’s older pipelines. “They come in and help inspect our system to find hidden issues in some of the older sewer mains.”

Improvement projects

As with most water/wastewater utilities across the nation, Heber Springs is engaged in a number of improvement projects aimed at providing better, more cost-effective services to its ratepayers.

On the clean-water side, Graham’s team is in the midst of laying a new high-pressure, high-volume transmission line through the center of town to supply its two water wholesalers, which normally use up to half the water produced by the utility. The pipeline will extend over 12,000 feet and be capable of handling water to 250 psi.

“We’re using class 350 ductile iron for the high

pressures, C-900 DR-18 for the normal pressures,” Graham says. “We’re also adding a new pump station and new storage tank. When completed, the new line will give us two separate water arteries around the city that will feed only the wholesale customers.” That will relieve the strain on the rest of the system.

Utility crews are using conventional open-cut excavation to install the new line.

Better meters

New and improved meters are another major advancement.

“In 2016, we replaced our old meter and meter-reading system with new technology from Badger Meter,” Graham says. The new system features Badger’s BEACON Advanced Metering Analytics cloud-based software suite coupled with Orion communication technology. Cost was \$2.6 million, paid for through a bond issue.

“We are able to monitor and report every customer’s water usage within 24 hours using cellphones. The system uses existing cellphone towers and is synced to all the local service providers.

“Everyone’s individual water usage is available on the BEACON website,” he adds. “We can get alerts regarding leaks and water loss, and the customer is able to see those on an app called EyeOnWater.”

Not only has the new system saved time and manpower, it has reduced water loss by as much as 5 percent, Graham reports.

“In one case, a vacation home customer had a leak in a line to the swimming pool. Over 3,200 gallons per hour had been lost for about an eight-hour span, but we caught it and turned it off on a Sunday morning. We called the customer (in Memphis) and he was tickled to death.” Under the older system, the customer might not have known about the leak for up to 30 days when the meter was read again manually.

Graham says just one person is now dedicated to metering and is also responsible for turnons, turnoffs, cross-connection control and backflow testing. “We used to have two meter readers who spent about 20 days a month at that task.”

The new system reveals and prevents people stealing water from unoccupied homes.

Next generation

At the same time, the utility is making its sewer system ready for the next generation.

“We’ve budgeted about \$250,000 a year for sewer maintenance and repair,” Graham says. “We have over 67.5 miles of pipe and 1,402 manholes, as well as 31 lift stations. This is a very hilly service area.”

The utility uses PVC pipe for most replacements. It has sliplined some pipes and is considering sliplining for more work in the future. “On our creek crossings, we use ductile iron.”

In the lift stations, the utility uses epoxy spray and injection molding from ICM Technologies. An expanding foam is injected in the ground and fills any cracks or holes in the manhole or lift station.

Heber Springs is also installing all-new electrical panels. “Previously, we’d repair or replace a bad panel with whatever we had in the shop,” Graham says. “As a result, we had different panels all over the place, requiring different parts for each.”

Now, the process is standardized and the panels are easier and cheaper to repair.

The utility is also installing new Barnes grinder pumps (Crane Pumps & Systems) and KSB submersible pumps.

Facing the public

All of these improvements are reported to the public through the utility’s Facebook page. Mul-lady updates the utility’s page at least twice a day.

“We post information on repairs and other events. Our crews take photos or videos and text them to me to post, or I can go out to a job site to take pictures.” She says it’s good for customers to see that utility workers are on the job, making the repairs.

“The guys tell me where they’re going to be. It’s not hard to do, and it keeps our customers aware of what’s happening: a road closure due to a holiday or if we’re flushing water mains in a section of the city.

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AN EXPERIENCED TEAM

Staff members at the Heber Springs Water and Wastewater Utility have earned their positions from the ground up. Some have worked their way up from belowground.

Paul Graham, general manager; Tom Stanford, operations manager; and Joey Massey, wastewater treatment plant manager, all started out as ditch hands with the utility. The hands-on experience extends to Sam Querry, assistant manager, who was the utility's first wastewater treatment plant operator and Randy White, water treatment plant manager, who started as a meter reader.

Graham remembers working in the sewer ditch for 10 months before being promoted to meter reader for the next nine years. In 2013, Graham — a licensed master plumber — was promoted to distribution crew supervisor. He was promoted to assistant general manager in 2016 and general manager in 2018.

He holds Grade 4 wastewater treatment, water treatment and water distribution licenses. He is also a part-time captain of the Heber Springs Fire Department.

Querry is the longest serving member of the team, having joined the utility in 1979. After five years as a crew member, he became manager of the wastewater treatment plant when it transitioned from a storage lagoon to filters and UV disinfection in 1983. He was promoted to assistant manager in 2008. He holds Grade 4 water treatment, water distribution and wastewater treatment licenses.

After serving as a ditch hand on the maintenance crew, Stanford was promoted to equipment operator, then moved up to water treatment plant operator and finally became operations manager in 2013. He oversees all field operations, including taps, leaks and new construction; the sewer crew and the water crew as well as the utility's mechanics; and the training, safety programs and inventory programs.

He holds Grade 4 water treatment and water distribution licenses and a Grade 3 wastewater treatment license.

White joined the team in 2000. After reading meters, he became the utility's inflow and infiltration inspector, charged with inspecting all new water main and sewer construction and installing flowmeters on sewers. He became water treatment plant manager in 2012, supervising two employees and ensuring the plant meets or exceeds all government standards.

He holds Grade 4 water treatment and water distribution licenses and a Grade 3 wastewater treatment license.

Massey was promoted to equipment operator two years after he was hired in 2004. In 2012 he was promoted to the wastewater treatment plant as a plant operator, a position he held until 2018 when he was named plant manager. He supervises a staff of two and makes sure the operation is covered on weekends.

Massey holds a Class 3 wastewater treatment license.

"We've built a team of professionals in all of the crucial roles and have given them the ability to get the job done," Graham says. He believes in giving his employees the opportunity to earn the licenses needed to be able to go to any utility and find a job. "But at the same time, we want to promote a workplace that encourages the employee to want to stay at Heber even if they are offered a better-paying job somewhere else."

The Heber Springs Water Utility team includes (from left) Randy White, Joey Massey, Paul Graham, Sam Querry and Tom Stanford.

"It's exciting to see the water and wastewater utility evolve. We're getting into the 21st century and we're using technology to better inform our customers."

Public relations and outreach is a major challenge, Graham says.

"We're on Facebook with real people," he says. "With our pictures and videos, our customers see us as real people — not faceless, nameless workers."

He says it's important to let people see what's going on. "Using social media, we can pinpoint leaks and service work on our system map so customers can know where the leaks and job sites are. We head off possible complaints, and our employees' families love it because they see their family members online. The morale among the crews has escalated."

In Heber Springs, the public perception of the water and wastewater utility is changing for the better, Graham believes. "People just want to be in the loop." ♦

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SAVE FACE, AND YOUR SIGHT

Hydroexcavation industry veterans discuss the importance of safety glasses and face shields

By Brenda Silva



As hydroexcavator operator Joe Harp walked up to his co-worker to aid him on a job site, he suddenly felt like he had been shot with a BB gun.

“I turned my face away from the wand and immediately shut the water off,” Harp says.

He was running the wireless remote to the unit while his co-worker was running the dig wand. Harp knew he had just been hit by a rock.

“I was thinking that it just went under my shield, but after looking, I noticed a hole that was in my face shield that was in the same area where I was hit on my chin.”

Harp wasn't seriously injured — no blood or broken teeth — but he knew that it could've been different if he had not put down his face shield before approaching his co-worker.

“If it wasn't for my face shield slowing that down or possibly changing the trajectory of the flying debris, I would have had a long explanation and even longer paperwork on why I wasn't using my PPE,” Harp says.

“I was thinking that it just went under my shield, but after looking, I noticed a hole that was in my face shield that was in the same area where I was hit on my chin.”

Joe Harp

Standards for safety.

Just as important as the heavy equipment on any project is the safety gear for operators using the equipment. To guard against the impact of flying debris, safety glasses and face protection are tested to the ANSI Z87.1-2015 standard, which is designed to make the difference between a day that ends successfully and a day that ends in the hospital.

(continued)

Safe hydroexcavation requires both face shields and safety glasses to protect operators from flying debris.

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“Spectacles (glasses) are tested for high impact by using a 6.35 mm steel ball traveling at 150 ft/s, and face shields are also tested for high impact at 300 ft/s,” says Michael Myrick, marketing product trainer and analyst at MCR Safety, located in Collierville, Tennessee. “According to the standard, there is no testing method for psi.”

He also points out, “Generally, high-impact glasses — in conjunction with a high-impact face shield — would work best for an application like excavation. The face shield would act as secondary protection for the eyes, and the glasses would act as the primary protection. As such, the coverage of the glasses should completely encapsulate the orbital area around the eye. In the event of hydroexcavation, the use of an indirect vented goggle that is tested to the ANSI Z87.1-2015 standard for water droplets and rated a D3 would work best.”

Already wearing glasses?

Sometimes, though, the operator is already wearing prescription glasses.

“If the person wears prescription glasses, it’s recommended they use a prescription safety glasses company to either supply them with prescription glasses or goggle inserts,” Myrick says. “Also, the use of an over-the-glasses, high-impact-rated safety glass could be used over standard prescription glasses. In either case, they need to use something along with a high-impact-rated face shield.”

Tony Spearing, vice president at Brass Knuckle Protection in Alpharetta, Georgia, echoes Myrick’s comments. He suggests existing options and alternatives for eyeglass wearers.

“Some goggle styles allow prescription glasses or prescription inserts to go underneath them,” Spearing says. “Also, some safety eyewear styles also come with prescription inserts, while others provide diopter options, which are already molded into the lens. Often, full prescription safety glasses are available either through the employee’s optician or a vision program offered by the employer in conjunction with a manufacturer.”

Protection is prudent.

The importance of safety glasses and face shields can never be overstated, especially in extreme environments that have rigorous project demands. At those times, safety gear can become one of the most important factors for project completion and cost-effectiveness.

“In extreme environments like vacuum excavation, one would need to use glasses with superior anti-scratch and anti-fog properties,” Myrick says. “When selecting the right glasses for the wearer, you should answer the following concerns: comfort, coverage and protection level. Over my 22 years in the industry, I found that if the glasses are not comfortable, the employee simply will not wear them.”

Harp encourages his fellow hydroexcavator operators to make sure they are wearing the proper personal protective equipment, and he has even gone on social media to tell the story of his close call.

“To sum everything up, PPE in the world of hydrovacating is an essential part of what we do,” Harp says. “Although it can be a nuisance and seem like it’s slowing you down, it does do its job — which is to make your job safer. Never become complacent with your PPE and safety plans because it could save your eyes, your teeth and your time.” ♦



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MANAGE CONFLICTS MORE EFFECTIVELY

Here's what you need to know about resolving the inevitable workplace disputes

By Ken Wysocky

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.

Workplace conflicts are as inevitable as tuberculation in a 100-year-old cast iron pipe. In fact, a survey conducted by the American Management Association found that managers spend almost a quarter of each workday managing conflicts of one kind or another.

But resolution of those conflicts in an equitable fashion can be equally commonplace, if handled correctly. In the end, minimizing conflict boils down to effective communication and mutual respect between employees, says Lauren Schieffer, a certified speaking professional and a consultant on workplace issues.

“Conflict isn’t inherently bad. It creates energy, and that’s a good thing. How that energy is channeled determines if it’s destructive and leads to drama or is constructive and leads to change.”

Lauren Schieffer

“Every organization has drama and conflict,” says Schieffer, the author of *Colonels of Wisdom – A Daughter’s Reflection on Leadership*. (Her father was a lieutenant colonel in the U.S Air Force.) “I help them dump the drama.”

One of the core concepts that Schieffer recommends is teaching employees to treat each other with respect, which includes communicating respectfully. “Even if you don’t respect someone, you must treat them with respect. When we’re treated in a disrespectful manner, it shuts down our willingness to communicate, negotiate or continue a conversation at all.

“So you need to start with this concept where you choose to treat other people with respect, whether you like what they think, say or do. That then leads to respectful communication.”

Remain impartial

For managers, resolving conflicts between two employees can be

fraught with risk. But by following some basic steps, they can minimize potential pitfalls. A critical part of the resolution is impartiality, which can be reinforced in two ways.

The first involves a meeting with both employees. “It’s really important to assess a conflict with everyone in the room, face-to-face,” Schieffer advises. This should occur even if both parties feel uncomfortable in each other’s presence.

Sometimes a face-to-face meeting isn’t possible because, for example, the employees are in different cities. In those cases where a manager must meet with the two parties separately, it’s very important for each employee to understand that your role is to moderate over the dispute, not be a confidant. “As such, nothing is said in confidence,” she says. “The need to know that anything said will be communicated to the other person, to avoid the appearance of taking sides.”

You can also reinforce impartiality by beginning with a validation of each person’s value to the team. “Make sure both people know it’s not your job to take sides. It’s your job to establish an environment where they can move forward productively.”

The next step is establishing some ground rules. Each person should get a chance to state his or her case about the conflict — without the other person interrupting. That’s critical because when people get interrupted, they tend to shut down and stop talking, Schieffer says.

“Furthermore, if you allow one person to keep interrupting, you’re implying that one person’s input is more valuable. Plus, the mere process of interrupting is disrespectful.”

Just the facts

During the process, it’s also important to address only facts and behaviors, not personalities. “You can address the behavior without attacking the person,” she points out. As an example, Schieffer cites two fictitious employees named Ken and Barbie who are in conflict because the latter always interrupts the former during meetings.

“In this case, the fact that Barbie consistently interrupts Ken in staff

(continued)



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meetings is a behavior,” she explains. “Now Ken could construe that she’s just rude, but that’s a judgment about a personality characteristic. She could just as easily be an excitable and enthusiastic person.

“It’s a given that everyone will have perceptions about other people. It’s normal and natural for human beings to put our own spin on things. But it’s critically important for managers who moderate conflicts on their teams to always bring conversations back to the facts, not someone’s interpretation of the facts.

“You can’t read peoples’ minds or define their intentions,” Schieffer says. “In all my experience, I’ve never met anyone who’s a member of the psychic network.”

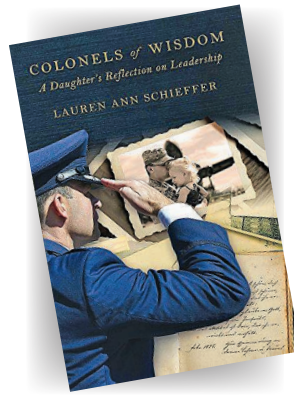
When both parties have had their say, it’s helpful to ask each person what they’d like to see the other person do to resolve the conflict. Making them come up with a solution is invaluable because people are more likely to support a solution they helped create, she says.

“If you define a resolution and impose it on both parties, then it’s viewed as a prison sentence, as opposed to asking them what they’d like to see happen to bring the conflict to a resolution,” she says. “This may take a couple of rounds of discussions, and you have to rein them in if they go back into blaming and name-calling.”

Forging a compromise

If the solutions provided are at odds with each other, then it’s time to hammer out a compromise. Alternately, managers may sometimes find that conflicts defuse themselves by merely giving both sides an opportunity to air their grievances before an impartial mediator, as well as define what they want to get out of that mediation.

“Sometimes that compromise is simply defined by, ‘We’ve established the



fact that we’ve defined the conflict — now can you live with it?” Schieffer says. “Most conflicts arise because people feel like they’re not being heard or valued.

“I very rarely find that people choose to be in conflict because they hate each other. Usually they’re just passionate about something or feel their contributions aren’t valued. They feel better once they feel heard.”

After resolving a dispute, managers also need to keep monitoring the situation — keep touching base with both parties to be sure things are copacetic.

One more thought: Managers and employees should also realize that conflict isn’t always bad. Debates about strategies, processes and objectives often can lead to innovations and even strengthen employee relationships.

But employees must do so respectfully, Schieffer says.

“Conflict isn’t inherently bad. It creates energy, and that’s a good thing. How that energy is channeled determines if it’s destructive and leads to drama or is constructive and leads to change. You need to create a workplace with compassionate accountability.”

In the end, given the large differences in employees’ values, perceptions, backgrounds, communication styles and so forth, it’s a wonder that conflicts don’t occur more often. Communication can be an especially vexing problem, particularly with so much reliance on nonverbal methods such as texting and emailing, which are easily subject to misinterpretation. All these factors combine to make it more difficult to prevent, manage and resolve conflicts.

“Sometimes the best we can do is just focus on common ground ... and build some kind of bridge on that,” Schieffer says. “And start each day with a conscious decision to treat everyone with respect.” ♦

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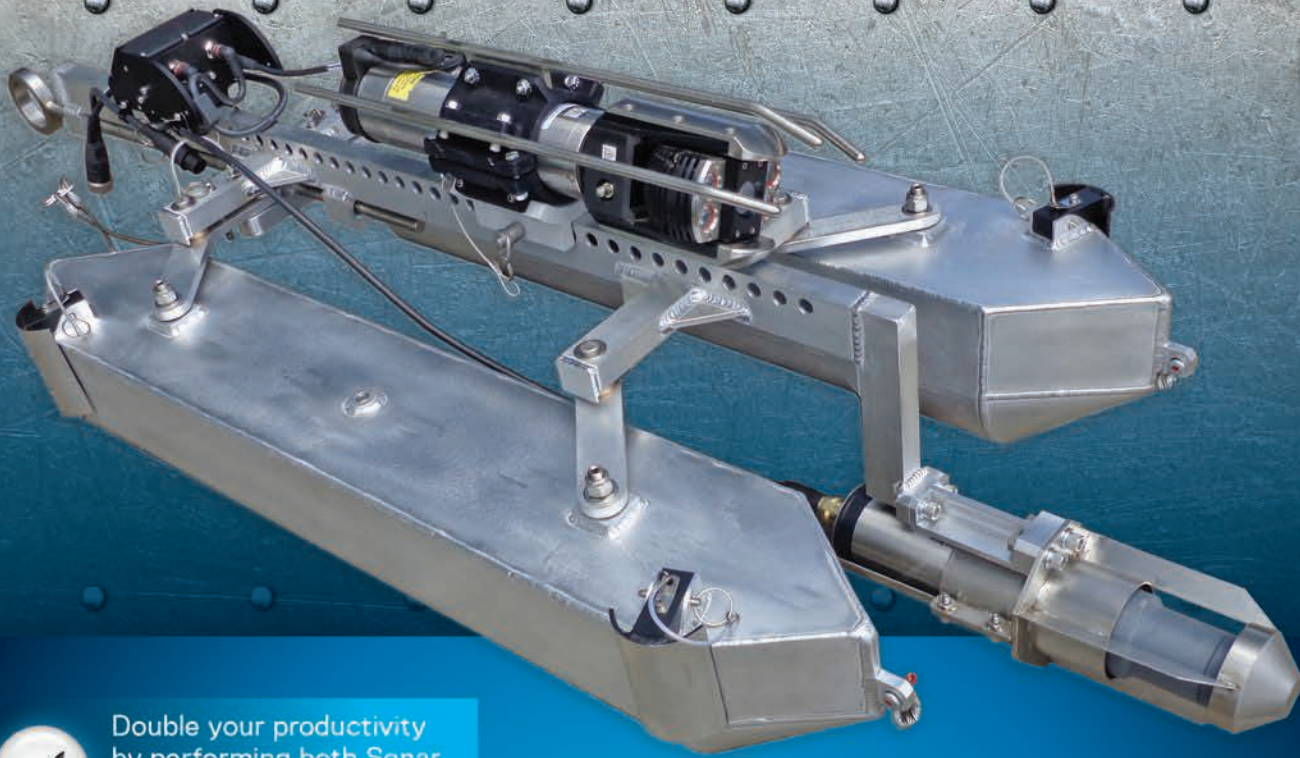
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THE TRUE VALUE OF PACP

Standardized inspection processes provide management benefits to municipalities

By Sheila Joy

Most people know that NASSCO's Pipeline Assessment and Certification Program has become the industry standard for the proper condition coding of pipelines and has continued to evolve with the addition of the Manhole Assessment and Certification Program and the Lateral Assessment and Certification Program. What is rarely discussed, however, is the value of quality PACP data and how it helps cities and municipal districts effectively manage their programs.

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- Having access to quality data allows for benchmarking and provides the ability to chronicle deterioration and prioritize work for effective asset management.

A universal benefit for cities and contractors alike is consistency in speaking the same PACP language. As a result, all involved understand the requirements, minimizing the need to recreate standards. This is achieved through quality PACP training, which uses the same course materials, whether taught in-house at a municipality or in a class designed for contractors.

Additionally, NASSCO's requirement for either in-class or online recertification every three years ensures that all PACP professionals are up to date, meaning quality assurance/quality control is standardized and quality improves over time.

Finally, easy access to data, consistent scoring and ranking of sewer conditions, and integrating data into asset management programs all work toward NASSCO's mission to set standards for the assessment, maintenance and rehabilitation of underground infrastructure and to ensure the continued acceptance and growth of trenchless technologies.

To learn more about PACP, visit www.nassco.org. ♦

NASSCO (National Association of Sewer Service Companies) is located at 2470 Longstone Lane, Suite M, Marriottsville, MD 21104; 410-442-7473; www.nassco.org

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

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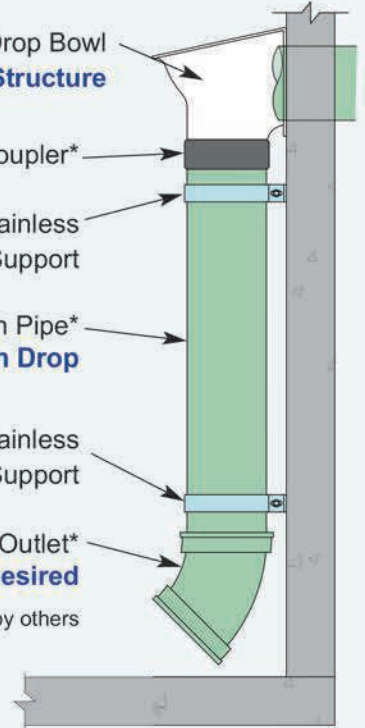
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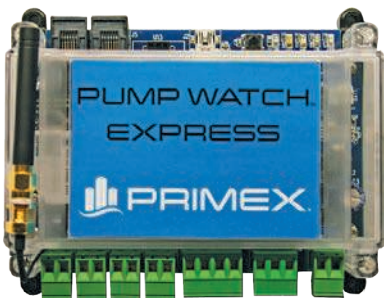
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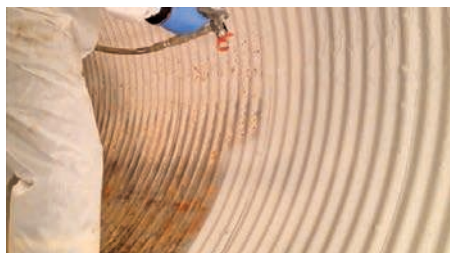
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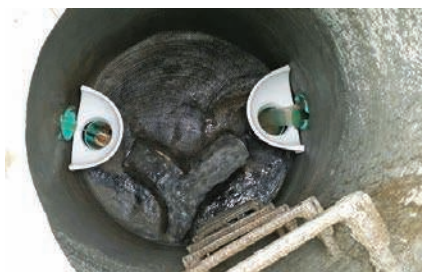
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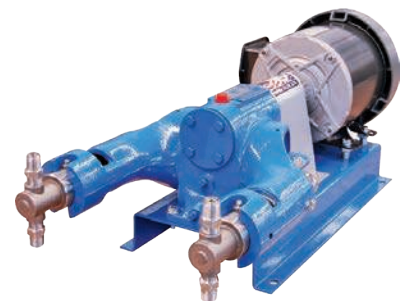
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The **DFM 6.1** Doppler flowmeter from **Greyline Instruments** provides easy and accurate flow measurement of sewage, biosolids, slurries and viscous liquids. Its clamp-on technology does not require pipe penetration, cutting or welding, greatly reducing costs. It offers fast, simple installation in typically less than 10 minutes, with high accuracy. A built-in five-button keypad, intuitive configuration menu and large backlit LCD make it operator-friendly. At a glance, the user can view flow rate, flow direction, totalizer, relay status and important diagnostic information on the large LCD. It has an isolated 4-20mA output for flow rate, two relays for pulse output or alarms and 26 million-point data logger for greater flexibility of data monitoring and control. The user can monitor flow rate, volume total, run hours and diagnostic information through only two wires with the optional Modbus RTU or HART serial communication option. **888-473-9546; www.greyline.com.**

JAECO Fluid Systems JaecoPAK metering pumps

JaecoPAK metering pumps from **JAECO Fluid Systems** are most commonly used for chemical metering and desalinization in multiple applications. They are available in both simplex and duplex configurations with pump capacities ranging from 0.38 to 150 gph at operating pressures up to 2,000 psi with an accuracy of plus or minus 0.5 percent. They are cast iron with a choice of 316 stainless steel or alloy 20 liquid ends with single ball or poppet check valves. Choose between neoprene, Viton or Teflon packing options and a single- or three-phase 12- or 24-volt electric motor, gas-powered engine or belt-driven option. They are completely serviceable. **877-778-3456; www.jaecofs.com.**

(continued)



JAECO Fluid Systems JaecoPAK metering pumps



Greyline Instruments DFM 6.1

PUMPS

Flygt - a Xylem Brand N 3202

The **N 3202** N-technology wastewater pump from **Flygt - a Xylem Brand** has self-cleaning abilities and operates with sustained high efficiency in tough applications. It is designed to perform under extreme conditions, such as cutting solids or fibers down to size, and still perform reliably and energy efficiently. The N-impeller is fitted with a cutting Hard-Iron insert ring. Most solid objects entering the pump will pass through the impeller between the impeller vanes. If an object gets caught on the leading edge of one of the vanes, it will slide along the backswept shape toward the perimeter of the inlet. **855-995-4261; www.xylem.com/pumping.**

JWC Environmental Channel Monster FLEX

The **Channel Monster FLEX** high-flow wastewater grinder from **JWC Environmental** has a modular design that allows for more flexibility of servicing the cutting element and perforated solids diverter element separately. The cutter module can be replaced with a pre-assembled one in the field, eliminating the need to ship the entire unit back to the factory for repair. The **FLEX** maintains high-flow capacity utilizing a perforated solids diverter instead of horizontal screening bars, minimizing material bypass while ensuring all debris is shredded. With flow capabilities from 3.0 to 42 mgd and numerous combinations of grinder heights, diameters of the solids diverter, plus customized installation frames, the grinder is versatile for both in-channel installations or wall mounting within wet wells. **800-331-2277; www.jwce.com.**

NOV EZstrip

The **EZstrip** maintain-in-place progressing cavity pump from **NOV** has quick and safe removal of the full drivetrain including rotor, stator, shaft, rod and seal in minutes without electrical disconnection. The access covers provide 360-degree access to the coupling rod and drive shaft for easy inspection. With its smooth-profile positive torque split coupling rod, maintenance and assembly times are reduced. The tie bar-free design allows the **EZstator** clamps to lock the stator securely in place, further reducing stator removal time by over 50 percent and improving safety of common maintenance operations. In addition, the fixed support foot and stator clamp assembly further aids rotor and stator removal. It is available in cast iron or stainless steel with a choice of rotor and stator materials to suit individual applications. **832-424-7300; www.nov.com.**

Vertiflo Pump 1600 Series

The **1600 Series** horizontal end suction vortex pump from **Vertiflo Pump** is suitable in a wide range of applications in areas like food processing solids, wastewater treatment, pollution control and waste pumping in the wine industry. It offers capacities to 1,600 gpm, heads to 170 feet TDH, temperature to 250 degrees F, and a fully recessed vortex impeller with packing or mechanical seal. Pumps are designed with back pullout construction that permits easy inspection and access for service or maintenance if needed without disturbing the piping to the pump. Standard construction is cast iron, 316 stainless steel fitted, all 316 stainless steel, alloy 20 or CD4MCu. **513-530-0888; www.vertiflopump.com. ♦**



Flygt-aXylemBrandN3202



JWC Environmental ChannelMonsterFLEX



NOV EZstrip



Vertiflo Pump 1600 Series



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Pinch valves replace plastic ball valves

Problem:

A drinking water plant in Arizona utilized plastic ball valves installed on pipelines to transport 12.5 percent sodium hypochlorite. The plastic ball valves had problems with the rubber liners swelling, which prevented the valves from shutting off completely. The ball valves' packing also had problems with leaking hypochlorite on the floor.

Solution:

Plant personnel decided to try plastic pinch valves to solve the problems. The failing ball valves were replaced with numerous **Flowrox** PVEG polyamide-bodied pinch valves. Flowrox supplied the valves with EPDM rubber sleeves. The sleeve is the only component that is in contact with the flowing medium. All other components are isolated from the chemical by the sleeve. The pinch valves also do not have stem packing, so not a single drop of sodium hypochlorite has ever leaked out of them. Polyamide-bodied pinch valves are ideal due to their light weight. A 2-inch valve only weighs 17 pounds, and a 6-inch valve weighs less than 60 pounds. A 6-inch plug valve weighs 165 pounds or more. The valves are also full port, while plug valves are not. The Cv of a 6-inch Flowrox pinch valve is 3,500 versus 1,960 for a full port rectangular plug valve. Therefore, pinch valves save energy. The pinch valves are easy to open and close, as the torque requirements of a pinch valve can be one-tenth that of a plug valve.



The valves have been operational with no repairs or leakage for more than two years at this Arizona water plant. **888-356-9797; www.flowrox.com.**

RESULT:

The valves have been operational with no repairs or leakage for more than two years at this Arizona water plant. **888-356-9797; www.flowrox.com.**

Historical knowledge makes valve replacement easier

Problem:

During a comprehensive inspection of Los Angeles' largest sewerage treatment facility, officials at the Hyperion Water Reclamation Plant discovered deterioration of its primary outfall pipeline, which wasn't unusual given that it was over 60 years old. The inspection also revealed that 10-year-old isolation butterfly valves on the suction and discharge sides of the vertical turbine effluent pumps needed to be refurb-



bished or replaced. When tide and plant hydraulic conditions allow, plant effluent flows with gravity through a 120-inch-diameter butterfly valve to the plant's 5-mile outfall pipeline without the use of pumps. Failure of any of these valves could create a backflow event that would flood the plant.

Solution:

Fortunately, the city had documented that the five existing 60-inch butterfly valves and five 78-inch valves were **Pratt-brand** valves from **Mueller Water Products** installed in the early 1970s. Knowing this information meant original project files, parts and replacement valves could be on hand before starting the work. This makes the decision to refurbish or replace an instant option upon discovery of the extracted valves, saving valuable time. The critically important 120-inch butterfly valve needed to be replaced with a new actuation system. Moog Flo-Tork designed an actuator that required 13.9 gallons of hydraulic oil per stroke with a rated working oil pressure of 3,000 psi.

RESULT:

The new actuation system worked very well in tandem with the new butterfly valve. Since the installation, all 11 valves have operated flawlessly, giving plant managers and residents an upgraded level of safety and providing necessary protection of the Santa Monica Bay shoreline. **800-423-1323; www.muellerwaterproducts.com.**

Submersible chopper pump stands strong through tropical storm

Problem:

The main lift station serving the wastewater treatment plant in Morgan's Point, Texas, experienced problems with its three standard nonclog pumps. The pumps frequently clogged with shop rags, pieces of lumber, plastic bottles, gloves and wet wipes when rainfall reached or exceeded 2 inches. Over seven years, these issues required the city to spend \$100,000 for pump maintenance and service.



Solution:

The city installed a **Vaughan SE-Series** submersible chopper pump, along with a complete guide rail system to solve the problem.

RESULT:

After the pumps were installed in July 2016, the city experienced more than 100 inches of rain with no plugging or other issues. During Hurricane Harvey in 2017, the pumps ran continuously for 72 hours without incident. "I just wish we had purchased these pumps years ago to eliminate the maintenance headaches we endured and the costs we incurred keeping our previous pumps in operation," says Brian Schneider, city administrator. "If the former pumps were still installed, residents would have had sewage in their homes." **888-249-2467; www.chopperpumps.com.**

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District retrofits lift station wastewater pumps

Problem:

The Channel Islands Beach Community Services District, located on the California coast south of Santa Barbara, was experiencing a high rate of false alarms from their seven wastewater lift stations. “We were getting on average two false alarms per week per lift station,” says Pete Martinez, deputy general manager/operations manager for the district. “That’s a lot of hours driving around.” On top of that, the old PLC-based control system and auto dialers were simply not considered reliable enough.



Solution:

The district installed the **XiO Cloud SCADA** control system on its seven lift stations. There were no radios to see or support along the beachfront. “Installation took about one day per lift station,” Martinez says.

RESULT:

“With the XiO control system, we have seen false alarms go from 14 per week to zero,” Martinez says. 415-462-1300; www.xiowatersystems.com. ♦

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Product Spotlight

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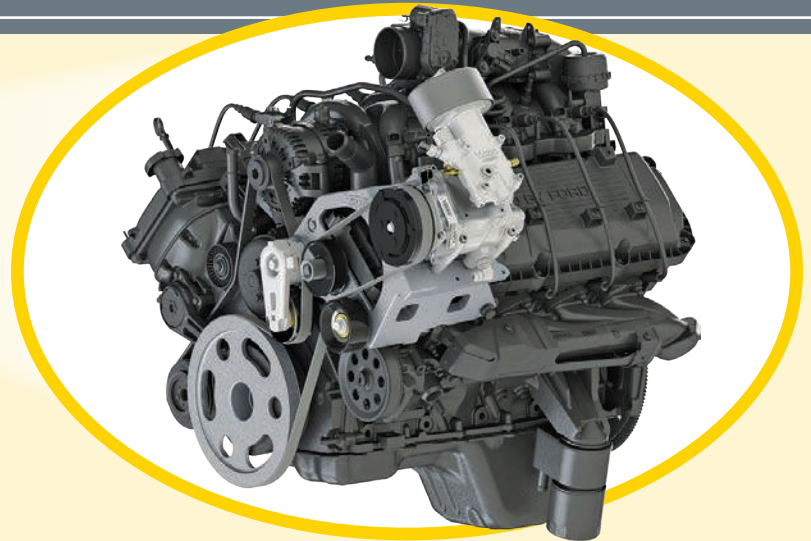
By Craig Mandli

A durable and powerful air compressor can be a key component on your hydroexcavation or jet/vac combination truck. VMAC offers one that's ideal for that service with its UNDERHOOD air compressors.

"We're continually expanding our vehicle-integrated air compressor and multipower system product lines to meet our customers' needs," says Barry Fitzgerald, VMAC's engineering manager. "We're ensuring our customers have access to systems they need as they upgrade their service truck fleets to the latest 2019 models."

The VMAC UNDERHOOD 70 air compressor system is the suggested choice for customers who have concerns with space and weight on their service trucks. The powerful rotary screw air compressor is suitable for operating small- to medium-sized air tools with high air demand. VMAC engineers truck-mounting kits for the easiest possible installation. Working closely with leading truck manufacturers, VMAC ensures that mounting kits do not affect OEM warranties.

"UNDERHOOD air compressors for trucks and vans are favored in the industry for being lightweight and space-saving, while delivering powerful on-demand air in any climate," says Mike Pettigrew, VMAC's marketing manager. "UNDERHOOD is the best choice for customers who need to



save space and weight on their vehicles and minimize the maintenance required on their equipment."

The UNDERHOOD 70 air compressors free up as much as 25 cubic feet on the truck deck because the air compressor mounts in the engine compartment. In fact, no components get installed on the truck deck, which ensures a clean and professional-looking truck and space for other equipment, tools or materials. According to the company, choosing a lightweight air compressor means you'll be able to add more tools and equipment to your truck, carry more materials or take advantage of better fuel economy.

The air compressors use rotary screw technology designed to run at 100 percent duty cycle without stopping, so operators don't have to wait for their air compressor to fill up an air receiver tank. This maximizes tool performance and eliminates downtime. Because they don't have their own engine that needs constant maintenance, less time and money is spent on fixing engine issues. The compressor is designed to work in any extreme climate, as it is protected under the hood of the truck, ensuring it starts in any climate every time.

"By continually expanding our product line, VMAC is keeping its promise to be the leader in mobile compressed air innovation," Fitzgerald says. **800-738-8622; www.vmacair.com.**

HammerHead Trenchless QuickLok inversion drums



HammerHead Trenchless' QuickLok inversion drums have two drum sizes capable of holding up to 125 feet and 225 feet of 4-inch liner, respectively, and a single-lever lockdown that gives a positive seal and secure latch. Other features include extra viewing ports and a detachable spindle wheel that makes it easier to navigate tight areas. Once in place, the

wheel may be reattached to either side of the drum, accommodating workspace limitations or the preference of the operator. **800-331-6653; www.hammerheadtrenchless.com.**

Doosan Portable Power dual flow air compressor with 210 cfm high-pressure mode



Doosan Portable Power P250/HP210 Tier 4 Final portable air compressor delivers the pressure and flow typically supplied by two units in a single air compressor. The new model replaces the P250/HP185 and delivers 250 cfm of air at 100

psi in low-pressure mode and 210 cfm of air at 150 psi in high-pressure mode. It offers eight hours at 100 percent load on low-pressure and nine hours at 100 percent load on high-pressure mode. It has a 34.5-gallon fuel tank and cold starts in temperatures as low as 10 degrees below zero. To

simplify maintenance, it has convenient curbside discharge valves and cooler clean-out ports. All filters are readily accessible and clearly marked, and diagnostic connections are easier to reach. **800-633-5206; www.doosanportablepower.com.**

REHAU MUNICIPEX municipal water and wastewater line



REHAU is offering two additional cross-linked polyethylene PEXa pipes in its municipal piping program. In addition to MUNICIPEX water service line, the expanded product range now includes MUNICIPEX pre-insulated for cold-weather applications and MUNICIPEX force main for wastewater applications.

Specifically for water distribution in colder climates, the pre-insulated pipe provides an extra level of protection from freezing, which is particularly useful when laying pipe below the frost line is not possible. A MUNICIPEX carrier pipe is surrounded by a solid layer of CFC-free polyurethane foam insulation and a corrugated LDPE outer casing that provides superior durability. MUNICIPEX force main is used in publicly owned treatment works systems for conveying wastewater under pressure from the discharge side of a pump or pneumatic ejector to a discharge point. The pipe is color-coded with a green coating that helps installers easily identify wastewater applications. **703-777-5255; www.na.rehau.com.**

Aries Industries Wolverine 2.0 cutting system



The Wolverine 2.0 cutting system from Aries Industries is able to operate in pipes from 6 to 18 inches. The self-propelled, electric system features advanced ergonomic fingertip control and the ability to cut through materials with maximum speed and precision. Its linearly adjustable speed and axis movement offer maneuverability, coupled with a compact profile and all-wheel drive to navigate tough terrain. The 500-foot cable reduces truck setup time, and the electric two-speed milling motor is field repairable and rebuildable. The system has multiple wheel configurations to adapt to pipe conditions. **800-234-7205; www.ariesindustries.com.**

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Jetstream of Houston TwinForce dual pump system



Jetstream of Houston's TwinForce dual pump 650 hp water-blast system features a John Deere Tier 4 engine and is designed for high-flow applications including industrial cleaning, surface preparation and hydrodemolition. It functions as a

large-capacity 650 hp unit or as two 325 hp independently run units. The TwinForce unit is built around the UNx fluid end water-blast system so operating pressures from 8,000 to 40,000 psi can be changed in minutes. **800-231-8192; www.waterblast.com. ♦**

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Scott Bardreau joins Midland Metal's management team

Midland Metal announced Scott Bardreau joined the company as chief sales officer for its growing platform of companies, which includes Anderson Metals and Buchanan Rubber. Bardreau has over 35 years' industry experience across plumbing and heating, industrial, waterworks and irrigation verticals. He spent the last 12 years with Matco-Norca in the role of vice president of sales and marketing. Prior to Matco-Norca, he served in various management roles at Watts Water Technologies, in both wholesale and retail channels.



Scott Bardreau

Draincables Direct welcomes new sales representative

Draincables Direct announced it added a truck route that will service Utah and Nevada, as well as surrounding locations. The new route will be operated by Dean Pruitt, Draincables Direct territory sales representative. Pruitt began his career in the plumbing and drain cleaning industry in 1993 and worked for a local Utah plumbing company until 2002. At that time, he started his own plumbing company, which he ran until 2010. He has also worked for Spartan Tool in Utah, Nevada, Washington, Oregon and Idaho as a territory sales manager.



Dean Pruitt

Aries Industries announces promotions, new hires

Aries Industries announced it has strengthened its market outreach with a promotion and two new employees. John Kudis, formerly northeast regional sales manager, was promoted to the new position of national accounts manager. Kevin Hastings has rejoined the company as western regional sales manager. And Boris Holmes has been hired as the company's first Rocky Mountain regional sales manager.



John Kudis



Kevin Hastings



Boris Holmes

RELINEEUROPE acquires interest in RELINEAMERICA

RELINEEUROPE announced it acquired a 50 percent interest in American pipe liner manufacturer RELINEAMERICA, making the company part of the worldwide Reline UV Group. The operational leadership of RELINEAMERICA will be led by Tim Cook and Jerry Botts; both will hold the title of vice president. In the future RELINEAMERICA will support the Reline UV Group's customers located in the North, Latin and South American markets.

Franklin Electric celebrates 75 years of business

Franklin Electric announced the company will be celebrating its 75th anniversary in 2019. The company was founded by E.J. "Ed" Schaefer and T.W. "Wayne" Kehoe in 1944 in Bluffton, Indiana. Franklin Electric started as a small motor manufacturing company and has grown into a global provider of systems and components for moving water and fuel.

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Felling Trailers celebrates 45 years in business with anniversary colors

In 2019, Felling Trailers marks 45 years in the business of manufacturing trailers. To commemorate this anniversary, the company has selected three limited edition paint colors: plum crazy purple metallic, ruby red metallic and sublime green. The limited edition anniversary colors will be available for purchase to Felling Trailers customers for the extent of 2019. In addition, all trailers manufactured during 2019 will have a commemorative decal marking it as a 45th anniversary edition trailer.

Germundson's Home Furnishings to become Mattracks Innovation Center

The building in Karlstad, Minnesota, that housed furniture for about 70 years will become home to Mattracks vehicles and memorabilia. Glen Brazier, Mattracks founder and CEO, says the old furniture store is the "absolute perfect fit" for the Mattracks Innovation Center. According to Germundson's Home Furnishings, the building has been a furniture store since 1948. Mattracks, which started business in 1994, has shipped products to over 100 countries and can be found in operation on all seven continents.

Core & Main acquires Maskell Pipe & Supply

Core & Main has closed on its previously announced definitive agreement to acquire select assets of Maskell Pipe & Supply, a California-based distributor and fittings fabricator of HDPE pipe. Maskell Pipe & Supply has locations in Corona and Tracy, California, and Morgantown, West Virginia.

Smith named president of Subsite Electronics and HammerHead Trenchless

Charles Machine Works has named Kevin Smith president of Subsite Electronics and HammerHead Trenchless. The company also announced a joint leadership team headed by Smith. Smith's new leadership team will include Randy Rupp, Brian Kenkel and Christi Woods.

Rupp, who has served as vice president of product strategy at Ditch Witch for the past four and a half years, has been named general manager for Subsite Electronics. Kenkel has accepted the position as general manager for HammerHead Trenchless, and Woods is assuming an expanded role as controller of Subsite Electronics and HammerHead Trenchless.



Kevin Smith

Vector announces plans to expand manufacturing facility

Vector announced plans to expand its Streator, Illinois, manufacturing facility. The project is expected to increase Vector's production capacity and add up to 90 additional jobs. The first phase of the project will expand the existing fabrication, welding, paint and assembly areas, as well as the test bays. Additionally, the current training center and customer inspection facility will be updated. Overall, the expansion will add approximately 100,000 square feet to the existing facility. Construction is expected to begin in the first half of 2019, with completion targeted by the end of the year. ♦

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WORTH NOTING

PEOPLE/AWARDS

The Humber Design Group of Oregon hired **Monica Regan** as a project designer. Among her duties are stormwater calculations and report writing.

HR Green received the American Council of Engineering Companies Missouri Honor Award for its work on the citywide Stormwater Management Program for the city of Ladue.

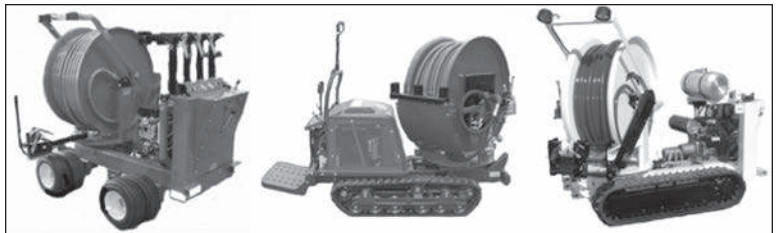
Batture received a Stormwater Award from the LifeCity organization and the Regional Sustainability Committee during the Love Your City Awards Gala in New Orleans.

The city of **Algona, Iowa**, received a Best Development Award from 1000 Friends of Iowa in the Stormwater Management category for its Downtown Green Parking Lot Infrastructure Renewal project.

Freese and Nichols hired **Krista Bethune Melnar** as its stormwater practice leader. She will also manage the Central Texas Stormwater Group.

The city of **Montpelier** was awarded \$600,000 in federal grant funds from the Indiana Office of Community and Rural Affairs for stormwater system improvements.

Newtown township received \$11,857 in Growing Greener funds from the state of Pennsylvania to design and construct two rain gardens on township-owned properties to treat stormwater runoff from existing impervious surfaces. ♦



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CALENDAR

May 8-10

Stormwater and Green Infrastructure Symposium, presented by the Water Environment Federation, Florida Water Environment Association and The Water Research Foundation, Broward County Convention Center, Fort Lauderdale, Florida. Visit www.wef.org.

May 8-10

Ohio Stormwater Conference, Hyatt Place-Cincinnati/Sharonville Convention Center, Cincinnati. Visit www.ohstormwaterconference.com.

May 19-22

American Public Works Association North American Snow Conference, Salt Lake City. Visit www.apwa.net.

June 9-12

American Water Works Association ACE19 Annual Conference & Exposition, Denver. Visit www.awwa.org.

June 16-19

American Water Resources Association Summer Specialty Conference: Improving Water Infrastructure Through Resilient Adaptation, Nugget Casino Resort, Sparks, Nevada. Visit www.awra.org.

July 7-10

American Society of Agricultural and Biological Engineers Annual International Meeting, Boston Marriott Copley Place, Boston. Visit www.asabe.org.

Aug. 18-22

StormCon 2019, Hyatt Regency hotel, Atlanta. Visit www.stormcon.com.

Sept. 8-11

American Public Works Association Public Works Expo (PWX), Washington State Convention Center, Seattle. Visit www.apwa.net.

Sept. 9-11

National Rural Water Association WaterPro Conference, Nashville, Tennessee. Visit www.nrwa.org.

Oct. 9-13

American Society of Civil Engineers Annual Conference, Miami. Visit www.asce.org.

Oct. 20-23

American Water Works Association Water Infrastructure Conference & Exposition, Hyatt Regency at The Arch hotel, St. Louis. Visit www.awwa.org.

Nov. 3-7

American Water Resources Association Annual Water Resources Conference, Sheraton Hotel, Salt Lake City. Visit www.awra.org.

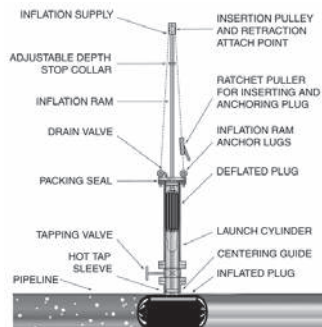
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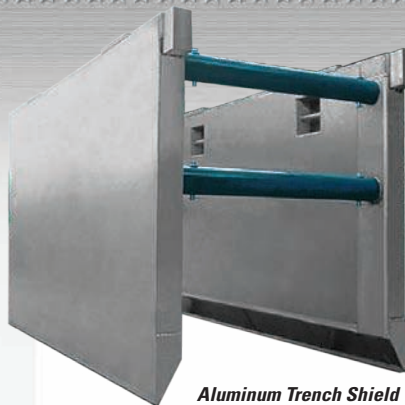
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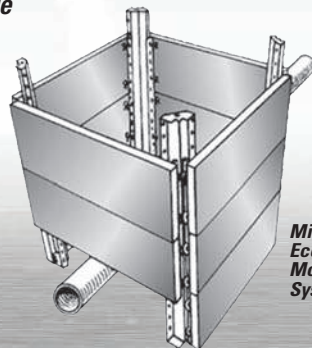
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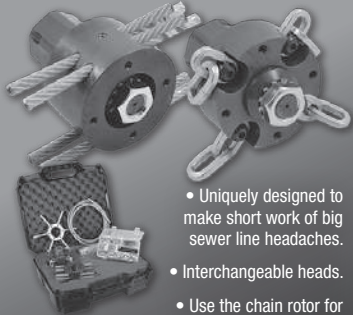
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