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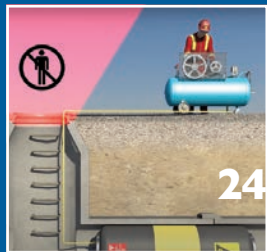


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ON THE COVER: Hillsboro Water Commissioner Claudia Forbes, Mayor Roger Vance and Vice Mayor Amy Marasco (from left) stand along the reconstructed Route 9 corridor in Hillsboro, Virginia. (Photography by Noah Willman)



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Luke Laggis

SPREAD THE MESSAGE

A little outreach and education can turn the conversation in your favor

My toilet clogged recently. I won't get too deep into the details, but it involved a little niece and nephew and a pile of flushable wipes.

I'll admit, I flush the occasional wipe. But I try to be careful about what I buy and send down the drain. I live in the country and my house is on a private septic system so there's no danger of creating problems further down the line, but it's still not great.

My little niece and nephew, however, have never given any thought to this. And I think they probably share a lot in common with the majority of your customers. Flush it and forget it. Until it comes back up.

**Plenty of people have no idea
wipes are a problem. And
that's a problem for you.**

Coincidentally, wipes came up in a separate conversation earlier this summer when I was helping a friend re-shingle his roof. We were done for the day, sitting by a fire, and somehow the subject of flushable wipes came up. My friend, the superintendent of the local water department, commented that none of them are actually flushable. I interjected to note that while most aren't, some are, and I mentioned previous conversations with Rob Villee, who was executive director of the Plainfield (New Jersey) Area Regional Sewerage Authority when I met him several years ago.

Unfortunately, after a full day on a roof and a few recovery beverages, I couldn't come up with Rob's name, or any real specifics, and I mostly sounded argumentative and stupid. I'm not in the field cleaning lines or deragging pumps, and I know editing this magazine doesn't give me half the knowledge of someone who's out in the field handling those tasks every day. Still, I have a pretty good understanding of the work you do, and I wanted to be in the conversation.

More noteworthy, however, was the fact that several of the people around the fire had no idea most flushable wipes aren't flushable at all. After all, if it flushes down the toilet, what's the problem? So the average wastewater customer's thinking goes.

Villee is interesting in this context because he helped to address the problem on multiple levels. He took it upon himself to campaign against the use of flushable wipes that really aren't flushable, working to educate both the public and the manufacturers — locally and nationally — and even developing a means of testing the flushability of various types of wipes.

That's probably further than you need to go in your own communities, but it's something you still have to address. Include notes and reminders with customer bills. Spread the word through social accounts.

Plenty of people have no idea wipes are a problem. And that's a problem for you. They don't understand that wipes clog lines and pumps, and that those clogs can lead to overflows. They don't understand the extra hours spent inspecting, cleaning and flushing, but you see it daily. Outreach is important. Education is key.

People tend to want to be a part of whatever is happening, and if you can foster more conversations like the one I had around the fire that night, you might start seeing fewer wipes clogging your systems.

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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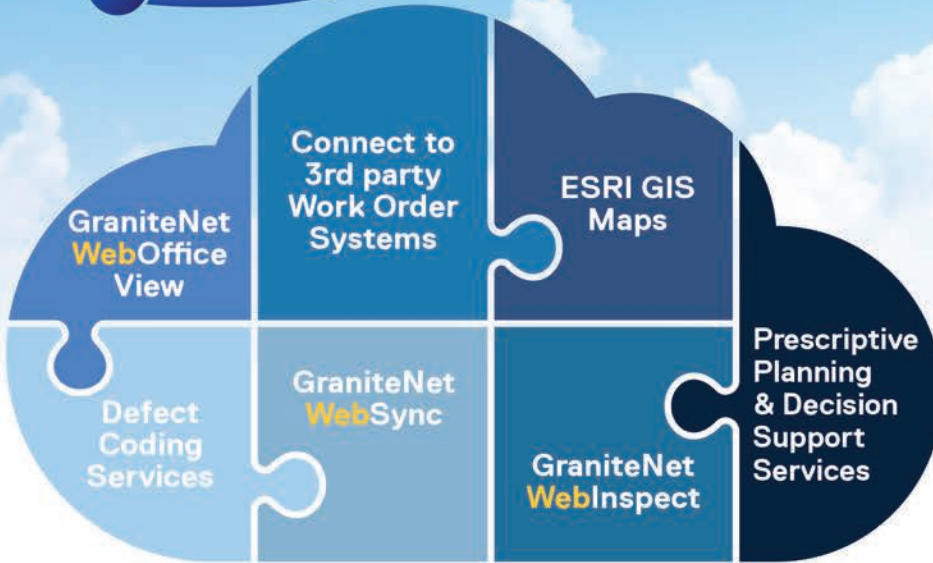
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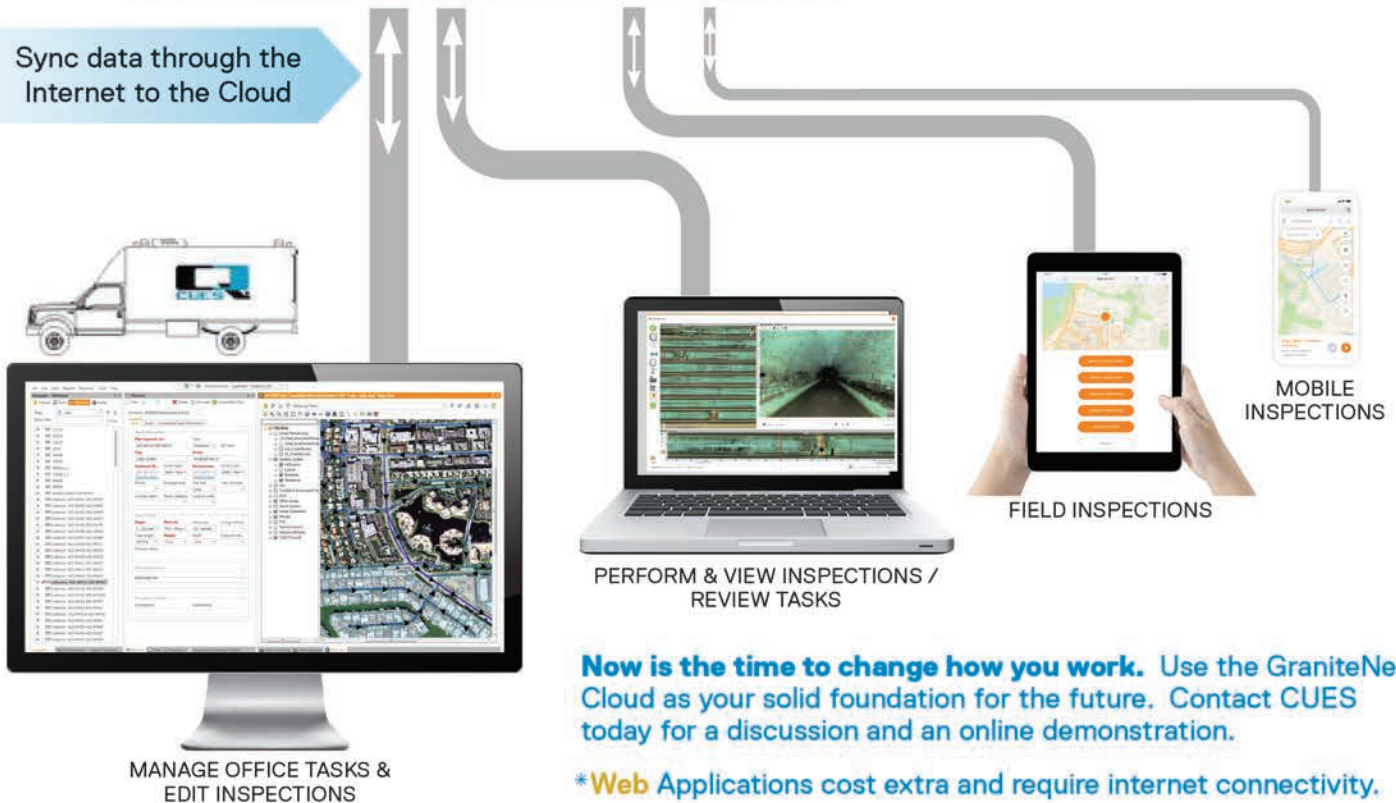
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EFFECTIVE SEWER CLEANING

Selecting the Right Nozzle

The nozzle you select makes a big impact during sewer cleaning. Specifically, the selection of cleaning nozzles is a critical element of hydro-flushing. In the last two decades, advancements in nozzle jets have changed the performance criteria for sewer nozzles.

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IMPROVING WATER MANAGEMENT

Tracking Water Storage

With longer droughts and intense flooding expected in the arid western United States, there is rising concern about overtaxing water resources in the region. Researchers at The University of Texas at Austin have created a balance sheet for water across the United States — tracking total water storage in 14 of the country’s major aquifers over 15 years. mswmag.com/featured



SEWER REHABILITATION

Learning About Grout

Grout is probably the oldest material used to seal pipe joints. While grout serves a simple purpose, the variety and diversity of these crack-sealing materials address a number of soil, moisture and pipe material challenges. Learn some grouting best practices in this online exclusive article.

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THE LITTLE TOWN THAT COULD

Officials in tiny Virginia hamlet doggedly willed a major infrastructure project to life

By *Ken Wysocky*



PROFILE:
Hillsboro, VA

PROJECT:
ReThink9

COST:
\$34 million

POPULATION SERVED:
120

FEATURES:
New water, sewer and stormwater systems, a complete rebuild of Route 9, burial of all aerial utility lines and new conduit for fiber optic lines.



Hillsboro (Virginia) Water Commissioner Claudia Forbes, Vice Mayor Amy Marasco, Mayor Roger Vance, Project Coordinator Alison Badger and Volkert Chief Inspector Jeffrey Shanks (from left) stand along the reconstructed Route 9 corridor in Hillsboro. (Photography by Noah Willman)

Established in 1752 in a gap in the Blue Ridge Mountains of northern Virginia, Hillsboro is a small and historic town known for its charming fieldstone buildings that tightly hug State Route 9.

But these days, the community — population approximately 120 and one of the state’s smallest incorporated towns — is making some modern-day history. Led by Mayor Roger Vance and Vice Mayor Amy Marasco, the town recently culminated a 20-year journey by completing a complex \$34 million infrastructure project called ReThink9 (as in Route 9).

The project brings the town’s utilities into the 21st century and positions it for growth in the decades ahead. Just as important, it also resolved a host of serious public safety and health issues.

The core of the project centered primarily on just a short, 0.7-mile stretch of Route 9, the community’s main street. But it was mammoth in scope.

Components included:

- A new water system, which relieved residents of a burdensome 20-some-year boil-water order.
- A stormwater management system, a first for the burg, which suffered flooding during heavy rainfalls.
- A complete rebuild of Route 9, a major, well-traveled artery that thousands of commuters use on their daily commute into Washington, D.C., some 45 miles to the southeast.
- A new sanitary sewer system, which eventually will replace failing septic systems and leaking cesspools that degrade groundwater and diminish property values.
- Burial of all aerial utility lines to restore the town’s bucolic ambience.
- Conduit for fiber optic lines, including high-speed internet service.

Surprisingly enough, the project was completed in roughly 14 months. And perhaps even more astonishing, the project was quarterbacked largely by Vance, a volunteer mayor and a former magazine editorial director who’s anything but a professional civil engineer.

Vance and Marasco also cobbled together the \$34 million in funding from a variety of federal, state, regional and local agencies. Big-ticket contributions included roughly \$12 million from the Northern Virginia Transportation Authority, \$14 million from Loudoun County, a \$1.5 million federal highway grant and \$750,000 from the Virginia Department of Health. The town also floated an \$800,000 municipal bond and obtained “a slew” of smaller grants from various entities, says Vance, who served as the town’s project manager with Marasco as deputy project manager.

Determined effort

Oliver Boehm, the head of the landscape architecture and urban design studio at Volkert, a national infrastructure consultant, says he’s never seen anything like what Hillsboro pulled off.

Paran Crawford of Inboden Environmental Services flushes a new waterline before sampling.

“It all boiled down to these two individuals and the incredible time sacrifices they’ve made over the years.”

Claudia Forbes

“It was like a college quarterback stepping in and winning a Super Bowl,” he says. “It’s an amazing story. When we’d speak with people at the Virginia Department of Transportation or Loudoun County, they’d refer to Hillsboro as ‘the little town that could.’ They just never gave up.”

Vance believes no other community in Virginia has done what Hillsboro did.

“We essentially took over administration and management of the project while working with Volkert,” he explains. “I think it’s unprecedented at our level ... we have no paid staff. We’re just fortunate that Amy and I could devote so much time and energy to this project.”

Claudia Forbes, Hillsboro’s water commissioner, says, “It all boiled down to these two individuals and the incredible time sacrifices they’ve made over the years — and their combined skill sets. Roger really cares deeply about Hillsboro — it’s like his child. And he and Amy have left no stone unturned, from finding funding to creating special events to bring tourists here.

“Every day, I look down the street and think, ‘How did we accomplish this?’”

Traffic safety concerns

The project’s origins stemmed from town officials’ desire to better manage the commuter traffic that coursed through town during morning





Mayor Roger Vance, Vice Mayor Amy Marasco and Water Commissioner Claudia Forbes (from left) review plans at the Hillsboro Town Hall.

residents with freshwater via one of the state's first gravity-fed water systems. But that ended in the 1990s when groundwater contamination fouled the spring water, which spurred the Virginia Department of Health to issue a boil-water edict and order the community to build a filtration system.

The town couldn't afford a filtration system and three subsequent attempts to drill new wells failed to find an adequate water supply. But a formal hydrological study led to a viable well on the south side of the community and in July 2020, the boil order was lifted.

“Everyone told us we were crazy, that it couldn't be done that way.”

Claudia Forbes

and late-afternoon rush hours — an average of 17,000 vehicles a day. And during off-rush-hour periods, drivers often ignored the 25 mph speed limit because the road's two lanes were fairly wide.

In addition, there were no sidewalks along the highway and most of the town's buildings are set very close to the road, which began as a trade route through the mountains.

“It's not the safest highway around,” Vance says. “It wasn't built to handle this much traffic. And it wasn't safe for pedestrians to walk through town or cross the street. You could barely get out of a vehicle safely.”

So Vance, who's been the mayor since 2004, decided the town needed to “rethink Route 9 and essentially reclaim our main street.”

In 2007, Ian Lockwood — a well-known traffic-calming expert — helped create a road design that Volkert later refined. The final plan featured a roundabout at each end of town to enhance traffic flow and ease congestion, narrower lanes to “calm” traffic, three raised crosswalks and additional at-grade crosswalks and rustic-looking, concrete slate-finished sidewalks.

But the plans languished for more than a decade for lack of funding.

Persistence pays off

Vance and Marasco slowly amassed funding sources, which helped the project gain traction. Along the way, the duo also realized that rebuilding Route 9 offered a golden opportunity to upgrade the community's water utility, as well as

install a stormwater management system and replace the community's septic systems — many of which were failing and polluting a nearby creek — with a sanitary sewer system.

Vance says it made no sense to upgrade the water system and install the other improvements piecemeal over a long period of time. So he adopted a mantra: Build it once, build it now.

“It would save a tremendous amount of money and time if we could roll multiple projects into one large infrastructure project,” Vance says. “It made no sense to me to keep digging the street up time after time by doing separate projects.”

Forbes agrees. “We needed all of those things, so why not do everything at the same time? Everyone told us we were crazy, that it couldn't be done that way.” But it was finished in less time than originally expected, which was 2 1/2 years. Furthermore, doing everything at once saved roughly \$11 million, according to Hillsboro figures.

The town received an unexpected assist from the COVID-19 pandemic, which slowed commuter traffic to a trickle, allowing officials to close off Route 9 for a long period of time. That dramatically increased construction productivity, Vance says.

No more boiling

The city's aging water system was of particular concern. For 200 or so years, the nearby Hill Tom Spring atop Short Hill Mountain supplied



The core of the project included new water, sewer and stormwater systems, a complete rebuild of Route 9, burial of all aerial utility lines and new conduit for fiber optic lines.

The new system consists of about 3,800 feet of 4-inch-diameter ductile iron pipe for raw well-water transport and 5,420 feet of 6-inch-diameter ductile iron distribution pipe, says Alex Hopkins, a hydraulics engineer at Volkert.

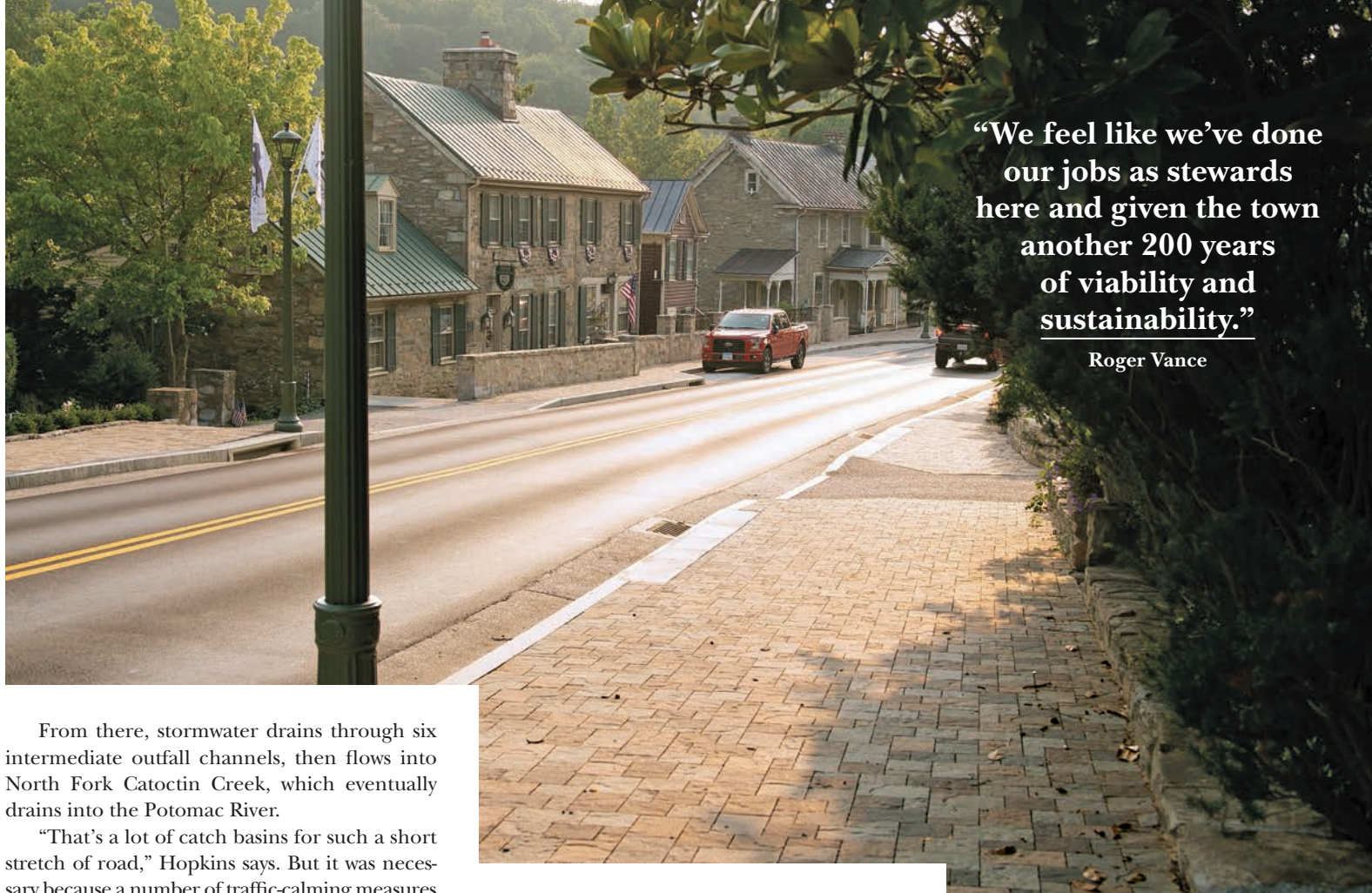
The new well is at a low point in town, so the water is pumped into the system, not gravity fed. There are 35 water connections in all and five more are planned.

As for operating the system, the town has contracted with a licensed water operator that stops in once a week to keep an eye on things, Forbes says.

“We needed someone who knows how to operate it. It's a much more sophisticated system with a computerized control board.”

Controlling stormwater

Rainwater surging down the slopes of nearby Short Hill Mountain often caused dangerous ponding on Route 9 and in some cases, flooded residents' homes. So the project included 100 catch basins and roughly 6,000 feet of 12- to 36-inch-diameter, reinforced concrete stormwater lines.



“We feel like we’ve done our jobs as stewards here and given the town another 200 years of viability and sustainability.”

Roger Vance

From there, stormwater drains through six intermediate outfall channels, then flows into North Fork Catoctin Creek, which eventually drains into the Potomac River.

“That’s a lot of catch basins for such a short stretch of road,” Hopkins says. But it was necessary because a number of traffic-calming measures — such as raised crosswalks, curb-and-gutter work and so forth — created areas prone to ponding.

“So we had to ensure that ponding water wouldn’t exceed a certain depth,” he says.

Sanitary sewer lines were installed parallel to the stormwater lines below the street. Installation of all utilities was easier than most retrofit projects because construction crews didn’t have to contend with any other underground utilities.

The community did have some existing stormwater lines, but they were so old and clogged up that they were ineffective, Forbes says.

Goodbye to septic systems

The sanitary sewer system features 3,000 feet of low-pressure force main that consists of 2- to 3-inch-diameter PVC pipe. A gravity-fed system was problematic because a new treatment plant, which will be built on the east side of town, will sit on a slight rise and the community’s highest point is in the center of town, Hopkins explains. (The treatment plant construction is a separate project that’s scheduled for completion in 2022.)

As such, a gravity fed system would’ve required significantly more excavation to get the pipes deep enough to drain properly. That made a force main a much more cost-effective option.

“A force main isn’t always desirable, but the economics in this case made it a better option,” Hopkins says.

The system also includes 325 feet of 1 1/4-inch-diameter PVC laterals.

Grinder pumps on each property in town liquify solid waste and send it into the main. The new treatment plant will be capable of handling about 10,000 gallons of waste per day, which is enough to accommodate town expansions.

“The great thing about it is it has a modular design,” Forbes notes. “So if we need to upsize it, we can add another one to it.”

At some point, all residents will get hooked up to the sanitary sewer system and their septic systems will be abandoned, she adds. “We’re such a small town that we can’t afford to run a sanitary sewer system without everyone on it.”

The same contractor hired to monitor the water system also will manage the sanitary system.

Positioned for growth

The project started in March 2020 and completed last May. Looking back, Vance says he’s extremely gratified to see the massive endeavor completed and working as expected.

“In many ways, it has exceeded our expectations,” he says.

In particular, Vance expects the traffic improvements will encourage more tourism by making it easier and safer to browse around the historical town. And aesthetically, the well-preserved town now looks more rustic and picturesque, thanks to the buried utility lines, the addition of 200 trees, concrete-paver sidewalks and the use of historically appropriate materials such as natural-stone walls, granite curbs, cob-

The \$34 million ReThink9 infrastructure project took 20 years of planning and was massive in scope, but construction lasted only 14 months.

bled pavers for parking bays and exposed concrete aggregate for gutters and driveway aprons, he says.

Moreover, the new water and infrastructure makes the hamlet more attractive to new businesses, although Vance envisions slow growth with an emphasis on quality, not quantity.

He says funding for the project never would’ve materialized without the commonsense leadership and support of Loudoun County Board of Supervisors Chairperson Phyllis Randall and Blue Ridge District Supervisor Tony Buffington. He also praised the NVT, led by Executive Director Monica Backmon, for recognizing the merits of the project’s congestion-mitigation impact on the entire region, and Volkert and general contractor Archer Western for creating what he calls an “extraordinary partnership.”

“This has been one of the most satisfying things I’ve ever done,” Vance says. “We feel like we’ve done our jobs as stewards here and given the town another 200 years of viability and sustainability.”

“Infrastructure is vital and it’s always a worthy investment. In our case, it’s providing a higher quality of life for our residents and preserving an early American treasure for generations to come.” ♦

SAFETY IS NO ACCIDENT

Engaged employees help utility go years without a lost-time injury

By Ken Wysocky

If the Beaufort-Jasper Water & Sewer Authority had in-house medical personnel, they'd be pretty bored. After all, the utility — based in Okatie, near Beaufort on South Carolina's coastline — went nearly two million work hours without a lost-time injury, from March 2015 to March 2021.

The secret sauce for the remarkable 6-year-long, 1.95-million-hour injury-free streak? A safety program that involves a broad base of employees and receives strong support from senior management, both of which have helped to firmly establish a safety-first culture that permeates every corner of the organization, says Steve Lee, safety specialist.

National organizations have taken notice of the authority's safety success. The utility has earned nearly two dozen national, state and local awards, including recognition from the National Safety Council, the American Water Works Association and the Water Environment Federation.

It's not as if the utility had a bad safety record before Lee was promoted to manage the safety program in 2013. But Lee, a former electrician at the utility and a self-admitted safety enthusiast, turned things up a notch.

Lee strengthened a safety team that comprises 10 employees from all sections of the utility. They serve two-year terms (they can serve a third year, if they want), then get rotated out to let more employees get involved.

Furthermore, Lee sets annual goals for team members, noting that setting expectations is important to a successful program. Employees must sign the goals statement, which reinforces its importance.

The team meets once a month and convenes each time at a different utility facility. After discussing any safety concerns, the group performs a safety inspection of the facility, compiles a report that highlights actionable items and gives it to the facility leaders.

"They know there's 10 sets of eyes on them all year," he says. "Things are unintentionally neglected at times, which creates safety hazards. So these inspections serve as a reminder."



"You name it, we're teaching classes about it."

Steve Lee

Analyzing mistakes

In addition, Lee — who's so passionate about safety he went back to college in 2015 to earn a degree in occupational safety — created an eight-member incident-analysis team. It's composed of higher-level employees such as managers and supervisors who have the authority to make changes in policies and procedures, as well as purchases of safety gear when needed.

The team members take an accident-investigation class at the Georgia Institute of Technology (Georgia Tech).

"That helps them know what kind of questions to ask during our meetings," Lee says. "If we have, say, an incident or perhaps property damage, we discuss it and figure out what kind of corrective action should be taken to prevent it from happening again."

The deep employee involvement also extends to safety training. About 10 employees are certified trainers in a variety of areas, including defensive driving, CPR, confined-space work, respiratory protection, fall protection and personal protection equipment. In fact, about 140 people out of approximately 180 employees are certified in CPR.

"You name it, we're teaching classes about it," Lee says.

Those certified trainers then perform in-house employee training. When combined with the safety and incident analysis teams, Lee says he has nearly three dozen people who serve as what he calls "safety disciples." Plus there are past members of teams and trainers who also enforce the safety mindset.

"I may be the safety guy, but they're all branches of my tree," he notes.

Plan and protect

Lee also strengthened a Take Two program that requires employees to take two minutes before they start work and do a quick job-safety analysis.

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.



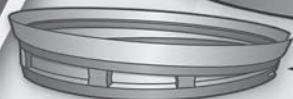
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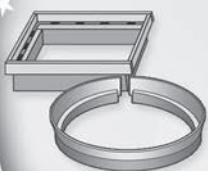
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“We had to reinforce that if something happened, it was OK to report it, even if it stopped the streak.”

Steve Lee

“It’s basically a checklist of things to think about before they start a job,” he explains. “Are you using the right tools, equipment, PPE and so forth. It’s just to make sure they set themselves up for safety success.”

In the past, some employees would shirk safety measures when setting up for work, figuring if a job wouldn’t take long, it was a waste of time to prep the work zone.

“But I tell them it only takes a second to get hurt,” Lee says. “So we shifted from a hurry-up-and-get-the-job-done mentality to setting up jobs for safety, no matter how long it takes.”

Aside from the long stretch without any lost-time injuries, Lee says other metrics indicate the strides the utility has made in safety. For example, just before he got involved in the safety program, a survey showed the utility stood in the 68th percentile among 600 companies and organizations that belong to the NSC.

In 2015, the utility rose to the 84th percentile. In 2017, it hit the 93rd percentile. And in 2019, it reached the 95th percentile. Lee says much of that improvement stems from deep employee involvement and strong management support.

“From a cultural standpoint, we’re very safety oriented,” he says.

The emphasis on safety also has reduced the utility’s worker-compensation insurance premiums.

Success begets success

Why did Lee restructure the utility’s safety initiatives? “If I’m going to manage a program, I want it to make a difference,” he says. “I’m very passionate about safety. And because we have such strong management support, employees aren’t afraid to come forward with safety concerns.”

Employee consciousness about and support for safety also grew stronger as the streak of injury-free days got longer and longer. As the old saying goes, nothing succeeds like success.

“If anything, it became somewhat of a challenge because we didn’t want employees to hide injuries just to keep the streak alive,” Lee points out. “We had to reinforce that if something happened, it was OK to report it, even if it stopped the streak.”

To further reinforce the importance of a safety culture, the utility celebrated every 250,000-hour increment of injury-free hours and gave employees small prizes. At the one-million-hour mark, for example, they all received a Bose Bluetooth speaker. And even though the utility fell short of the two-million-hour mark, all employees still received cash bonuses, ranging from \$500 to \$1,000 for those with “safety-sensitive” jobs, Lee says.

As for starting another streak, the utility is up to 124,000 hours without a lost-time injury, as of mid-August.

“We’re gunning for one million hours,” Lee says. “Then we’ll shoot for two million hours. And I think we’re going to get there. We constantly put safety before everything we do.” ♦

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OVERCOMING DELIVERY OBSTACLES

Elaborate project protects the Odessa Aquifer and brings needed relief to farmers

By Thomas Renner



Dwindling water supplies are posing a serious threat to farmers and communities across the American West. Securing water is one challenge. Delivering it is another.

The Odessa Aquifer in Washington has been rapidly declining since 1980, falling more than 200 feet as farmers, municipalities and homeowners drilled deeper wells to reach the diminishing water supply. The U.S. Bureau of Reclamation says more than 700 irrigation wells were drilled in the region, with some wells reaching down nearly 2,000 feet.

A new project will offer much needed relief for users of the Odessa Aquifer. A pumping station that will provide water for up to 10,500 acres in the region became operational earlier this year. The project started in 2016 and was redesigned in 2017-18 due to a grant to allow for additional capacity. Construction was completed in late summer 2020.

The Odessa Ground Water Replacement Project, at an estimated cost of approximately \$400 million, will eventually include a minimum of nine systems and have a profound economic and environmental impact, according to Vicky Scharlau, executive director of the Columbia Basin Development League.

“It’s nearly 200,000 people and over a dozen, maybe two dozen small communities that really represent the fiber and the structure of the Columbia Basin and agriculture and farm communities as we know them,” she says.

How it works

The first Odessa pump distribution system, called EL47.5, includes nearly 9 miles of pipe, six pumps and a pump house. The water system, at a construction cost of \$20.8 million, is named for its distance from the start of the East Low Canal. It is the first of nine proposed pressurized pipeline systems being built to deliver Columbia Basin Project surface supplies to replace groundwater use on 87,000 acres across Grant, Adams and Lincoln counties.

“Water is ordered daily, conveyed through the East Low Canal and delivered on a 24-hour basis,” Scharlau says. “The water is sent down the canals and the pumping station is just one of many outlets that takes water from the canal and distributes it to the different lands.”

The EL47.5 system is just one cog in the Odessa Ground Water Replacement Program. The systems are part of the larger Columbia

Basin Project, which currently serves approximately 680,000 acres.

The scope of work for the Odessa Ground Water project is far-reaching. Workers widened 46 miles of the East Low Canal, constructed seven siphons, and will add seven radial gates and replace 12 bridges.

“Lands are all upslope from the East Low Canal, so pumping is a necessity,” Scharlau says. “Open channel flow deliveries were financially prohibitive and would’ve required a new canal system to be built. Besides regulatory hurdles, costs were estimated in the billions. For this sit-

“Besides regulatory hurdles, costs were estimated in the billions.”

Vicky Scharlau

uation, the pump distribution system was the best option for water delivery to farmers.”

EL47.5 is the first pumping station in the wide-reaching Odessa groundwater system, and teams faced a series of challenges that hopefully will be reduced in subsequent stations.

“Regulations, costs and easement issues were overcome by time and perseverance,” Scharlau says.



PROFILE:

Odessa (WA) Ground Water Replacement Project

PROJECT PROFILE:

The Odessa Ground Water Replacement Project will offer much needed relief for users of the Odessa Aquifer. The first pumping station, EL47.5, became operational earlier this year.

SYSTEM:

The EL47.5 system includes more than nine miles of pipes, six pumps and a pump house.

PUMPING:

One 700 hp pump and five 1,250 hp pumps combined deliver more than 63,000 gpm.

COVERAGE:

87,000 acres across Grant, Adams and Lincoln counties.

COST:

\$20.8 million

“This is an important step in getting water to the farmers who need it.”

Jon Erickson



The first pump distribution system in the Odessa Ground Water Replacement Project, called EL 47.5, includes nearly 9 miles of pipe, six pumps and a pump house.



At the heart of the EL 47.5 project is the 12,800-square-foot pump station, which will reduce groundwater depletion by up to 73 million gallons per day.

“Once it was designed, construction was pretty smooth. The pandemic occurred during construction of the plant, and that certainly didn’t help.”

Heart of the system

At the heart of the EL 47.5 project is the 12,800-square-foot pump station, which will reduce groundwater depletion by up to 73 million gallons per day.

The station includes one 700 hp pump and five 1,250 hp pumps. The powerful system can deliver more than 63,000 gpm. The station has a delivery capacity of 10,500 acres, pumping water at 140 cubic feet per second at 345 feet total dynamic head. The pumps pull water out of the canal, and it’s delivered based on daily orders of irrigators who bought water on long-term contracts.

The intake structure includes a sump that is 35 to 86 feet wide, 80 feet long and 18 feet deep. It

includes 820 cubic yards of concrete and 145,000 pounds of rebar. The pumps deliver water through 8.88 miles of pipelines that are 14 to 60 inches in diameter with 15 turnouts.

“This is the first pumping plant in the project and the land that it serves is what makes this pump station unique,” says Jon Erickson of the East Columbia Basin Irrigation District and project manager of the Odessa Ground Water Replacement Project. “This is an important step in getting water to the farmers who need it.”

The ECBID designed the pumping station, which was built by Goodman & Mehlenbacher Enterprises.

Accessing pumps

The pumps are an important part of the project, but installing and accessing the pumps when they eventually need maintenance or replacement was one of the important design considerations in the station’s construction.

Teams will access the pumps through six roof hatches manufactured by The BILCO Co. The custom hatches, which are 6 feet, 6 inches by 70 feet, are fabricated with polycarbonate dome cover covers for natural daylight and engineered lift assistance for easy, one-hand operation. They are also modified for hand-winch operation, allowing them to be easily opened and closed from inside the building.

The aluminum hatches, which were supplied by Anderson Specialties, were custom-fabricated to meet unique size requirements. “They were proposed by the contractor and met the specs that we required,” Erickson says. “They were also important because they allowed pump and motor access by crane.”

Critical industry

As an important economic driver in the region, water from the project will be critical to farmers, families and businesses. While farmers could have continued to draw water from the aquifer, it may have eventually gone dry. That’s not a chance regional stakeholders were willing to take.

“It is only speculative when and what would have happened without the project,” Scharlau says. “However, trends have shown a consistently declining aquifer.”

The project will allow farmers to continue working the land with less impact on the local aquifer, to the benefit of the region’s overall economic health. ♦

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NAME:
Kurtis Warne

JOB TITLE:
Water and Wastewater
Industry Lead

**YEARS IN THE
INDUSTRY:**
13

YEARS WITH COMPANY:
13

SMARTER ASSET DECISIONS

Cartegraph brings asset, work, budgeting and reporting data into one comprehensive platform

By Luke Laggis

For most utilities, stronger asset management is the key to system and operational improvement. Get the most out of each asset, and you'll gain greater overall efficiency.

That's where Cartegraph comes in. Cartegraph asset management software can help municipal water and wastewater utilities with a host of tasks, from managing work orders to maximizing asset life.

Municipal Sewer & Water magazine recently had the opportunity to speak with Kurtis Warne about the company's history and how it's helping utilities get out of the reactive cycle.

MSW: Tell me a little bit about Cartegraph's history and how it has evolved.

Warne: Our company has a great origin story. In 1994, Cartegraph started in a basement as our four founders looked to grow and change an industry. They saw local governments struggling to manage their infrastructure assets with notecards, paper maps and best guesses — and knew they needed to cre-

We believe that you should have the freedom to use your data, however, whenever, and in whatever platform you choose.

ate a better solution. They focused on building easy-to-use software that could help our customers answer three fundamental questions: what assets do I have, where are they located, and what condition are they in?

Nearly three decades later, our team, vision, solutions and customer base have all certainly grown, but our inspiration remains the same. Today, Cartegraph helps government agencies, educational institutions, and private companies manage every indoor, outdoor, above and belowground infrastructure asset. By assisting organizations in taking better care of their buildings and infrastructure, we hope to help our customers build safer, more resilient, and more sustainable communities.

With Cartegraph, you're able to drill down to analyze a specific asset or process — such as a single valve.

MSW: What types of needs do you address for municipal utilities?

Warne: Municipal sewer and water teams use Cartegraph work and asset management software to optimize the life of their infrastructure, track maintenance work, meet regulatory compliance and make smarter, data-driven decisions. While our web-based software and mobile tools are known for being user-friendly and well-designed, the depth and breadth of Cartegraph's analysis and reporting capabilities are just as impressive.

Whether you're responsible for water distribution, sanitary sewer, stormwater, or water and wastewater treatment plants, our solutions help you manage every asset, document inspections, and ensure you're performing the right work at the right time. Crews and operators love Cartegraph's deep domain expertise, preventive maintenance capabilities, and that they can assign, schedule and complete tasks from anywhere with a mobile device. Office staff appreciate how easy it is to organize and track customer requests and that Cartegraph can automatically send real-time status updates as crews perform the work. Finally, managers and directors value how easy it is to track goals, measure progress and prove compliance with Cartegraph's Analytics Dashboard and out-of-the-box reports.

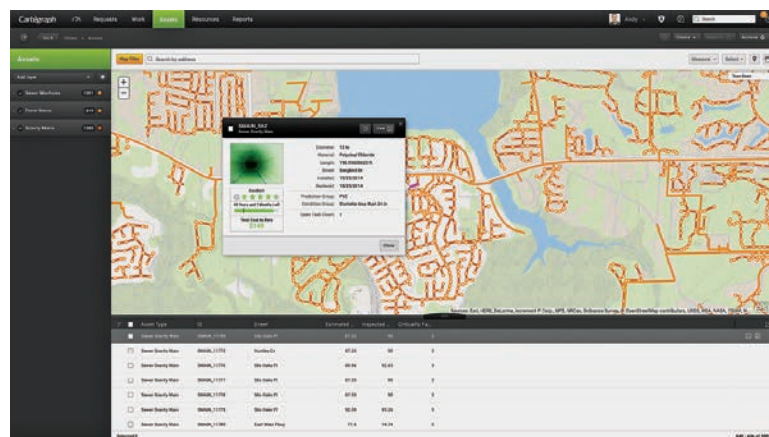
MSW: Can you give me a short overview of how Cartegraph integrates with utility data sources?

Warne: We believe that you should have the freedom to use your data, however, whenever and in whatever platform you choose. With that in mind, Cartegraph software integrates with practically everything: 811 locate and pipeline inspection solutions, billing and fueling systems, SCADA software and IoT devices — we do it all. For a list of integrations and info on our webhook and REST API capabilities, I recommend visiting www.cartegraph.com/integrations.

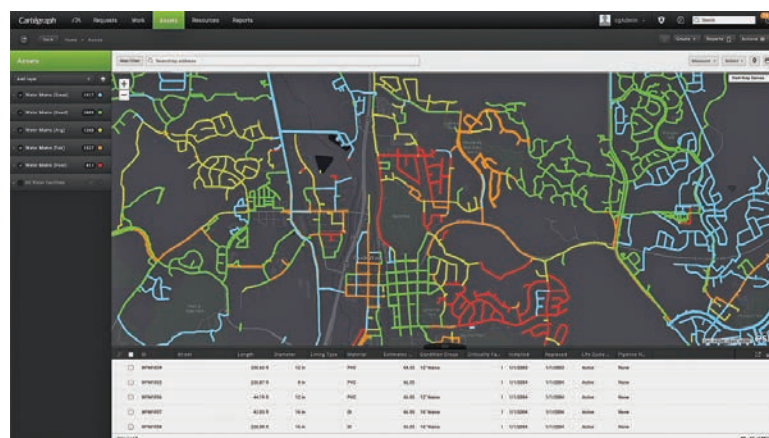
MSW: How does this system help municipal water/wastewater operators run their systems more efficiently?

Warne: With Cartegraph software, you're able to ditch the paper maps and work orders, eliminate duplicate data entry, streamline reporting and free up your team to focus more on the work that matters. For example, the wastewater department at the City of Kingsport, Tennessee, saves thousands of hours a year with Cartegraph mobile workflows. Instead of having morning assignment meetings, crews now come in, grab their iPads loaded with their tasks, and head right into the field. This improvement may seem simple, but it's saving at least 30 minutes a day per crew member — and those savings add up.

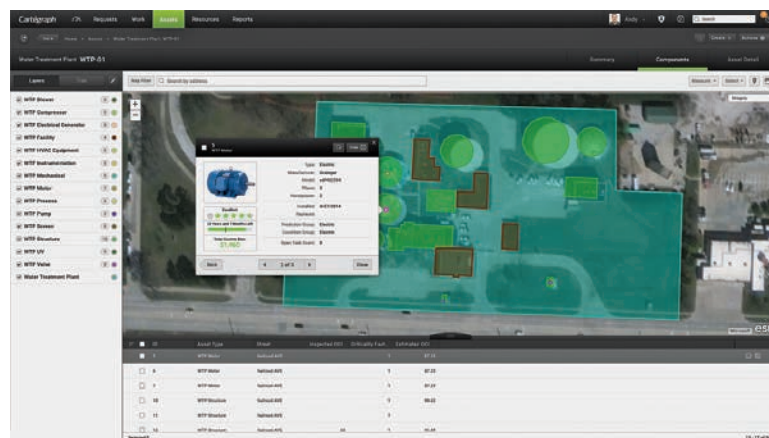
Water and wastewater systems run more efficiently with Cartegraph because all your asset, work, request, budgeting and reporting data are in the same comprehensive platform. Your team never has to worry about losing a work order, forgetting to do an inspection, or that an employee will retire and take all that historical knowledge with them. You also won't waste hours trying to track down updates or find information filed away in cabinets.



A Cartegraph screen shows an overview of pipe segments and the details of a 12-inch PVC sewer main.



Another screen shows all system assets color-coded based on condition.



All system assets can be recorded and tracked, in this case a motor at the wastewater treatment plant.

Instead, you'll rest easy knowing your users are capturing the correct data and following standard operating procedures with guided inspections. You'll build custom dashboards and reports to monitor the data that matters to you most and easily prove compliance with NPDES, CWA and other federal, state or local requirements. You'll use your operational data to justify staff and budget increases and tap into Cartegraph's Scenario Builder feature to build multiyear capital improvement plans and make the most of your resources.



Big or small, your utility should strive to build higher-performing operations.

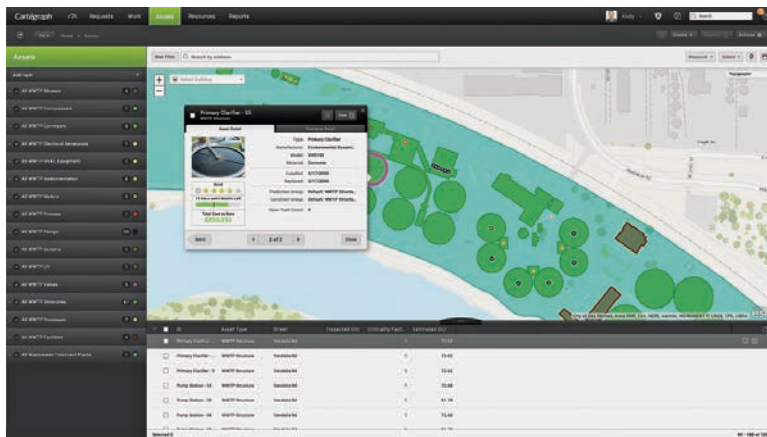
MSW: Cartegraph functions as an asset management system for a variety of facilities. How is managing a school system similar to managing a sewer system?

Warne: Both a school system and a sewer system are a complicated network of infrastructure assets. Cartegraph software helps you manage every micro and macro level of that network. With Cartegraph, you're able to drill down to analyze a specific asset or process — such as a single valve. Using Cartegraph's container-component relationship capabilities, on the other hand, you're able to roll up and monitor the collective costs and conditions of a specific facility, plant or your sewer system as a whole. You can even analyze how work on one part of your network will impact assets and processes further down the line.

MSW: What other elements make this system stand out?

Warne: Aside from our deep sewer and water expertise, our intuitive and user-friendly software, and our ability to manage every vertical and horizontal asset in your network, there are a few other elements that make Cartegraph stand out. For one, our 25-year partnership with Esri and our two-way ArcGIS integration help your team see where things are happening and how information is connected. By combining Esri's robust mapping and spatial analysis tools with Cartegraph's work, condition and cost data, you're able to make informed decisions on everything from project planning to disaster preparedness.

Other elements that our customers rave about are Cartegraph's overall ease of use, our intuitive mobile app, the flexibility to configure the solution to fit their needs and the software's industry-leading automation, data visualization, reporting and budgeting features. But don't take my word for it. Head to www.capterra.com to read reviews right from our customers.



The Asset Detail tab shows details related to the primary clarifier at the wastewater treatment plant.



The wastewater treatment plant dashboard provides a high-level overview of operations.

MSW: What are the most common problems you see your municipal customers facing?

Warne: Most customers have a long backlog of deferred maintenance but don't have the funding to make a sizable dent in it. Luckily, with a real-time work and asset management system like Cartegraph, our customers can prioritize work, extend the life of their networks and make the most of their resources.

Another challenge we hear about is battling institutional knowledge loss from employees leaving or retiring from the workforce. Fortunately, our customers use Cartegraph as a digital archive of maintenance history, so nothing is lost and new team members can be brought up to speed quickly and efficiently.

Finally, the last challenge we see the sewer and water sector struggle with is understanding, responding to and complying with new regulations. It takes a lot to ensure standard operating procedures are updated, new rules are being followed, the correct information is being recorded and that the proper reports are filed on time.

MSW: How do you see water/wastewater system maintenance and management evolving, and how does Cartegraph fit into that?

Warne: The future is smart infrastructure asset management. When I say smart, that's two-fold. First, smart as in making better, data-informed

decisions for your community. Best guesses and gut decisions aren't enough to manage your sewer and water networks anymore. Teams need to capture the right data points, analyze that information and use the intelligence and insights to improve productivity and prepare for the future.

On the other hand, smart infrastructure management is also leveraging the latest tech — augmented reality, automatic vehicle localization and artificial intelligence — to increase efficiency, automate processes, connect systems and better predict future needs and outcomes. We already have one customer, the city of Auburn, Washington, pairing augmented reality with Cartegraph to help their crews “see” and interact with underground assets. All without lifting a shovel.

MSW: What do you say to the small municipal utility that isn't sure if the investment in this system will provide a return?

Warne: Big or small, your utility should strive to build higher-performing operations. Or, simply try to be better today than you were yesterday. Those daily wins and process improvements build upon each other, and regardless of size, we're able to offer exponential value to every single customer.

Cartegraph will help your team eliminate paper, which allows small systems to get control of their costs. We also make it possible to reduce the time it takes to do tasks by offering a way to communicate in real time, track the progress of those items to completion and keep a record of all the work that's been done. This provides cost information to help small systems make better maintenance decisions, sharper investments and stretch their limited resources. Most importantly, we also give small systems the ability to know what assets they have, reducing the risk when the sole operator

leaves or retires, which is invaluable.

MSW: What sort of training and support do you offer your customers?

Warne: Time and time again, customers are blown away by how incredible our employees are. While our software is the best on the market, we also pride ourselves on being devoted to customer success every step of the way. We build, implement and support our solutions — a huge differentiator in our industry — and our professional services team continues to earn a 100% “reference ability” record with our software implementations.

Once onboarded, each account receives a dedicated customer success manager. This expert works with the customer to build continued progress toward their goals for the platform and their unique operations and maintenance programs. Our in-house tech support team, managed by a former Cartegraph developer, also gets rave reviews for responsiveness and their ability to resolve issues quickly. Our support has a 70% first-call resolution, and as one customer recently put it, “Working with Cartegraph feels more like working with coworkers than software vendors.”

Aside from our industry-leading team, we also offer an online resource and training center, Cartegraph Campus, full of video tutorials, how-to guides, white papers, on-demand webinars, blog posts, case studies and more. In addition, we also have various regional events, online admin certification training and even a national conference that helps foster our robust Cartegraph user community. ♦

PNEUMATIC VS. MECHANICAL PIPE PLUGS

There are important factors to consider in choosing the best pipe plug for your application

By Jake Shevik

In 1953, while working on an institutional job, Lloyd Cherne vulcanized a tire's Schrader valve to a child's inflatable rubber ball to create the first-ever pneumatic plumber's test plug.

Since then, the use of both pneumatic and mechanical pipe plugs has expanded for plumbing and municipal sewer markets in the United States. Pipe plugs are used to stop or redirect the flow of wastewater during maintenance and testing in DWV (drain, waste and vent) and sewer systems. Many plugs are custom-made to suit the precise specifications required in a variety of applications, including emergency situations.

How do you decide between pneumatic and mechanical plugs? Let's take a look at four questions or factors that will likely impact this decision.

1. What is the inside diameter of the pipe you need to plug?

The first step in choosing a pipe plug is determining the pipe's inside diameter. It's important to check the I.D. of the pipe to be plugged and match it to the usage range of the plug to make sure it will work properly.

Pneumatic plugs come in sizes ranging from 1 inch to 96 inches and can be used for blocking, bypassing or redirecting effluent, or conducting line acceptance or testing for leak location using air. Pneumatic plugs are designed to fit one pipe size or multiple pipe sizes.

Mechanical plugs are available in sizes ranging from 0.39 inch to 18 inches and do not need to be inflated. They are expanded to fit tightly within a pipe or open mechanically. Most only require hand-tightening.

The first step in choosing a pipe plug is determining the pipe's inside diameter.

2. What do you need the plug to do?

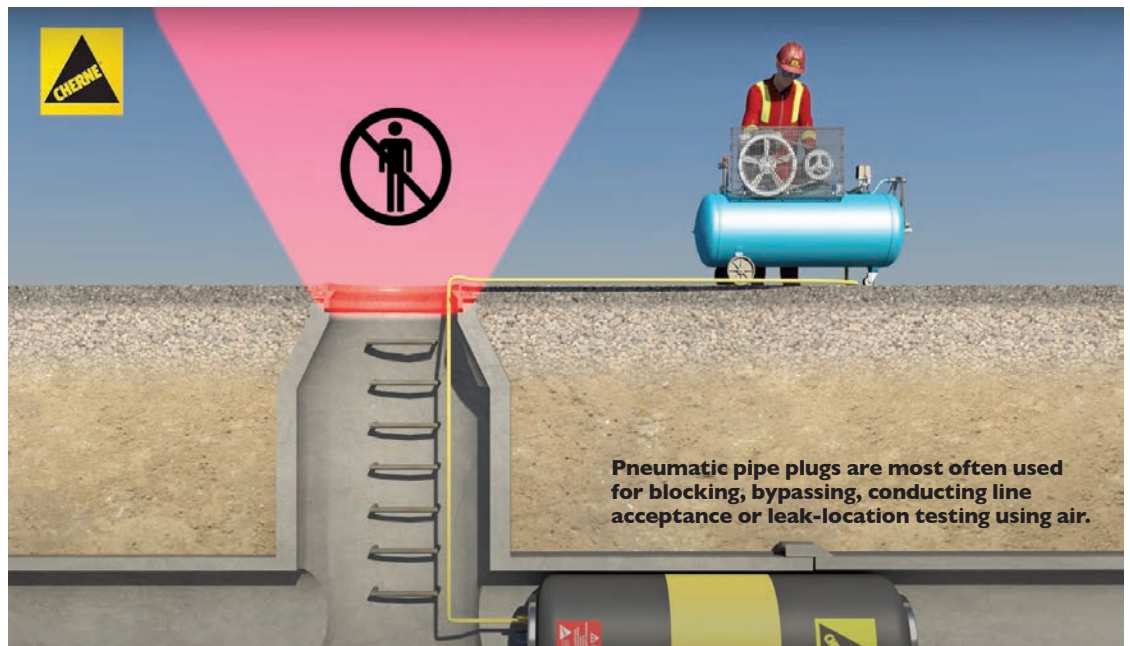
Pneumatic and mechanical plugs can be used for various purposes. To determine which plug to use, you have to nail down the purpose of the plug by asking the following:

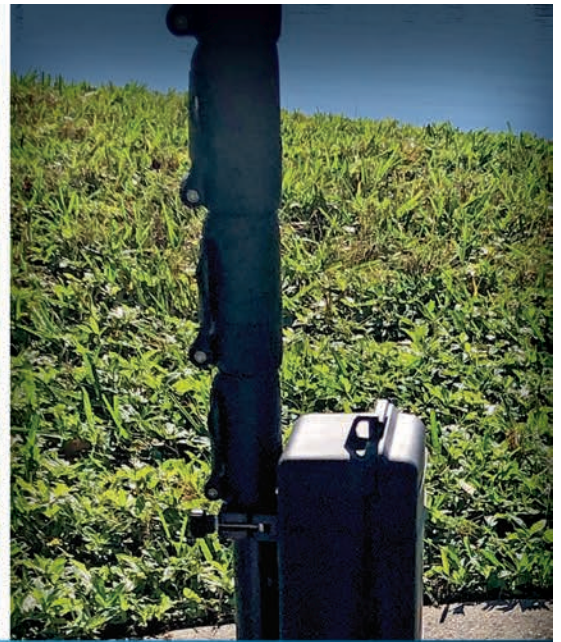
Do I need to ...

- ... block a pipeline or an opening?
- ... bypass effluent that is running through a live pipeline?
- ... pressure-test a new pipeline before placing it into service or test a pipeline already in service for leaks?

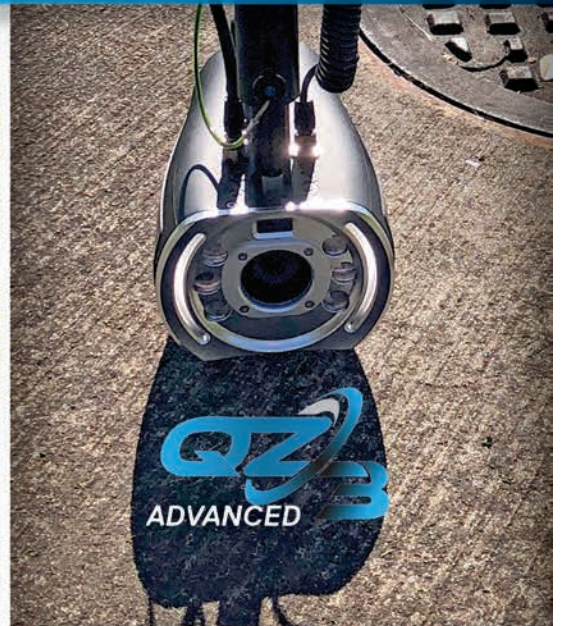
As mentioned above, pneumatic plugs are used for blocking, bypassing, conducting line acceptance or leak-location testing using air. Most mechanical plugs are designed for blocking. However, some plugs are avail-

(continued)





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able with or without a bypass and can be used for bypassing or air testing.

3. What is the point of access size into which you need to install the plug, and what is the maximum backpressure the plug must withstand?

The size of the point of access into which you need to install the plug will likely impact the plug needed for the job. Backpressure is the pressure (air or liquid) in front or back of the plug that it must restrain or hold back. It is important never to exceed the plug's backpressure rating.

The total force exerted on a pipeline plug is directly proportional to both the pressure and the pipeline area. It's important to check the backpressure rating on the plugs to ensure the pressure you need to block does not exceed the plug's capabilities.

4. What media does the plug need to block and how long does it need to be kept in place?

The type of plug needed will depend on the media the plug needs to block; for example, air, water, sewage or something else.

It's important to check the backpressure rating on the plugs to ensure the pressure you need to block does not exceed the plug's capabilities.



Pneumatic plugs:

- Pneumatic plugs are meant to be used in short-term applications. If a pneumatic plug needs to remain in place for longer periods, its inflation pressure must be checked every four hours and adjusted as required.
- Pneumatic plugs can be inflated with air, water or any inert gas (nitrogen). It's crucial never to overinflate or under-inflate plugs.
- When pneumatic plugs are in use, for safety reasons, the work area has to be cordoned off so that nobody gets in front of the plug. For

this reason, an extension hose must be used to inflate and deflate pneumatic plugs from a safe distance.

Mechanical plugs:

- Mechanical plugs do not need to be inflated. They are expanded to fit tightly within a pipe or open mechanically.
- Most mechanical plugs require only hand-tightening.
- Mechanical plugs are the correct choice for long-term or permanent installations.
- Some offer specialized features such as chemical resistance, the ability to lock in place, or are designed for specific applications, such as pipe hubs and clean-out coverings. ♦



Jake Shevik is a product manager at Cherne. He can be reached at jshhevik@oatey.com.

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A graphic on a light blue background. At the top is an icon of a smartphone with two speech bubbles coming from it. Below the icon, the text "SOCIALLY ACCEPTED" is written in a large, blue, sans-serif font. At the bottom, there are three social media icons (Facebook, Twitter, LinkedIn) in a row, followed by their respective URLs: facebook.com/MSWmag, twitter.com/MSWmag, and linkedin.com/company/municipal-sewer-&-water-magazine.

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Water and wastewater utilities are always on the lookout for ways to boost efficiency and reduce costs. Municipal Innovations is a special section dedicated to companies providing solutions to the problems your utilities face everyday.

ROVVER X Increases Inspection Productivity For City of Tigard, Oregon



In recent years, the city of Tigard, Oregon, has seen major and consistent population growth. Between April 2010 and April 2020, the city's population grew 15.2%, from approximately 48,000 citizens to over 55,000. And with an annual population growth rate of 2.67% in 2017 alone, the city has had to reassess how it manages its sewer maintenance operations to keep up with the increase in demand.

Tigard's sewer system is completely gravity-dependent, meaning that it has no pump stations or pressurized components. By 2016, the city's wastewater and stormwater division — which manages over 890,000 feet of sewer pipe and 693,000 feet of stormwater pipe — was in dire need of more versatile inspection equipment that could offer faster, more efficient assessments.

MORE PRODUCTIVE EQUIPMENT

The department wanted a more compact and steerable camera that could efficiently navigate the city's older storm and sewer systems. In 2016, the division invested in a ROVVER X main line crawler. The system performed so well that they purchased a second crawler in early 2019.

ROVVER X's agile design can adapt to any inspection challenge. And with quick-change wheels and easy in-field repairs, the crawler system enables users to complete more sections, gather more detail and be more productive.

The equipment has proven to be a great asset for the city's wastewater and stormwater systems. According to Rob Block, the city's wastewater and stormwater operations supervisor, the department's ROVVER X crawlers have increased productivity "by about 20% to 25%. We have been able to inspect about 95-plus percent of our storm system which a lot of was previously out of compliance due to [us] being unable to inspect."

OPERATOR BUY-IN

"The crew that runs the equipment — they liked the Envirosight product the best," says Block. "Part of that was how light it is, how maneuverable it is, the ability with that particular product to basically take the reel, disconnect it from the truck, and pack it out into the woods if you need to."

The operator training opportunities available for crew members are another advantage of the equipment for the 20-year veteran of the depart-

ment. The close proximity of True North, Envirosight's exclusive sales partner in Oregon, also helped in the decision-making process.

"This camera can get into spots that other cameras can't, and it can traverse around obstacles," Block says. "It's quite amazing when the operators get good at it, what the cameras can do."

With more than 4,000 systems in service around the world, ROVVER X is a solid choice for sewer inspection pros who want to work smarter, not harder. And because ROVVER X is built on a powerful digital backbone, users can add side-scanning, laser profiling and lateral launch; view status from onboard sensors; automate tasks with macros; and measure defects on-screen. And future capabilities are limitless — ROVVER X's firmware updates automatically to the latest features and accessory support. ROVVER X offers remarkable capability and uptime, so you can do more, wherever the job takes you. ♦

ENVIROSIGHT Envirosight designs equipment to serve the needs of municipalities, contractors, departments of transportation and civil/environmental engineers. Envirosight is a full-service manufacturer of robotic sewer inspection crawlers, zoom cameras, push cameras, inspection reporting and asset management software, and inspection vehicles. Envirosight is committed to ongoing innovation, delivering products that enhance user productivity and inspection detail. Envirosight serves customers through a trained network of regional sales partners who deliver localized support and expertise with rapid turnaround.

866-227-9845 | www.envirosight.com

GapVax's Multipurpose HV56 Series Hydroexcavators Offer Serious Versatility



The GapVax HV56 series hydroexcavator is a multipurpose system for virtually every wet/dry vacuum project imaginable. The effectiveness of the company's filtration system provides the highest performance with the least amount of restriction, fuel consumption and operating costs.

The HV56 has a 15-cubic-yard debris body and is constructed of ¼-inch ASTM A572 EX-Ten 50 steel. The positive displacement blower is rated

at 5300 cfm at 28 inches Hg. With the HV56, you can choose from a 350-gallon to 1,200-gallon water tank, 1,000 to 4,000 psi water pressure rating, and a water jet flow of 3 to 40 gpm.

FEATURES AND OPTIONS

A fully opening tailgate is field-adjustable with a sure seal preventing leakage. Easy cleanout access, field-adjustable components, and a 25-foot boom come standard, along with many other fea-

tures to make your job easier. Some options include the company's auger unloading system, sludge pump, liquid level load indicator, hi-rail system, water heater, extra toolboxes, additional work lights, and more. GapVax's hydroexcavator is built to operate even in the coldest of weather to keep you running all year long. ♦



GapVax Inc., established in 1989, custom manufactures industrial and municipal vacuum equipment. Gary A. Poborsky was inspired to help with flood cleanup after disaster struck the city of Johnstown, Pennsylvania in 1977. He managed to secure a loan and bought a used vacuum truck from his former boss. Poborsky got to work helping clean up the city after the flood and continued to seek out jobs, building GAP Pollution and Environmental Control, an industrial services company. After working with various brands of vacuum equipment and always wanting more, he began building his own. At first, Poborsky was building industrial vacuum equipment for his service company, and when others wanted to buy it, he established GapVax, and is now an industry leader in custom manufacturing industrial and municipal vacuum equipment. GapVax now has two locations and a nationwide dealer network to better serve its customers. Stay up to date on social media and [888-442-7829](tel:888-442-7829) | gapvax.com

Applied Felts Offers Vertically Integrated Custom CIPP Liners and Wet-Out Services

Applied Felts' custom-made CIPP all-felt liners are a time-tested solution for the rehabilitation of gravity or pressure sewer and water pipes. Applied Felts needles the smallest of polyester fibers into felts and offers polyurethane or polypropylene polymer granules to coat its liners.

The company's proven, decades-long history of extending the life of sewer and water pipes through rigorously tested, 100% in-house, vertically integrated manufacturing processes has allowed its CIPP felt liners to lead the way in the trenchless pipeline rehabilitation market since its close involvement with the invention of CIPP liners in the 1970s.

Using the same process as its felt liners, Applied Felts reinforces its hybrid liners with highly engineered flexible fiberglass, adding significant strength for both internal and external load applications. Using only the highest quality raw materials available, products such as Applied Felts' flame- or stitch-bonded liners allow for greater flexibility in the field.

To make your job even easier, streamline your next job with pre-impregnated liners from anywhere in North America with Applied Felts' five strategically located regional wet-out facilities at FerraTex Solutions, including its newest flagship location in Martinsville, Virginia.

WIDE ARRAY OF LINERS

Applied Felts offers dependable, small-diameter liner ranges for your every need, whether it's for a lateral or in-house applications.

The company also has a wide range of DuraFlex liners to accommodate varying bends, lengths and diameter changes. These single-layer felt liners — with an array of polymer choices for your particular resin system — are best suited for on-site, vacuum impregnation in plumbing applications. These heat- or ambient-cured liners are highly flexible and available in custom lengths.

The PVC FlexLiner is a polyester fiber, flexible liner made with a styrenated resin-resistant PVC coating to accommodate the requirement for liners of varying thicknesses and up to 45-degree bends.

The SuperFlex is a polyurethane-coated fleece liner for use in pipes with up to 90-degree bends.

The WovoLiner is made of circular-knitted polyethylene fibers, uniquely bonded to a seamless, impermeable polyurethane coating. This extremely flexible liner is ideal for use on multiple



Applied Felts' TPO/PP AquaCure:
Multi-Layer, All-Felt, Stitched Liner

Liners by:



Wet-out services by:



bends up to 90 degrees with minimal wrinkling and a wide range of diameter transitions such as 4-to 6-inch.

CALIBRATION TUBES

The company's CalTubes offer a wide range of calibration tubes for your lateral installation needs. Applied Felts' single-layer, PVC-coated, polyethylene CalTubes are made in your choice of stitched, or innovative High Frequency seamed options. The 2- to 12-inch diameter CalTubes can be used in inversion, pull-in and "blind-shot" installations.

The HF-Tube is an ultra-flexible, light duty polyethylene fabric with PVC coating and a HF welded overlap seam for use in open-end liner (blind-shot) and pull-in-place applications.

The DuraTube is a flexible stitched CalTube designed to provide excellent resistance against

tearing and higher temperature resistance for heat-cured installation for use in open-end liner (blind-shot) and pull-in-place applications.

Flexible, stitched or HF welded, the Light-Tube is a clear CalTube designed to provide excellent resistance against tearing and higher temperature resistance for heat-cured and LED-cured installations. For use in open-end liner (blind-shot) and pull-in-place applications.

SUPPORT, FROM START TO FINISH

Applied Felts supports its customers through its stringent QA/QC, ISO-certified process from purchase of the finest raw materials to continual testing throughout the manufacturing phase of every liner.

Applied Felts' most important support asset, however, is on-site customer service and technical support provided in the field. ♦



Applied Felts is an innovative manufacturer of quality felt- and fiberglass-reinforced CIPP liners for gravity sewer, pressure pipe and potable water applications.
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APPLIED FELTS®

PermaNET SU Correlating Noise Logger Designed For Challenging Environments

Demand for freshwater in the United States and around the globe is increasing, while supplies continue to be impacted by the rise in global temperatures. Global warming places a tremendous stress on water networks, and by reducing the amount of nonrevenue water loss, a water network can better manage its demand.

As the first to patent leak correlation technology in the United States, Fluid Conservation Systems provides some of the world's most advanced, accurate and easy-to-use monitoring solutions. As a North American industry leader in water network monitoring solutions, FCS offers a complete set of equipment for virtually all nonrevenue water and remote monitoring needs.

THE PERMANET SU

The FCS fleet of leak detection and water monitoring solutions includes the PermaNET SU. The PermaNET SU is an innovative correlating noise logger that contains a leak noise sensor with the company's advanced modem (capable of connecting via LTM or NB-IoT with 3G or 4G) for reliable and low-powered network monitoring.

Designed specifically for smaller and more challenging installation environments, PermaNET SU is robust and durable. PermaNET SU is fully compatible with PermaNET Web — an online data viewing and analysis platform — to provide map-based display, GIS interface and full audio and correlation facilities.

Once installed, leak data is calculated using the PermaNET algorithm, and data is transmitted via low-cost NB-IoT/4G LTE cellular telemetry. This removes the requirement for expensive site visits and “drive-by” data retrieval. PermaNET SU transmits data through an integral modem with 4G LTE-M (Cat-1) and other NB-IoT cellular options available.

PermaNET SU allows leakage teams to monitor the status of each logger deployed from a map-based web dashboard using any internet-enabled device. Leaks are identified immediately. Once the presence of a leak has been identified, secondary measures can be used to verify and remove false positives and correlate the position of the leak.

EXPANDING INTO NEW SECTORS

FCS's primary focus for over the past 40-plus years has been proactive leak detection that assists water networks in managing their nonrevenue water loss. However, in the last 10 years, the company has used its technology to expand into new applications and sectors which include network distribution system monitoring, pressure modulation, sewer and stormwater monitoring, and river and flood monitoring. The company's solutions have had a significant impact in helping its customers save time, effort, natural resources, energy and cost. ♦



Fluid Conservation Systems was established in 1978 and relocated from its Austin, Texas, roots to Milford, Ohio. The move was precipitated by the acquisition of FCS by Halma PLC. FCS is now the North American partner of Halma Water Management. HWM-Water Ltd. is a wholly owned subsidiary of Halma, a U.K.-based business listed on the London Stock Exchange and a constituent of the FTSE 250 Index. Halma is a global group of life-saving technology companies with a clear purpose to grow a safer, cleaner, healthier future for everyone, every day.
513-831-9335 | sales@fluidconservation.com | www.fluidconservation.com

Monitoring Assets, Delivering Data,
Bringing Control



PermaNET SU

Our LTE-M & NB-IoT-enabled correlating noise logger is designed specifically for smaller and more challenging installation environments. This innovative correlating noise logger contains a leak noise sensor with our advanced modem capable of connecting via LTE-M or NB-IoT) for reliable and low-powered network monitoring.



A **Halma** company

Fluid Conservation Systems

502 TechneCenter Drive, Suite B

Milford, Ohio 45150

Office: 1(800) 531-5465

Email: sales@fluidconservation.com

www.fluidconservation.com

What is the Difference Between UV and BlueLight LED?

Light-cured lateral CIPP lining is one of the most popular trends in trenchless rehabilitation technologies, and one of the questions HammerHead Trenchless hears a lot is, “what’s the difference between BlueLight LED and UV?”

All light-curing systems are based on photo-initiating resin, meaning the resin is specially formulated to cure only when exposed to a specific range of wavelengths of light within the electromagnetic spectrum.

Light penetration and exposure time are incredibly important for curing quality in all light-cured systems, and this fact shaped how HammerHead’s BlueLight system was developed. If the curing light does not fully penetrate the resin, or if the exposure time is too short, the outer layers of the CIPP may not cure properly where the liner meets the host pipe. This also affects the overall strength of the CIPP composite, which may not meet ASTM F1216 standards.

A DIFFERENT WAVELENGTH

The biggest difference between BlueLight and UV lateral CIPP systems is the wavelength of the light used. UV systems cure using ultraviolet light, which is a wide range of wavelengths from 100 to 400 nanometers. The BlueLight system cures using specifically blue light (hence the name) which is a very focused range of visible light from 444 to 457 nanometers. This makes a huge difference in the quality and speed of the cure, and it’s why HammerHead’s light-curing system uses BlueLight rather than UV.

The wide spectrum of UV light is less intense and lower in wattage than blue light, which can create issues penetrating the resin, leading to an incomplete cure. UV-cured resins are typically used with liners constructed with fiberglass and a reflective outer foil to help refract the UV light and increase its ability to penetrate the resin. Even with these additions, cures are less consistent with UV light than with BlueLight due to the weakness of penetration.

A COMPLETE CURE

The BlueLight system’s LED light head ensures deep penetration and a complete cure that does not rely on glass or foil in the liner. The static head design with 360-degree LED lights ensures the entire circumference of the liner is exposed to light throughout the cure.

The BlueLight system’s smart technology manages the light head travel speed based on the liner diameter and thickness. Taking the guesswork



out of light head pullback speed ensures that light penetrates the resin fully for an efficient and complete cure every time.

ABOUT THE BLUELIGHT LED SYSTEM

The BlueLight LED CIPP lining system from HammerHead Trenchless is an advanced light-curing system available for the rehabilitation of laterals and small drainpipes. The innovative technology empowers CIPP installers by alleviating the time pressures of other lining systems. The specially formulated resin only cures under light in the blue wavelength from 444 to 457 nano-

meters, giving installers unlimited working time between liner wet-out and curing. Once the liner is in place, the automated curing system pulls the LED light head through the liner, curing the resin almost instantly — as fast as 5.4 feet per minute. Instead of waiting hours for the liner to cure, a 50-foot sewer line could be fully cured in under 10 minutes.

The HammerHead BlueLight system also features an intuitive touch-screen interface and three light head options to cure liners 3 to 10 inches in diameter. ♦



HammerHead Trenchless is a single source for trenchless solutions. The company manufactures and delivers a combination of rehabilitation, replacement and installation equipment and consumables for the underground construction market.

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Creative Construction Sequencing Aids Light Rail Construction

The Los Angeles County Metropolitan Transportation Authority is in the final stages of constructing an underground light rail trunk line that will allow riders to travel through downtown Los Angeles. Known as the Metro Regional Connector Transit Project, it will connect three existing light rail transit systems through downtown.

Regional Connector Constructors — a joint venture of Skanska USA Civil West California District in partnership with Traylor Bros. — was awarded the design-build contract by the LA Metro to construct this 1.9-mile completely underground transit way through downtown Los Angeles.

While the tunnels for the twin rail lines were excavated with a 400-foot tunnel boring machine, the stations were excavated by open cut. In order to open cut to the needed depths in a high density metropolitan area, the contractors first had to safely get past numerous older utilities, many of which needed repair or replacement. The historic Broadway Station was the most challenging to construct due to having the most congested existing underground utilities in the area, including a 10-foot diameter reinforced concrete storm drain that had been constructed around 1960.

A creative construction sequencing plan devised by RCC would expose the existing utilities along the 400-foot station zone to make any repairs or replacements. These exposed utility lines would then be suspended for perhaps as long as four years over what would soon be 50 to 60 feet of air.

REPLACING THE STORM DRAIN

The electrical, telephone, fiber optic and natural gas lines were easily enclosed in a suspended casing, but the 10-foot diameter reinforced concrete storm drain belonging to the LA Flood Control Department was a larger and heavier challenge. The contractors immediately realized that due to its weight and uncertain structural integrity, the existing concrete storm drain would have to be either rerouted or replaced with something lighter. HOBAS Pipe was chosen as the lighter, stronger, less expensive and more efficient option for the project.

A temporary support system for the pipe installation was devised using vertical supports and a



series of threaded rods to attach nylon web slings that would suspend the pipe from the temporary ceiling/supporting deck beams for the Second Street decking. The pipe was secured at grade with turnbuckles and ultimately with lateral and longitudinal braces. There it would remain suspended for the remainder of the excavation, station build-out, and backfill to the pipe's grade.

As the new 300-foot line neared completion, the existing reinforced concrete storm drain was removed up to a couple of feet above its invert. This work was done during Los Angeles' dry season from April to October to take advantage of

the low flow at that time of year. A sandbag dam and pump were able to handle the minimal base flow during the construction of cast-in-place transition structures to connect the new line to the existing storm drain at either end of the cavern. Upon completion of the connection, the remaining lower portion of the reinforced concrete was removed.

The new section of 126-inch HOBAS reinforced concrete storm drain, totally and permanently encased, will continue serving the LA Flood Control Department and the citizens of Los Angeles indefinitely. ♦



HOBAS®

HOBAS Pipe USA manufactures fiberglass reinforced polymer mortar pipe from 18 to 126 inches in diameter. With over 10 million feet installed across North America, engineers and contractors regularly select HOBAS pipe due to its light weight, high strength, ease of installation and leak-free push together joints. It is suitable for a variety of installation methods including sliplining and other trenchless methods, open cut and above ground. It is also suitable for new construction and rehab of critical installations including storm and sanitary sewers, hydroelectric penstocks and other corrosive environments. HOBAS also provides fully structural FRP noncircular pipe and vertical manhole systems.

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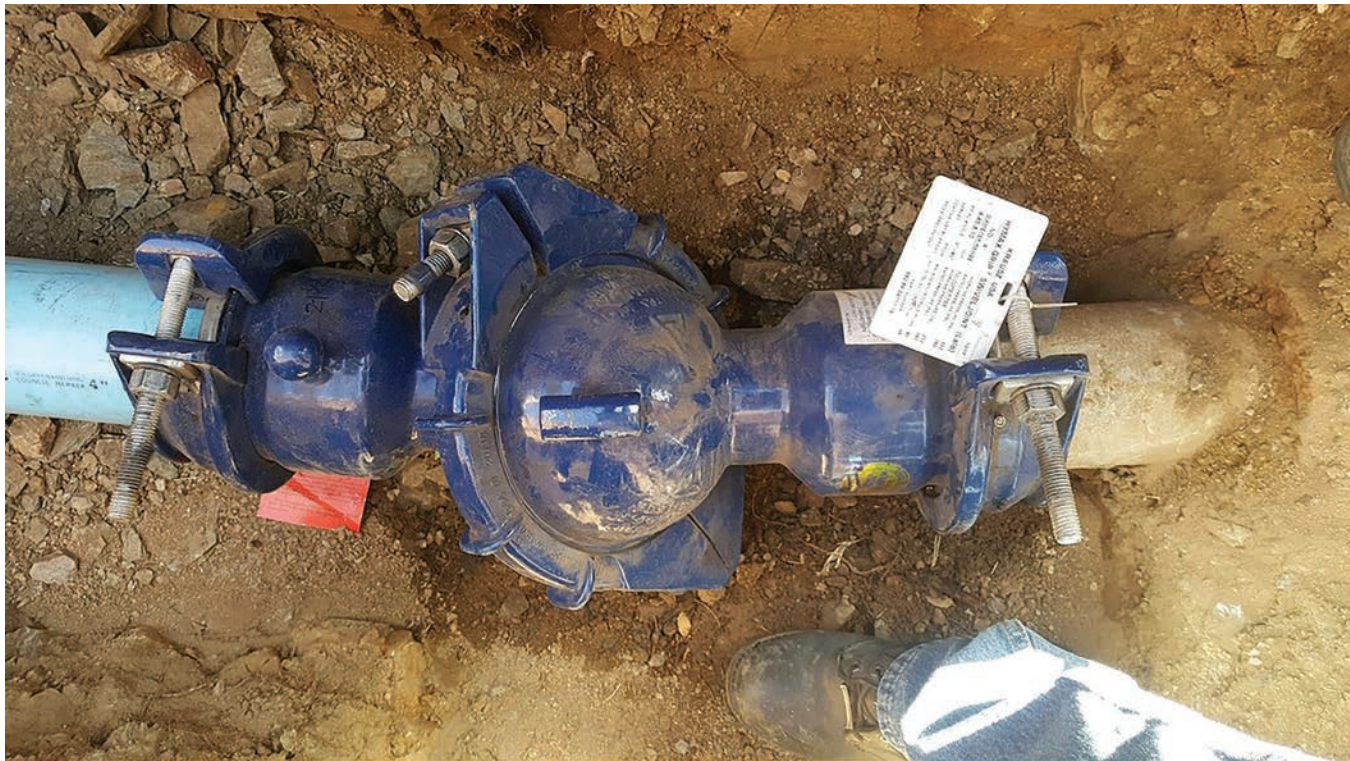


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SwivelJoint Offers Power and Flexibility For Pipe Repair



Don Bohiler is the manager and water operator for Diamond Valley Water District, located in Yavapai County, Arizona, a few miles north of Phoenix.

The district needed an isolation valve to connect an old asbestos water main to a PVC 900 pipe within a new subdivision. Making the connection involved adding in several angled connections of varying degrees, requiring many hours to install.

FINDING A SOLUTION

Bohiler found the HYMAX Grip SwivelJoint at a workshop and thought the product would be a good solution as it connects and restrains any two pipes at any angle between 0 and 90 degrees. DVWD crews could adjust the fitting to the exact angle and simply tighten it into position.

The SwivelJoint comes ready to use with its stab-fit design and unique radial gripping system that prevents pipe motion. With only three bolts to tighten, there is no need to tighten multiple mega-lugs as the universal gripping teeth fit metal and plastic pipes.

The DVWD crew removed the SwivelJoint chain on the end connecting to the asbestos pipe to prevent the coupling from crushing the pipe, and the

chain remained in place to connect to the C900 PVC pipe. The coupling also allowed up to 4 degrees dynamic deflection per end to help reduce future pipe damage caused by ground shifts.

“Using the SwivelJoint helped us save a ton of time,” Bohiler says. “If I had to install multiple fittings, it could have easily taken my crew an additional four hours. By installing the SwivelJoint, I just had to move the joint to the angle of the connecting pipes, stab-fit it to the pipes, close it up, and go home.”

It took the DVWD service crew less than an hour to install the SwivelJoint and return water service to customers. By reducing installation time, they were able to minimize water shutdown and make the repair safer with less time in the ditch. By Bohiler’s estimate, using the new fitting saved the utility between \$2,000 and \$3,000.

ADVANTAGES OF THE SWIVELJOINT

The universal gripping system restrains metal and plastic pipes and has a transition capability

of up to 1.1-inch. It can work with a wide range of pipe diameters.

The patented gasket transforms the pipe joint into a flexible connection allowing dynamic deflection of up to 4 degrees per side. It can adapt to an out-of-round pipe shape (up to 0.16-inch) with its radial closing design and sealing system.

The SwivelJoint chain provided a circular restraint around the PVC pipe. As the pipe applies axial pressure, the chain increasingly tightens around the pipe to prevent pullout.

The SwivelJoint can withstand working temperatures of up to 125 degrees F and is made of durable ductile iron, and meets or exceeds standards AWWA C219, NSF-61 and NSF-372.

“I was amazed at the range of flexibility the product had,” Bohiler says. “Making the adjustment was easy and it was great to connect the pipes without fiddling around with multiple connections.” ♦

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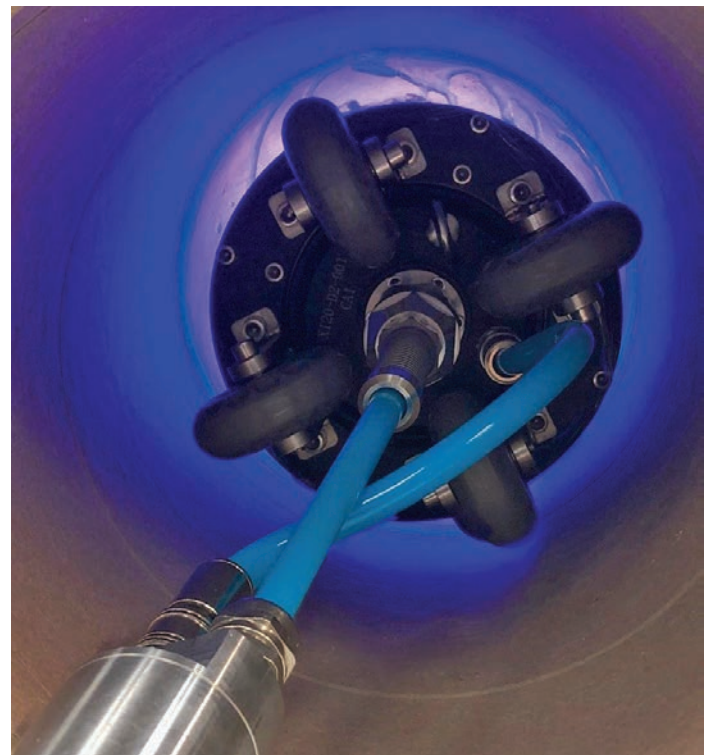
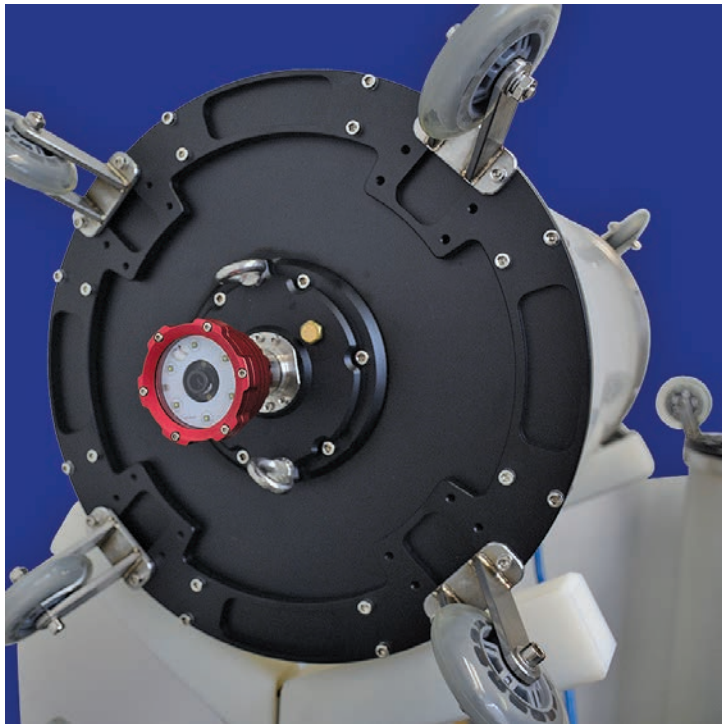
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Minimize Service Disruption With NuCure Large-Diameter UV Point Repair



UV point repair is an efficient and precise way to repair larger diameter pipes with minimal service disruption. Suitable for municipal, industrial and commercial sewer and storm drains, the innovative repair system utilizes NuCure Cold Cure UV technology to ensure quick curing times and to minimize the risk of error during installation.

NuCure Large Diameter UV Point Repair is suitable for pipes 8 inches to 24 inches in diameter. The unique cold cure resin formula cures densely within minutes, ensuring a full repair while speeding installation times dramatically, according to the manufacturer.

REDUCING MISTAKES

The shelf-stable epoxy allows for wet-out on or off site, minimizing the risk of error by activating liners in place. Because the resin is activated in place with UV light exposure, the resins provide

unrestricted “pot life” (working time). This reduces risks from unforeseen site conditions and permits crews time to make adjustments if needed.

Varying temperature conditions do not significantly alter the required curing times for UV-cured resins, so there is no need to adjust the resin mixture or the curing schedule for extreme hot or cold site conditions. In addition, UV curing requires less field expertise because there are fewer variables impacting the overall quality of the finished liner. The NuCure GRP liner wraps provide a thin wall, high-strength structure to avoid flow loss.

The umbilical module and cable drum allows for simple management of the integrated electrical and pneumatic conveyance system. The packers are made of a robust silicone and come in four sizes (8-10 inch, 12-14 inch, 15-18 inch and 20-24 inch) which are easily replaceable in the field. A high-definition wide-view camera located on the packer allows the user to both identify the positioning of the repair as well as capture finished video, eliminating the need for a separate crawler after completion of the repair. All curing data is captured to provide full process documentation for quality assurance. ♦



NuFlow Technologies was founded in Canada in 1998 and offers trenchless pipe repair, pipe lining, pipe relining and trenchless sewer repair services. The company manufactures, installs and distributes cost-effective, green repipe alternatives and no-dig solutions, including epoxy coatings for potable waterlines and mechanical systems, and structural liners for drainlines.
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RapidView Focuses on Service and After-Sales Support

Founded by partners with a long history of contractor experience, providing first-class service and support has always been a guiding principle for RapidView, a provider of high-quality, high-production equipment.

“We understand that even the best equipment can encounter problems in real-world environments,” says Matthew Sutton, vice president of sales and marketing at RapidView IBAK North America. “It is our goal to make sure that when problems occur, we have processes and support in place to get them back up and running as quickly as possible. When people purchase higher quality equipment, they should expect an enhanced level of service and support.”

To that end, RapidView has a strong dealer network of suppliers and service centers throughout North America, and the company is currently doubling the size of its service and support center at its headquarters in Rochester, Indiana.

“This expansion is expected to be finished early next year, dramatically increasing the size of our repair center and greatly expanding our software support offices,” Sutton says. “We are committed to continuing to grow while maintaining the high level of service and support that our customers have come to expect.”

ADVANCED INVENTORY SYSTEM

To maintain that high level of support, RapidView utilizes advanced, computerized inventory management controls, currently maintaining over \$5 million of spare parts. These parts are available for immediate shipment directly to a local repair center, or the customer directly.

All repairs conducted at the facility are tracked within a case management system that keeps the customer up to date on all activity related to their repairs. RapidView’s service managers review case data to determine accuracy and speed of repairs to constantly improve on processes and methods. This data-driven approach means they often achieve their goal of a 48-hour return window on repairs.

RapidView also maintains a phone support line with a staff of technicians available to help customers quickly diagnose many common problems, often getting the customer up and running within minutes.



“We understand that answering the phone, setting the expectation with the customer, and following through with our promises are the most important things we can do to ensure our success as a company,” says Sutton. “We have all encountered poor customer service from vendors. Our goal is to provide a different, more positive ownership experience. One where the customer is truly valued and respected. We may not always tell you what you want to hear, but it will be the truth, and in this day and age, that sets us apart from competition.”

TRAINING PROGRAM

Along with its focus on after-sales service,

RapidView has also established a robust training program for teaching customers how to use, maintain and conduct general repairs on their equipment.

“Our training programs have evolved over the years to include on-site equipment training, remote online training, workshops, step-by-step repair and maintenance videos and much more,” Sutton says. “We want to empower our customers to be able to use their equipment as effectively as possible, repair what they can, and utilize smart maintenance methods to protect their investment and increase the longevity of their equipment.” ♦



RapidView IBAK North America created business partnerships with manufacturers of sewer pipeline maintenance products, including its primary product line from IBAK Helmut Hunger GmbH & Co. KG of Kiel, Germany, a manufacturer of CCTV pipeline inspection systems.

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When You're Responsible for Sewer Spills, Working Smarter Is a Necessity

By Reynolds Wheeler and Glen Hill

When you're the largest public water and wastewater utility in the Carolinas, serving more than a million customers, "working smarter, not harder" isn't just a catchphrase — it's a necessity.

In the past, Charlotte Water has received accolades for safeguarding public health and protecting North Carolina's environmental resources through proactive sewer management practices, operations and maintenance above and beyond what is required by the North Carolina Department of Environmental Quality. Today, this large collection system continues to incorporate and expand the use of innovative smart sewer technologies to protect approximately 265,000 households and businesses throughout the area from community contamination.

With an average of 91 million gallons of wastewater passing through roughly 4,376 miles of collection pipelines and 82 wastewater lift stations, more than 30% of the utility's staff are designated to oversee the complexities of maintenance and asset management.

USING ADVANCED TECHNOLOGY

For nearly 10 years, Charlotte Water has successfully been using one of the most sophisticated wastewater technologies for detecting and preventing SSOs. In addition to preventing sewer spills, the investment in smart sewer technology has expanded a range of additional applications, including targeted maintenance and cleanings, ranking infiltration and inflow impact, entry detection at even the most remote locations, and responding to neighborhood odor complaints.

To reduce the amount of cleaning performed on clean pipe, Charlotte Water uses its SmartCover system to alert zone management teams when it's time to inspect and clean only dirty pipes. To optimize its cleaning schedule, it deployed a SmartClean program at high frequency cleaning sites and syphon boxes on the sewer line. The combination of real-time monitoring and trend analysis provides powerful, predictive insights into the behavior of the collection system, enabling visibility of potential problems days, or weeks, in advance. The strategic use of ongoing remote sewer monitoring, analytics and alarms provides early warnings of elevated levels and blockages.

Today, cleaning crews are only dispatched as needed, which in turn creates more efficient resource allocation. The significant reduction in sewer line cleaning has decreased traffic control



needs, conserves thousands of gallons of water each year, extends pipeline life, and saves millions in maintenance costs for the city of Charlotte. All of this on top of preventing sewer spills.

As stewards of critical infrastructure, we invite you to learn how you can apply these lessons of innovation to your collection system. Visit smartcoversystems.com to learn more. ♦

About the Authors

Reynolds Wheeler is an Associate with WCEquipment Sales, a member of Templeton & Associates Engineering Sales, representing a broad line of products for water and wastewater treatment in both the municipal and

industrial markets throughout North Carolina. Wheeler earned his undergraduate degree in industrial management from Georgia Tech and his MBA from Queens University in Charlotte, North Carolina. He is an active member of NC AWWA-WEA, SC AWWA-WEA, NCRWA, SCRWA, WEF and AWWA.

Glen Hill, P.E. is the senior manager for the southeast at SmartCover. Glen has more than 30 years of engineering and sales experience. He earned his civil engineering degree from The Citadel and soon after earned his professional engineer certification. He is licensed in South Carolina, Florida and Texas. Hill brings experience in acoustics testing, flow monitoring, robotic pipe inspection and trenchless pipe rehabilitation.



SmartCover is an award-winning smart sewer technology company serving 500-plus cities with remote collection system monitoring. Public and private utilities rely on our solutions to predict, detect, and prevent emergencies. Since 2005, we've accumulated over 190,000,000 operating hours, and installed thousands of sensors underground across North America. SmartCover has an established performance record and world class customer service with references from small to large utilities. We're driven by the mission to safeguard public health, protect the environment, and preserve the quality of life throughout communities. Visit www.smartcoversystems.com to learn more.

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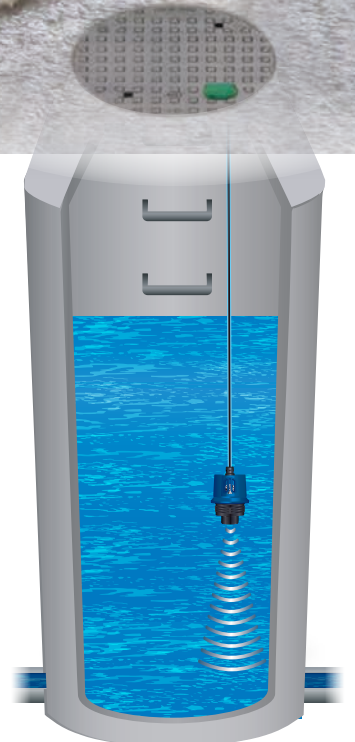


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Headsets With Situational Awareness Keep You Alert and Protect Your Hearing

“Situational awareness” describes an alertness to what’s happening around you and your environment so you’re able to respond if there’s a threat to yourself or others. More simply, keeping your head in the game keeps you safe.

Picture a flagger directing traffic in a busy work zone. Or a hydrovac driver’s attempt to back up within a few feet of their operator. All of these jobs require focus and concentration to maintain safety.

WHY SITUATIONAL AWARENESS IS IMPORTANT

Avoiding a scenario that can lead to a struck-by or back-over incident may be as simple as hearing a vehicle’s backup signal before it’s too close, or a coworker hollering out for you to look up. Those are clear examples of the value of situational awareness — especially when you’re focused on your own task. You’re able to take action and maintain a safe distance. Add the challenges of extreme noise and bad sight lines and you have situations where knowing what’s going on around you is absolutely essential to maintain a safe and productive job site.

ISOLATION IS THE ENEMY

We know occupational noise exposure is a problem and you must protect your hearing. However, traditional earplugs and earmuffs block out all noise. They don’t distinguish between sounds that threaten your hearing, your coworker’s raised voice, or an alarm beeping on a console. Everything is muted.

As a result, workers experience a sense of isolation when wearing earplugs or earmuffs. It makes them uneasy. So much so that they may refuse to wear hearing protection in order to stay in touch with their environment.

KEY FEATURES TO LOOK FOR

In-stereo listening — Two microphones, one on each ear dome, allows you to hear where



sounds are coming from. Yes, hearing a backup alarm is great, but knowing if it’s coming from your right, left or from behind gives you better information allowing an intuitive response.

Awareness on demand — Being able to decide when to open up the external microphones or keep them off lets you bring in outside sounds when you’re ready. Toggling the feature on or off with a quick, one-handed button press lets you keep working without having to stop, take the gear off and fumble around while you figure it out.

Fully adjustable volume — Since no two workers or work environments are the same, changeable volume levels lets you mix in the right amount of outside sounds that suit your situation.

You shouldn’t have to compromise your safety or your long-term hearing ability just to have a conversation with your team. Situational awareness lets you take control of who and what you need to hear to improve your ability to stay alert and responsive. ♦

Sonetics Sonetics Corp. creates wireless communication solutions that enable natural conversation in challenging environments. Building on a platform of collaboration and rugged performance, the company’s team communication systems deliver a productive, safe and enjoyable work experience. With more than three decades of experience, Sonetics Corp. and its Sonetics, Flightcom and Firecom product brands deliver innovative solutions to customers, transforming the way they work.

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Versatile Vacall AllJetVac Combination Sewer Cleaner Is Well Equipped for Productive Work



Having versatile, powerful, easy-to-use equipment is important for the city of Waukesha, Wisconsin's wastewater treatment department, which is charged with maintaining some 256 miles of sanitary sewer lines and 8,000 catch basins to handle storm runoff.

"With three crews flushing lines daily, we handled about 226 miles of sewer lines last year," says Jon Weinkauff, the city's fleet manager.

The latest addition to Waukesha's equipment fleet is a Vacall AllJetVac combination sewer cleaner, which is well-equipped for efficient sewer line maintenance work and has the power to break up sewer line blockages and maintain flow with strong jetting and vacuum forces.

"When we tried the machine on a demo, we had a 6 inch storm sewer line where the contractor had dumped some leftover concrete mixture," says Winkauf. "We were able to open it up with the Vacall and a cutter nozzle, and everybody agreed that it did a great job and it was exceptionally easy to use."

ALLJETVAC FEATURES

The city of Waukesha acquired the machine, which has jetting power up to 3,000 psi and vacuum power up to 120 gpm using a positive displacement system. They selected an R Series model, with the hose and reel assembly located at the rear of the machine, where operators say it's quieter and easier to use.

The machine also has an 8-foot 6-inch boom, capable of 270-degree rotation. "With wireless remote controls, we have the option to raise and lower the boom at the same time, and that's something else the operators appreciate," says Joe Baginski, the city's street division supervisor. "They also like to be able to use the remote to dump debris from a safe distance, which other models cannot do."

The wireless remote is an optional HBC device that's compact in size and has an easy-to-manage harness. Among other convenient, productive options on the machine are automated electronic controls, a tank flush system, a cold weather package, extra lighting, hose reel management devices and a hydroexcavation package. It also has a 1,500-gallon water tank and a 12-cubic-yard debris tank with a galvanized finish, both with lifetime warranties.

"We like the simplicity of the design, which makes it easy to operate and service," says Weinkauff. "Plus, we find it to be very functional and reliable, and that's important for us to accomplish the work we need to get done for the city every day." ♦

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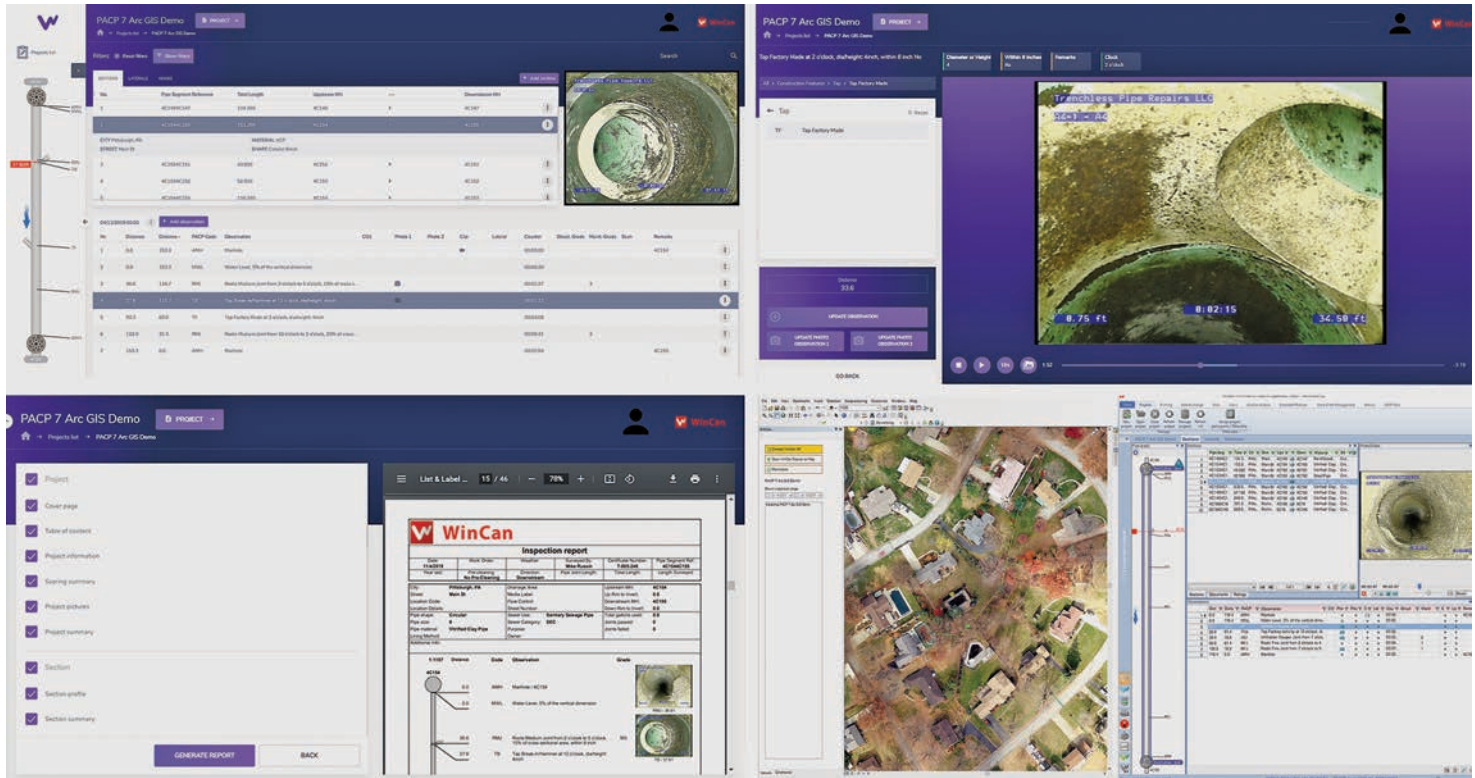
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WinCan Web Flex Brings Cloud-Based Coding to Sewer Inspection Workflows



WinCan Web Flex is the latest addition to WinCan’s suite of sewer solutions, bringing new features to the WinCan Web cloud platform.

While the base version of WinCan Web was designed for project management and communication tasks, Web Flex takes the platform’s functionality to a new level with creation and editing features. With Web Flex, users now have the ability to create projects, drop media directly into the web and then immediately log observations from any internet-enabled device. Users can even score or rescore a project or print and send detailed reports. These changes open up new workflows for municipal sewer teams, allowing them to prioritize speed and efficiency.

FLEXIBLE MANAGEMENT OF INSPECTION MEDIA

With the new media bucket in WinCan Web Flex, users can drag and drop inspection footage directly into the cloud. Operators can bring multiple videos into the media bucket for coding back at the office, or drop videos into the media bucket one at a time, creating new projects or observations as they review the footage right from

the truck. The media bucket is also used by Seweromatics’ AI defect coding team, creating a seamless transition from a hands-on coding experience to an automated workflow.

ENHANCED CLOUD-BASED EDITING

Just like WinCan’s desktop solution, VX, WinCan Web Flex gives users the flexibility to create and edit inspection data when, where and how they want. With the ability to create observations directly from a tablet or smartphone, operators can do more with less, allowing them to work more efficiently from project to project. They can collect, inspect and code one section at a time, drop inspection footage into the media

bucket for coders back at the office or drop a full work order of media into the bucket to code all at once.

SCORING FEATURES

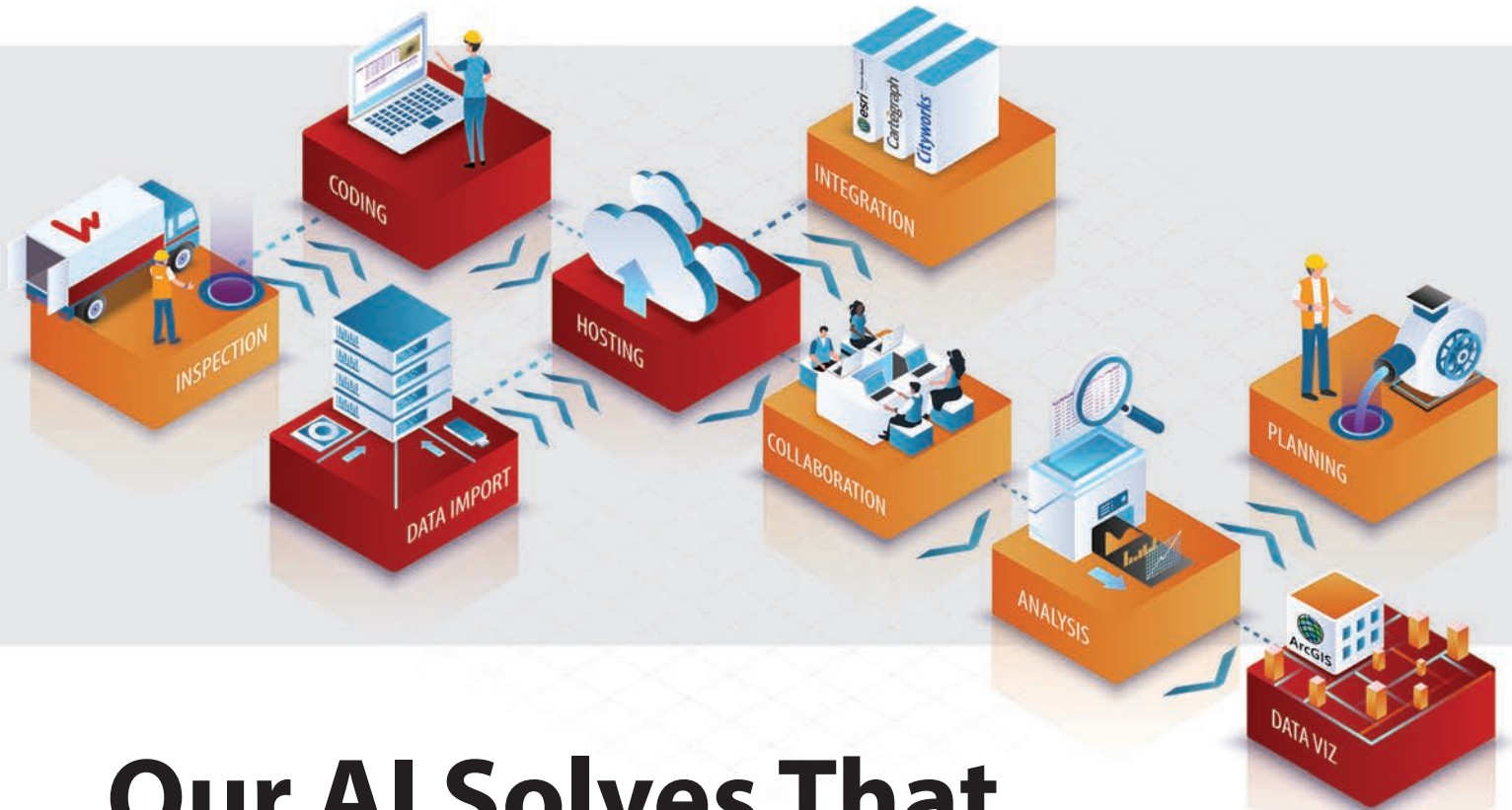
WinCan Web Flex introduces scoring and report creation capabilities to WinCan Web. Users can easily run reports with important data, photos and even drawings. Additionally, the scoring and rescore feature in Web Flex allows operators to score pipe conditions and include the details of those scores in a printed report. Not only does this increase accuracy of data, but it helps to ensure deliverables are in-depth and valuable for the end user. ♦



WinCan was the original sewer inspection and asset management software when it entered the market 20 years ago. Today, it’s a trusted sewer software brand worldwide, thanks to continuous innovation and exceptional support. WinCan transforms raw inspection data into the intelligence municipalities and contractors need to make critical maintenance decisions. In 2021, Seweromatics entered the market as WinCan’s response to the industry’s biggest data challenges. Seweromatics data services offer AI-driven defect coding, cloud hosting solutions, data visualization and conversion, helping sewer teams get more value out of their data. Together, WinCan VX, WinCan Web Flex and Seweromatics create a complete digital ecosystem where inspection teams can do their work quickly, safely and within budget.

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Data Translation. Data siloed across different applications, formats and standards? Let our AI fix that. With merged data, you'll get broader insights.



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MUNICIPAL INNOVATIONS '21

Cam Spray Offers Diesel-Powered, Trailer-Mounted Jetting System



Since 1971, Cam Spray has responded to customers' need for pressure washers and sewer and drain jetters that work as hard as they do. The company produces handcrafted equipment made from carefully selected components and engineered to meet intense demands. The equipment is built by the hands of people who take great pride in knowing customers will find years of satisfaction in the work they've done.

In line with that philosophy is the TT4018HZ4-375 — a deluxe trailer-mounted, diesel-powered, 18 gpm, 4,000 psi, cold water sewer and drain jetter.

PRODUCT FEATURES

The TT4018HZ4-375 jetter offers a Hatz 4H50 four-cylinder 74 hp intercooled turbo diesel engine with engine enclosure, an over-center clutch, and a four-belt drive system powering a three-plunger industrial pump with stainless steel valves and ceramic plungers producing 18 gpm flow at 4,000 psi.

The heavily constructed trailer has a 2-by-4-inch steel tube box frame, full diamond plate deck, electric brakes, Department of Transportation-rated 7,000-pound-capacity axles, road-ready lights and wiring, an industrial coated finish, pintel hitch or 2 5/16-inch ball hitch, hand-crank jack stand, and 16-inch 10-ply tires with eight-bolt hubs. A 26-gallon fuel tank provides several hours of runtime on a single fill. ♦



Cam Spray is a small, family-owned company based out of Iowa Falls, Iowa, specializing in pressure washers, drain and sewer jetters, and accessories. The company started in 1963 when John and Jim Campbell purchased a local supply business known as The Manning Howell Co. that specialized in farm and industrial supplies.

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Vaughan Co. Offers Dependable Chopper Pump Solutions

Vaughan Co. was started with one simple question: “What could make this better?” In the service bay of the gas station he owned in Elma, Washington, Jim Vaughan spent hours repairing manure pumps for local dairy farmers. He could see a pattern: the pumps were constantly breaking down due to clogs caused by animal bedding or twine. So in 1960, Jim Vaughan invented the world’s first chopper pump.

The chopper pump met a genuine need that had applications far beyond dairy farms. The original patent for the chopper pump was applied for in 1960 and granted shortly thereafter. By 1961, the company purchased its own manufacturing facility in Montesano, Washington. In the decades since, Vaughan has expanded operations greatly and now has 40 worldwide patents.

Now a third and fourth generation family owned and operated company, Vaughan manufactures pumping and mixing equipment for agriculture, municipal, and a variety of industrial applications, shipping worldwide.

RELIABLE PERFORMANCE

From 1960 to today, the company’s goal is to produce reliable products that perform in the most demanding applications. And as the years have passed, Vaughan has implemented new technologies to stay innovative.

Vaughan incorporates in-house 3D modeling, which allows it to create precision castings for all components. With computational fluid dynamics, the company analyzes flow patterns and velocities within its



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“With more than half a century of experience, Vaughan Co. remains committed to giving customers outstanding service and the most dependable product solutions in the world,” says a company spokesperson. ♦



Vaughan Co. Inc. is a pumping and mixing equipment manufacturer located in Montesano, Washington, that provides products for both domestic and international businesses and municipalities.

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CAP Has a Solution for SSO-Related Water Pollution and Consent Decrees

Composite Access Products (CAP) has demonstrated to many municipalities its completely watertight manhole cover assembly. A major Georgia municipality reported that they had never seen such performance in their prior testing.

Fulton County, Georgia, suffered from sewer overflows polluting the Chattahoochee River for over 30 years. In 2020, Roy Barnes, deputy director of public works for Fulton County, installed CAP covers specifically to reduce spillovers.

Before this project, millions of gallons were measured during 2-inch rainfall events. Utilizing CAP assemblies, Fulton measured zero overflow gallons after a 6-inch rainfall event.

“It was the first time in the history of the county that we had no reported spills,” says Barnes. “Typically, that would’ve resulted in a large sewer spill in that area. But we had zero spills.”

ELECTRICITY SAVINGS

Fulton also enjoyed a 50% reduction in pump runtimes, translating into lower electric bills, main-

tenance cost, capital purchases and likely other savings related to plant operating costs, waterboils, and investments into excessive treatment capacities.

Coastlines are reporting overflow issues. A study by Texas Beach Watch found that “55 out of 61 beach locations . . . were shut down for at least one day” for fecal levels. Several dozen U.S. cities have EPA consent decrees for spillovers. Not only can the CAP solution help make our rivers, lakes and beaches safer for aquatic life and our quality of life – it can also save money. ♦



Composite Access Products was started in 2015 by W. Chad Nunnery, former executive of a large U.S. composites leader. After learning of the desire for advanced composite utility cover solutions made in America, CAP was formed in McAllen, Texas. CAP uses high tonnage compression presses for the best blend of quality and affordability. **956-331-8232 | www.justcapthat.com**

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Hermann Sewerin GmbH has developed a new device for professional water-leak detection: The SeCorrPhon AC 200. It combines the characteristics of a correlator with acoustic water-leak detection — prelocation, pinpointing and correlation in one single system.

A VERSATILE DESIGN

The SeCorrPhon AC 200 is based on the tried and tested housing and hardware concept of the AQUAPHON A 200 by Sewerin. Each is suitable for use for leak detection across all sections, materials, diameters and lengths of pipelines.

Numerous additional functions are also available for complex location scenarios — whatever your leak detection requirements, this product will fulfil all of them, according to the manufacturer. ♦

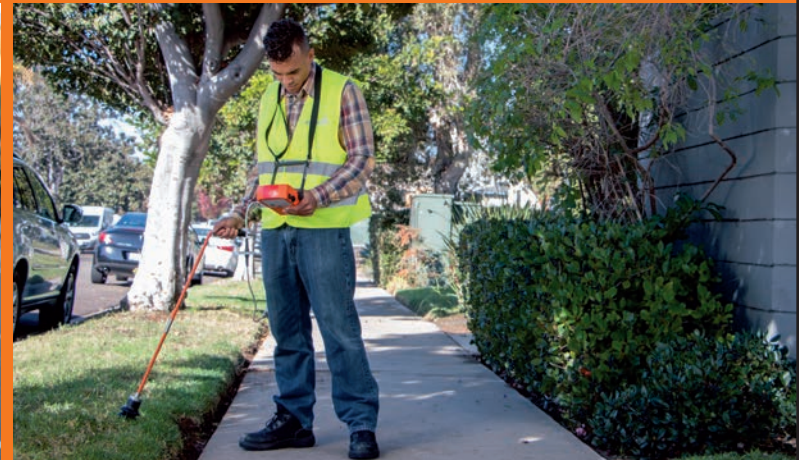
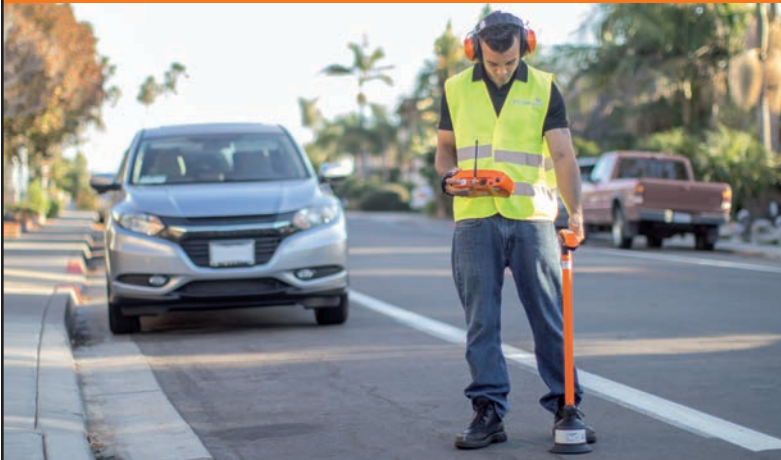


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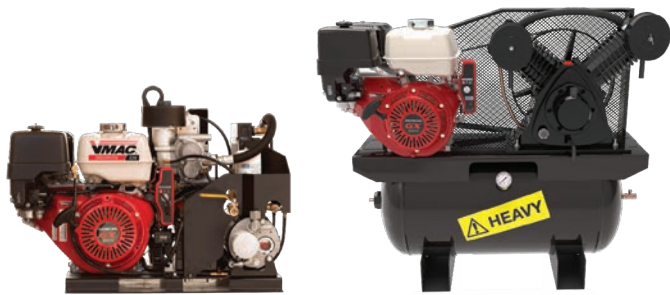


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VMAC's G30 is an innovative rotary-screw gas-driven air compressor that reduces gross vehicle weight, frees up deck space, and provides 30 cfm of air at 100% duty cycle. With two configurations, stacked or standard, fleet managers have two options on how to design their trucks.

The stacked G30 features a vertical configuration, making this gas-driven air compressor 61% smaller than comparable models. The stacked G30 fits either in the rear service body compartment or in the bed of a pickup truck. The standard G30 features a traditional design and is also compact; it's up to 52% smaller than other gas drive options.

"The VMAC G30 is an air compressor solution that's not only significantly smaller than other air compressors, it's also significantly lighter," says Mike Pettigrew, VMAC's marketing manager.

The VMAC G30 weighs in at less than 210 pounds. Customers who choose VMAC's gas-driven air compressor, whether it's the stacked or standard model, will be rewarded with a system that's 59% lighter than comparable gas-driven air compressors.

"The G30 is popular with fleet managers, owners/operators and upfitters because it gives them the opportunity to add more tools, supplies and equipment to their trucks," says Pettigrew. "When truck GVW is a concern, every pound counts, and just by switching to the VMAC G30, you can save over 200 pounds."

The VMAC G30 is ideal for powering 3/4-inch impact wrenches, but more impressively, it can effectively run up to a 1-inch impact wrench with a small air receiver tank. The G30 is popular with municipalities, light- and medium-duty mobile mechanics, mobile tire service technicians, and light-duty contractors. Learn more about the G30 at <https://info.vmacair.com/g30-gas-drive-air-compressor>. ♦



VMAC is a leading air compressor manufacturer in North America with over 35 years of history. VMAC's mobile air compressors and multipower systems have earned a reputation for extraordinary design, build quality, durability and reliability in extreme conditions among operators and fleet managers worldwide.

888-514-6656 | sales@vmacair.com | www.vmacair.com

How to Exercise Your Valves and Keep Them From Seizing



Municipalities and water authorities have many vital functions when it comes to delivering water, but none so important as preserving and maintaining their valuable water system assets, including valves. Hidden from view, valves require periodic turning, often called “exercising,” to keep them from seizing or freezing up due to corrosion and tuberculation, and to ensure they are fully operational when needed.

The tools water system professionals use for this job range from simple to sophisticated, from simple T-bars that must be manhandled, to powered handheld exercisers, to truck-and-trailer-mounted exercising systems, to complete dedicated valve maintenance trucks built on heavy-duty cab and chassis.

ANOTHER SOLUTION

Other tools include Wachs VITALS software, an acronym for Valve Information Tracking and Logging System. VITALS software is used to locate, monitor and record valve maintenance. It creates data that can be imported and integrated into comprehensive GIS desktop software solutions.

Wachs Utility Products offers powered valve turners at different price points to fit every organization’s needs. You can start with a P-2 handheld exerciser in your choice of drive type, couple it with the company’s small Trav-L-Vac trailer to give you the ability to clean out underground vaults. The next step up is Wachs’ Compact LX trailer, which is equipped with a ERV-750 extended-reach valve turner with VITALS.

For midsize municipalities, the Standard LX or Grand LX trailer or skid-mounted systems with VITALS are suitable. They’re ready to run, and include a valve turning machine, power wash system, and power-operated large-capacity spoils tank. Skid systems come pre-assembled on a steel skid that simply bolts down to a flatbed truck.

Wachs Service Body and VMS System with VITALS, upfitted by Knapheide on your supplied cab and chassis, is an expression of a complete valve maintenance truck. To learn more or to schedule a demo contact your nearest Wachs representative or visit the company online. ♦



Wachs Utility Products continues to build on a rich history of quality customer service and a dedicated and enthusiastic work force as the

company designs and builds field portable machine tools and valve exercisers.
847-537-8800 | sales@turnvalves.com | www.turnvalves.com

BOLT AND RUN



Valve Maintenance Skids

For organizations looking for a complete valve maintenance solution that mounts to a truck instead of a dedicated trailer, Wachs offers our Standard LX Valve Maintenance Skid. Unlike other systems, all the components needed for day to day operations come preinstalled on a heavy duty skid that simply bolts down to your truck’s bed, self-contained and ready to run.



WACHS Utility Products
 The Valve Maintenance Experts™

To Learn More about these Skids

Call (847) 537-8800 or Visit
turnvalves.com/Skids

just add water.



With AllMax Software, data entry, work order management, and regulatory reporting is a steady stream of organization. Our applications offer the best combination of experience, service, innovation, and value.



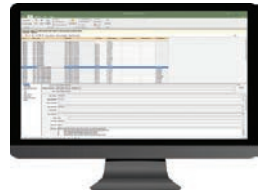
800-670-1867

www.allmaxsoftware.com

MUNICIPAL INNOVATIONS '21

Track Your Maintenance Data Accurately With Allmax Software's Antero

AllMax Software's Antero is designed to accurately track your maintenance data, allowing you to streamline your maintenance program to save time, effort and money — all while giving you peace of mind that your equipment is being maintained efficiently and effectively.



Antero combines a number of desirable features in a computerized maintenance management system.

The newest version of Antero is now available. This update includes a number of brand-new sections and a complete redesign of the program. The improved My Work section is a one-stop place for a user to view all assigned work, manage their workload, and complete work orders. Manage maintenance tasks in new sections such as Work Management, Work Order Review and Procedures. "When we say a complete redesign, we mean it," says a company spokesperson. "New changes to Parts, Calendar and Home Screen sections make sure you get the work done!" ♦



AllMax Software Inc. is a leader in the development of data management and reporting software specifically designed for wastewater, water, pretreatment, biosolids and industrial applications for over 25 years. The company's state-of-the-art lines of software, Antero, Operator 10 Wastewater, Operator 10 Water and Synexus increase plant performance, efficiency and profitability.

800-670-1867 | sales@allmaxsoftware.com
www.allmaxsoftware.com

MUNICIPAL INNOVATIONS '21

Cherne Offers Lightweight, Durable I-Series Test-Ball Plugs

The newly redesigned Cherne I-Series Test-Ball Plugs are innovative pneumatic plugs available for the underground/waterworks market.



Lightweight, short and flexible, Cherne I-Series plugs deliver state-of-the-art solutions for a variety of applications, including blocking and bypassing flow; installing new pipes and junction boxes, or repairing old ones; and installing or repairing utility holes.

Available in eight expansion ranges from 6 to 24 inches, Cherne I-Series Test-Ball Plugs meet U.S. and international industrial and municipal needs for engineers and contractors. The plugs offer high quality and durability, featuring robotic, mechanical bonding of aluminum end plates to the plugs' premium natural rubber to eliminate chemical bonding failures.

Cherne I-Series Test-Ball Plugs provide improved performance and safety through optimized design and superior backpressure (maximum: 15 psi; inflation pressure: 45 psi). ♦



Cherne Industries, a part of the Oatey family of brands, is a global leader in pipe plug blocking and testing. For more information or to find where to purchase, use the contact information below or visit your local distributor.

800-843-7584 | www.cherneind.com

SOME PEOPLE CAVE UNDER PRESSURE. WE THRIVE ON IT.



CherneInd.com



Optimize Your Sewer Maintenance Program With the SL-RAT

Focus collection system resources with the Sewer Line Rapid Assessment Tool, or SL-RAT. Use InfoSense's award-winning acoustic inspection technology as the first step in the maintenance workflow. Screen for blockages in small-diameter sewer lines and use inspection data to drive decision-making.

Operators can screen 10 to 20,000 feet per day at low cost to assess where blockages are in the system. Resources can be deployed based on inspection results, saving valuable time, water and money that is otherwise spent cleaning clean pipes.

Users can focus on the 10% to 35% of the system with an identified need to improve efficiency. The SL-RAT is highly portable, easy to use, has no flow contact, and is GPS enabled. Over 350 million feet have been inspected by hundreds of utilities, according to the manufacturer. ♦



InfoSense Inc. is based in Charlotte, North Carolina, and is the sole manufacturer of the SL-RAT. Use the contact information below to schedule a free demo.

877-747-3245 | sales@infosense.com | www.infosense.com

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MILLIONS OF FEET INSPECTED

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Prevent Inflow and Infiltration With Sealing Systems Products

The Sealing Systems Inc. product line includes manhole chimney seals, joint seals, manhole inserts, rubber risers, cementitious repair material and Aqua Seal, which is a fast-reacting chemical grout able to stop 50 gpm leaks.

Infi-Shield Uni-band is an EPDM rubber external seal which provides a permanent, flexible, watertight seal between the manhole casting and the concrete cone. Infi-Shield Gator Wrap is made of a stretchable, self-shrinking, intracuring halogenated-based rubber seal and it is designed to seal joint sections in manholes, catch basins and many other types of concrete joints.

Flex-Seal is an internal brush applied urethane seal which has a remarkable 800% elongation. Sealing Systems' products can save your community money while helping it gain effective wastewater capacity quickly and affordably. ♦

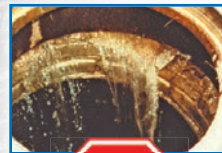


Sealing Systems Inc. is a manufacturer and distributor of quality products for sustaining and maintaining municipal sewer systems by preventing inflow and infiltration.

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EXPLORING THE TECHNICAL SERIES

NASSCO webinar series provides technical expertise and education credits

By Sheila Joy

In addition to the many NASSCO specification guidelines, videos, manuals, publications and other technical resources available to our industry, over the past year NASSCO has begun to build an impressive library of webinars on timely, technical topics. Available to the entire industry, live attendance at upcoming webinars is free and includes CEU or PDH credits.

Past webinars were recorded and are available to view anytime at nassco.org/webinars. Technical webinars to date include the following:

Remaining Useful Life of Gravity Pipe Assets

Kicking off the series in 2020, NASSCO's Technical Advisory Council presented the important topic of remaining useful life of gravity pipe assets. The webinar begins with an overview of the history of PACP and remaining useful life. Taking PACP to the next level, the webinar continues with answers to why most gravity pipes fail, a discussion on condition assessment for remaining useful life, extending remaining useful life and managing risk. Case studies for both small- and large-diameter pipe are shared and followed up with a discussion on the purpose of renovation, how long we can make it last, the importance of understanding design and quality assurance and understanding failure modes. Sponsored by NASSCO member companies AECOM, Brown and Caldwell, Hazen, Jerry Weimer Consulting, Pipetek and Redzone Robotics, this webinar was recorded and is available to view anytime at www.nassco.org/webinars.

Lateral Ownership: Pros and Cons

In the spring of 2021 NASSCO's Lateral Committee presented the pros and cons of lateral ownership. A hot topic for system owners and private property owners alike, the webinar starts with an overview of the responsibilities of each. Pros and cons are discussed, including challenges of ownership, economic benefit, identifying defects, eliminating unwanted flow, regulatory

compliance and funding, private versus public cost, and social and administrative benefit. Renewal methods and options are outlined, and two important case studies from the municipal perspective are shared. Thanks to NASSCO member companies BLD, EQUIX, GRANITE Inliner, Logiball, Prime Resins and Trelleborg for sponsoring this important webinar, available for viewing at nassco.org/webinars.

CIPP and Styrene Emission Best Practices

On Nov. 4, in partnership with our Health and Safety Committee, NASSCO's Technical Advisory Council's webinar explores why styrene emissions in the cured-in-place pipe process may be a concern. A recap of ongoing NASSCO-sponsored research results over the past several years will be reviewed. Engineering controls for styrene discharges and emissions will also be discussed, along with a special presentation on monitoring equipment and strategies for styrene emissions. For those attending the free, live webinar on Nov. 4, CEU or PDH credits will be available. Register today at www.nassco.org/events.

Coming Soon, Pressure Pipe

NASSCO's Pressure Pipe Committee looks forward to a 2022 Webinar on the topic of pressure pipe rehabilitation with a special focus on force mains. For those attending the free, live webinar, CEU or PDH credits will be available. Registration for this webinar is coming soon at www.nassco.org/events.

To view past NASSCO technical and association webinars, visit www.nassco.org/webinars. To register for upcoming webinars and receive CEU or PDH credits, please visit nassco.org/events. If you are a NASSCO member and would like to be part of the development and presentation of NASSCO webinars and other technical resources, get involved with a NASSCO committee today! Email lisa@nassco.org for more information. ♦



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.

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Trainer: Michael Lukas

Dec. 14, 8 AM Eastern Virtual Classroom Training
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Trainer: Gerry Muenchmeyer

Dec. 21, 8 AM Eastern Virtual Classroom Training
Includes: ITCP-CIPP
Trainer: Michael Lukas

NASSCO PRO TRAINING



OTHER CLASSES FORMING

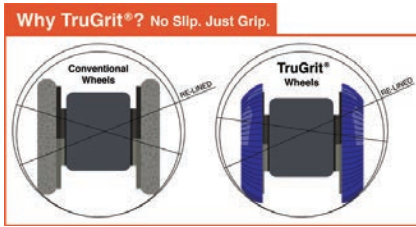
Contact one of the trainers listed above if you are interested in having a class at your facility or in your area.

TruGrit Creates Aftermarket Polycarbide-Gritted Camera Crawler Wheel

At TruGrit Traction, the focus is on making your camera transporter perform better, regardless of the brand you use. With this in mind, the company has developed and patented the world's first flexible polycarbide-gritted camera crawler wheel, designed to provide maximum pulling power in all pipe types and conditions.

Using TruGrit polycarbide technology, the company has created an innovative aftermarket traction wheel, fitting most major CCTV transporter manufacturers. The TruGrit Wheel has the unique ability to provide the traction needed for varying pipe types and conditions, yet still provides the flexibility needed to traverse through obstacles without damaging the pipe; this is what sets it apart from common steel carbide grit wheels.

Run them in clay, concrete or PVC and they never get dull, as carbide grit is embedded throughout all the way to the hub, providing enhanced traction throughout the entire life of the wheel, according to the manufacturer. ♦



TruGrit Traction Inc. has, for more than 30 years, created and tested equipment while developing traction products that last longer and optimize the performance of camera transporters in all types of pipes and conditions.

407-900-1091 | www.trugrittraction.com

The world's first flexible, patented Carbide Grit Camera Crawler Wheel

- Gains traction without damaging the pipe
- Never gets dull with grit embedded throughout the wheel
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Product Spotlight

Mobile cranes meet municipal utility needs

By Craig Mandli

Wrestling heavy equipment or other objects alone from the box of a pickup truck is not only difficult, it can also be dangerous. For these jobs, davit cranes can prove exceedingly useful in municipal environments.

Be it a pump, trash basket, manhole cover, UV panel, mixer or any other equipment, davit cranes from Patterson can lift virtually anything weighing up to 2,000 pounds. The versatile tools can even be installed easily without any external assistance.

“Having made many custom lifting products in the past, we felt that it was a natural extension to our product line,” says Patterson President Taylor Grapes. “From both a functionality standpoint and our experience developing durable products for use in wet and corrosive environments, we knew our expertise was a match for the market’s need.”

The cranes were designed from the ground up for ease of use, durability and reliability. According to Grapes, the unit’s brake mechanism, main body and winch are made to Patterson’s highest quality and consistency standards to ensure safety and reliability for the entire life of these products. A fully galvanized body means there is no concern of scratched paint or flaking powder coats, which can lead to corrosion and eventually, failure. Steel sheaves, as opposed to plastic, offer significantly longer life and extended duty cycles between replacement.



“The mobility of these units also allows customers to service multiple locations with a single crane, which minimizes upfront investment and makes the Patterson davit crane an easy choice for operators and purchasing agents alike,” Grapes says. “The simple design, durability and overall quality lead to minimal maintenance and downtime, which reduces cost and increases efficiency, making operations faster and easier.”

According to Grapes, all cranes are rigorously tested both digitally and physically. Using ANSYS for digital finite element analysis, engineers can see where problems may surface due to focused stress — in a part or assembly — before the product is physically built.

“From a functionality standpoint, customers are happy with the product, as it does what it is supposed to,” he says. “The more important part for us is that when customers first unbox and assemble and install the unit, we are constantly told that they can see and feel the quality of the unit right off the bat. This is important to us because it means the customer knows immediately that they have purchased a high-quality product that will last them for years to come.” **800-322-2018; www.pattersonmfg.com**

Super Products Mud Dog 700 vacuum excavator



Super Products’ new Mud Dog 700 is a compact, versatile vacuum excavator that is ideal for urban environments. It features a 7-yard debris body and 600-gallon water tank to maximize the legal payload and comes standard as a dump body with an electric vibrator. The unit has a 50-degree

dump angle with the capability of dumping into a 48-inch container while maintaining a low over-head height and center of gravity for increased stability. Additionally, the 700 is equipped with a rear-mounted, extendable, 8-inch-diameter boom that reaches 18 feet, has 270-degree rotation and pivots 10 degrees downward, which minimizes job site restoration and eliminates traffic congestion near roads. **800-837-9711; www.superproducts.com**

Vermeer VXT300 vacuum excavator



Vermeer’s new VXT300 truck vac is outfitted with an 8-cubic-yard spoil tank, 6-inch dig tube and the ability to carry up to 800 gallons of water so crews can maximize productivity on the job. It is one of the lightest truck vacs in its class and designed with a low overall height of 11.5 feet to efficiently transport spoils from the job site to the dumpsite. The vac truck is built on a Kenworth T370

truck chassis with a 350 hp diesel engine and a 6-speed automatic 3,000 RDS Allison transmission. The truck’s PTO drive powers its Roots 624 vacuum blower with a maximum flow of 3,500 cfm and maximum suction of 18 inHg. With a water pump capable of producing 10 gpm at 3,000 psi, the VXT300 delivers productivity on large jobs as well as when digging at deeper depths. In addition, this truck vac’s PTO drive system allows the vac to keep running while repositioning the truck between holes, rather than requiring full machine shut-down, for optimal efficiency. **800-837-6337; www.vermeer.com** ♦

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/ii5

SPECIAL REPORT

Patterson davit cranes

Give your operations a lift with Patterson davit cranes, available in 1/2-ton and 1-ton capacities. The low maintenance, easy-to-assemble design offers adequate reach to accommodate lifting 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. Built for durability, it comes standard with a hot-dipped galvanized finish and stainless steel hardware to prevent rust and corrosion in wet work environments. Following Patterson's tradition of safety-focused innovation, the davit features a reliable brake to keep loads in position without creeping. For over 160 years Patterson has been a trusted supplier of winches,



rigging, fittings and custom products for lifting applications. Patterson davit cranes are made in the U.S.A. and deliver on the company's promise of helping businesses run safer, easier and faster. Find out how Patterson can improve employee safety and positively impact your bottom line.

800-322-2018; www.pattersonmfg.com/davit-cranes



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Joanie Mahoney
An Original Environmentalist
County Executive, Onondaga County, N.Y.

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LOCATION AND LEAK DETECTION

By Craig Mandli

ELECTRONIC LEAK DETECTION

General Pipe Cleaners Gen-Ear LE

The **Gen-Ear LE** from **General Pipe Cleaners** is an easy-to-use, economical water leak locator with strong sound amplification. It can be used to pinpoint water leaks in residential and commercial water lines. The compact amplifier fits easily in the palm of your hand. It provides noise-free amplification with built-in preset audio filters, so you don't have to guess what settings to use. High-performance headphones with noise cancellation features block out interference from surrounding ambient noise. An advanced acoustic sensor listens for the gurgling or hammering of water escaping from a cracked pipe under any surface, like concrete, tile, grass or carpet. For especially hard to find leaks, the sound amplification module adds air to the line, increasing the water pressure, thus amplifying the leak sounds and making them easier to locate. **800-245-6200; www.drainbrain.com**



Fluid Conservation Systems Tri-Corr Touch Pro

The **Tri-Corr Touch Pro** high-performance correlator from **Fluid Conservation Systems** is an advanced leak noise correlator designed for the more difficult leak detection situations, including plastic or large-diameter pipes. Incorporating a variety of simple-to-use functions and being intuitive to control, its automatic filtering intelligence system obtains the best result by automatically optimizing the filters. The step-by-step menu system guides users through the correlation

process. It is an effective tool for quick, accurate leak detection. **800-531-5465; www.fluidconservation.com**



Hermann Sewerin GmbH SeCorrPhon AC 200

The **SeCorrPhon AC 200** from **Hermann Sewerin GmbH** combines the characteristics of a correlator with acoustic water leak detection, offering prelocation, pinpointing and correlation in one single system. It is based on the tried and tested housing and hardware concept of the AQUAPHON A 200 by Sewerin. Each is ideal for use for leak detection across all sections, materials, diameters and lengths of pipelines. Numerous additional functions are also available for complex location scenarios. **888-592-9916; www.sewerin.com**



Mueller Water Products Super Centurion hydrant

The **Super Centurion** hydrant from **Mueller Water Products** can serve as a communications hub and physical platform for both pressure monitoring and leak monitoring systems. Mueller's pressure and leak monitoring solutions can be integrated seamlessly into existing water infrastructure and communicate via the cellular network to the cloud-based Sentryx Water Intelligence Platform. The Sentryx platform records and displays data communicated from the hydrant, and reports, data and notifications gathered from the platform can be easily pushed to workforce management software, billing software, meter data management or other utility software platforms. The Sentryx platform can interface with other software platforms and third-party devices to accommodate specific utility needs. The hydrant is manufactured with corrosion resistant materials and offers a long battery life. **800-423-1323; www.muellerwaterproducts.com**

MyTana LD40 Leak Detector

The **LD40 Leak Detector** from **MyTana** has multiple frequency bands that home in on hard-to-find hissing, trickle or seeping sounds while filtering out background noises. It has an easy-to-understand, real-time visual response meter, enabling operators to listen and watch for leaks. It can detect through any surface, as a probe unit detects leaks in overhead pipes, behind walls or tight spaces, making it suitable for use on vertical lines, slab leaks and irrigation leaks. It is powered by a rechargeable lithium-ion battery. **800-328-8170; www.mytana.com**



ELECTRONIC LINE LOCATORS

Subsite Electronics UtiliGuard 2

The **Subsite Electronics UtiliGuard 2** is a multifrequency utility locator that adds to features of the original UtiliGuard with a user interface, integrated data capture and GPS positioning. It provides simplified graphics that are easier and faster to interpret. Operators will notice a change in screen layout when directly over a utility locate, providing positive confirmation. Screen graphics deliver increased operator confidence, locate consistency and operational performance. It automatically captures data without altering the



(continued)

SAVE THE DATE

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- ✔ Learn best practices for sustaining and growing your business so it can continue to serve your customers for generations to come



The logo for WWETT 22 features a stylized blue wave icon above the text "wwett™ 22". The "wwett" is in a lowercase, sans-serif font, and "22" is in a larger, bold, blue font.

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operator's normal workflow. This data can be used to verify performance and demonstrate quality and process compliance in the field. Supervisors can also track performance, compare it with benchmarks and enable actionable outcomes to be implemented. This reporting and auditing capability is designed to increase quality, reduce cable strikes and increase productivity across multiple crews. **800-846-2713; www.subsite.com**

Radiodetection RD8200G

The **RD8200G** advanced precision locator from **Radiodetection** has a built-in gyroscopic measurement system, which alerts the user of excessive swing, driving correct usage. A high-performance audio system allows operations in noisy environments. A waterproof speaker housing is positioned to provide maximum feedback to the operator and tuned for optimum resonance for the frequency tones chosen. Five power output levels assist technicians working in challenging environments. The locator handle vibrates when alerts activate, leaving the operator to concentrate on the job at hand. It records details on how, when and where it is used. This information can be utilized to drive best practices, identify training needs and maximize operator productivity. A single or dual Bluetooth system offers a connectivity platform designed to offer future upgrades and connectivity solutions. **877-247-3797; www.spx.com/en/radiodetection**



RapidView IBAK North America 3D GeoSense

The **3D GeoSense** system from **RapidView IBAK North America** provides the power to map lateral pipelines with accuracy and speed. The 3D sensor is available in almost all IBAK cameras and can be deployed on a pushrod via lateral launch or on a mainline crawler. The sensor tracks the movement of the camera as it travels through the pipeline, capturing distance, position and depth in 3D space, and is displayed by data logging software. Technicians no longer have to track the system above ground with a locator, as they can simply conduct the inspection and collect the positional data. The system is ideal for cross-bore analysis, or any situation where pipeline positional data is necessary. **800-656-4225; www.rapidview.com**

RIDGID SeekTech Locator 18V Adapter

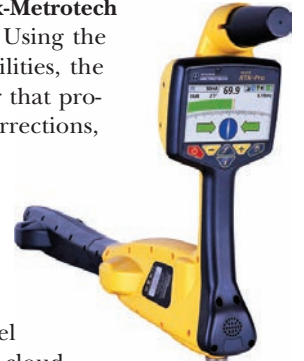
The **RIDGID SeekTech Locator 18V Adapter** is a flexible power option, attaching to the SeekTech SR-20, SR-24 and NaviTrack Scout to allow use with a RIDGID 18V battery. Compact in size — 3.7 by 2.9 by 5.1 inches — the adapter is a versatile power option that can reduce long-term battery costs. It easily fits into the



alkaline battery cavity, providing convenience and flexibility. It also means fewer interruptions at the job site to increase productivity and profitability. **800-474-3443; www.ridgid.com**

Vivax-Metrotech vLoc3 RTK-Pro

The **vLoc3 RTK-Pro** receiver from **Vivax-Metrotech** includes real-time kinematic GNSS accuracy. Using the internal cellular module with 4G LTE capabilities, the operator can connect to a NTRIP RTK caster that provides RTCM 3 corrections. By using these corrections, the operator can collect both utility location data along with the geographical location of the utility with survey-grade accuracy. It is designed for all operator levels with user-friendly and intuitive locate screens. Operators confirm the utility data with the press of a button and align the electronic spirit level to store the data. All field data is sent to the cloud and retained in the receiver's onboard storage for review and exporting to external mapping programs. **800-446-3392; www.vivax-metrotech.com**



SMOKE LOCATOR

Superior Signal smoke generator



Smoke generators from **Superior Signal** locate sources of surface inflow resulting in wet-weather sanitary sewer overflows. A fast, inexpensive and easy way to find leaks and faults in collections systems, smoke candles provide visible smoke to detect more faults at longer distances and come in sizes to meet any need. Smoke candles, blowers and fluid systems for smoke testing are available. **800-945-8378; www.superiorsignal.com**

TRANSMITTER

Hawk Measurement Systems OptioLaser L100 and L200

Hawk Measurement Systems OptioLaser L100 and L200 laser level transmitters are ideal for level, distance and position measurement of solid and liquid surfaces. The laser has a very narrow beam that can measure long and short distances at virtually any angle. They are completely stainless steel and extremely rugged, built for the harshest of environments. The transmitters are fully programmable, include simple-to-use software and can be configured for either distance or level measurement. **888-429-5538; www.hawkmeasurement.com** ♦



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Future Locations and Dates:



Tempe, AZ
April 13-14, 2022

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Little Giant celebrating 80th anniversary in 2021

Franklin Electric brand Little Giant is celebrating its 80th anniversary in 2021. The company is marking the occasion with a series of initiatives planned throughout the year, including a revitalized brand look.

Vortex acquires Germany-based Flee-Tech GmbH

As part of its European expansion strategy, Vortex Cos. completed the acquisition of Germany's Flee-Tech GmbH, a trenchless sewer rehabilitation contractor. Founded in 2001 and based in Lehrte, Germany, Flee-Tech has steadily increased its services, while remaining focused on delivering cost-effective no-dig solutions.

McElroy University unveils new courses and webpage

McElroy University's online homepage has a revised look and is also offering new courses. The website provides an overview of each course, details about topics and equipment covered, and available dates and locations for any in-person training. In addition, an option was added to further customize operator qualification training through à la carte options. For many classes, in-person hands-on training accompanies the online training so students receive practical experience on equipment. Other classes are offered 100% online for students to learn on their own time from almost anywhere in the world.



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Utilis rebrands to ASTERRA, receives AWWA award

Utilis unveiled its new brand, ASTERRA, and hosted a reception where the company was presented with the inaugural Innovation Award from the American Water Works Association. The San Diego Chamber of Commerce joined ASTERRA leaders from both the United States and Israel and former Mayor and chamber President Jerry Sanders for a ribbon cutting on Aug. 5.

VMAC makes 2021 Best Workplaces in Manufacturing list

VMAC earned its position within Canada's Great Place To Work's Best Workplaces in Manufacturing list for the third consecutive year. Great Place To Work determines the Best Workplaces list by reviewing confidential coworker responses to their Trust Index Survey, which requires coworkers to agree over a variety of criteria that their workplace is a 'great place to work.'

PPI announces new board chair

The Plastics Pipe Institute announced that Douglas Keller, technical lead — Americas for Equistar Chemical's Pipe Resins, is the chair of its board of directors, a two-year appointment. Keller, who has been a member of PPI for 12 years, moves to the chair position after serving as the vice chair for the past two years. He has also been on the association's board as treasurer.

Total Equipment expands Vermeer industrial representation, rebrands

Total Equipment, a full-line Vermeer industrial dealer headquartered in Puerto Rico, announced it acquired the rights from Vermeer Southeast to represent the Vermeer industrial product line in over 20 islands south of Cuba. The area includes islands from Jamaica to Trinidad and Tobago, and also includes the ABC islands (Aruba, Bonaire and Curaçao). With this acquisition, Vermeer Total Equipment's name will be discontinued, and the new entity will conduct business under the brand name of Vermeer Caribbean under the leadership of Total Equipment. Vermeer Southeast will keep ownership and continue to serve the territories of Turks and Caicos, Cayman Islands, Bermuda and the Bahamas.

Trenchless Equipment announces new team members

Trenchless Equipment, based in Turlock, California, announced four new members to its team, Michael Lien, Miriam Brenner, David Huff and Bill Seals. Lien, with over 20 years' experience at TRIC Tools managing all aspects of the business, has taken the position of managing director with Trenchless. Brenner comes to Trenchless Equipment with over two decades of experience. She has taken the position as international sales specialist with the company. Huff comes to Trenchless Equipment with four years' experience and was the national sales manager with TRIC Tools. He joins the company as director of sales. Seals comes to Trenchless with four decades of working with service professionals at both Spartan Tool and TRIC Tools.



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 Jetting Manhole Rehabilitation Pipeline Rehabilitation & Relining
 Repair/Replace Excavating Treatment TV Inspection Vacuum Truck Service

What is the approximate population of the area in which you provide service?
 1-10,000 10,001-50,000 50,001-100,000 100,001-200,000
 200,001-500,000 500,001+

How many vehicles do you currently have in service?
 1-5 6-10 11-15 16-20 21+

What is your annual equipment budget?
 Under \$50,000 \$51,000-100,000 \$101,000-200,000 \$201,000-300,000
 \$301,000-400,000 \$401,000-500,000 Over \$500,000

If municipal, what percentage of your sewer and/or water work is done by private contractor?
 None 1-20% 21-40% 41-60% 61-80% 80%+

Services provided?
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 Other _____

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PIPELINE REHABILITATION

FOR SALE: 1995 P-30 step van Camera/Robotic cutter van. Equipment is a little outdated but all works. Cobra 8" crawler, bowman cutter, on board screw compressor with air dryer, pressurized water, onan diesel generator, bypass pump and hoses, signs, too many details to list. 20-ft enclosed wet out trailer for point repairs with 2 winch machines, several sleeve installers. This is a complete setup for 8" thru 12" dia x up to 10 ft length. Also have fiberglass matting, resin, ect. Priced for quick sale \$ 49,000 OBO Contact Steve 970-903-9104. (M01)

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PEOPLE/AWARDS

Ben Bartlett was hired as public works director for the Volusia County (Florida) Public Works Department. He replaces John Angiulli, who retired following a 27-year career with the county.

Ray Underwood was hired as public works director for the City of DeLand (Florida).

Younsil Lee was hired as a project manager for Karins and Associates (Delaware). Stormwater management is among Lee's areas of expertise.

Brantley Day was hired as director of the Cherokee County (Georgia) Community Development Agency. Overseeing stormwater management is among his areas of responsibility.

Greg Schneider retired as director of public works for the Town of Parsippany (New Jersey).

The **Prince George's County (Maryland) Department of Environment-Stormwater Management Division** received a Special Achievement Award from the Environmental Systems Research Institute for its Municipal Separate Storm Sewer System (MS4) Stormwater GIS Enterprise System.

The **Town of Beaufort** (North Carolina) received a Pelican Award, which recognizes outstanding coastal conservation, from the North Carolina Coastal Federation. The town has committed to reducing its stormwater impact on surrounding waters, according to a press release. ♦

CALENDAR

Nov. 7-10

American Society of Civil Engineers Geo-Extreme Conference, Hyatt Regency, Savannah, Georgia. Visit geo-extreme.org.

Nov. 8-11

American Water Resources Association Annual Conference, Embassy Suites by Hilton, Kissimmee, Florida. Visit awra.org.

March 2-5

National Utility Contractors Association Annual Convention and Exhibit, Hyatt Regency Hill Country Resort and Spa, San Antonio. Visit nuca.com.

March 13-16

American Society of Civil Engineers Operation and Maintenance of Stormwater Control Measures Conference, Wilmington Convention Center, Wilmington, North Carolina. Visit asce.org.

April 24-27

American Water Resources Association Spring Conference, Bryant Conference Center, Tuscaloosa, Alabama. Visit awra.org.

June 27-29

Water Environment Federation Stormwater Summit, Hyatt Regency, Minneapolis. Visit wef.org.

Sept. 26-28

National Rural Water Association WaterPro Conference, (hotel/conference center TBA), National Harbor, Maryland. Visit nrwa.org.

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