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Danny Ashburn
City of Palm Coast
Utility Department
Palm Coast, Florida

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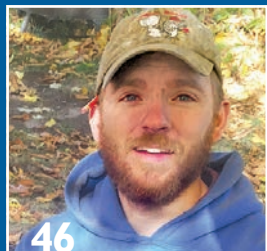
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INSIDE:

CHEMICAL AND MECHANICAL ROOT CONTROL



ON THE COVER: Palm Coast (Florida)
Wastewater Operations Manager
Danny Ashburn and his team of 27 collections
specialists manage a system consisting
of 600 miles of pipe and 159 pump stations.
(Photography by Rob Herrera)



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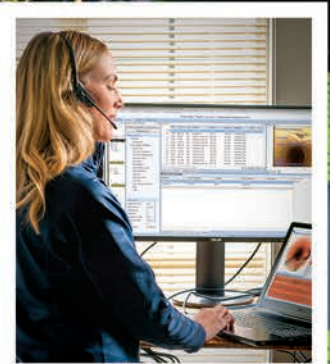
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Connecting with your industry peers is a good thing for your utilities and your communities



FROM THE EDITOR

Luke Laggis

It's good to be part of a community, whether it's your hometown, a profession, recreational group or something else. It's good to feel connected.

I come from a small town. I never intended to move back, but family circumstances changed that. There are plenty of things I dislike about it, but my best friends are here and I know they have my back. I always have someone I can call if I really need help with something. It's a good feeling.

I was traveling last weekend and it occurred to me that I have friends nearby almost everywhere I go now. And it's not because of social media or because I'm so well-traveled that I have friends in every corner of the country. It's because of this industry, and this magazine.

We've told the stories of so many water and wastewater utilities in the pages of *Municipal Sewer & Water* magazine. I count many of those operators among my friends, and they stretch across the U.S. and Canada. I've connected with many of you. It's been a big help, and it says a lot about the industry. More importantly, the more people I talk to, the better I understand the challenges you face and the significant roles you play in your communities.

It should be the same amongst utilities. You share so much in common, from the cost of inflow and infiltration to the challenge of convincing local officials of the need for greater investment in your infrastructure. And that doesn't begin to tell the story. You all wade in the same pool of challenges. More importantly, you have the lessons learned from those challenges to share. Every utility has unique fixes and solutions. Sharing that knowledge and experience will allow those searching for solutions to the same challenges to save time and money and make their communities healthier. It can have a huge impact.

We try to bring you those stories every month in *MSW* because there is so much to be learned from your peers. The magazine is just one way to connect; there are many others, from conventions to Facebook groups, or even a simple email or phone call. You never know what you might learn.

I've written in this space about how connected the world's water resources are. In the same way, so too are the agencies charged with protecting them through better means of collection, treatment and distribution.

Unlike private businesses, you have nothing to gain by protecting the secrets of your success. This industry is filled with innovators, and all utilities can — and should — benefit from the success of others.

We all depend on the same water resources, and in that way, we are all directly connected.

Regardless of whether they're in a bordering community or across the country, it's good to be connected to the people in your industry. You're all charged with the same task, and you never know when you might need a little advice or support. That help can go a long way for both you and the communities you serve.

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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MITIGATING DISASTER

Capping Laterals After California's Most Destructive Wildfire

Every municipality's goal is ultimately to protect its residents — but losing 5 percent of your housing stock to wildfire can make that difficult. When wildfire burned through 36,800 acres of California's Sonoma and Napa counties last October, the city of Santa Rosa found itself picking up the pieces of 3,000 structures that had been obliterated. Meanwhile, the city's water department had its own task — capping sewer laterals in an area at risk for system infiltration. mswmag.com/featured

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— *Utility Partners With Developer to Showcase Water-Efficient Home*
mswmag.com/featured



PUBLIC SUPPORT

Making the Most of Media Exposure

One of the biggest challenges all utilities face is garnering public support, whether for capital improvements or rehabilitation and repair. That's why Tim Murphy, executive director of the Albany County (New York) Water Purification District, took advantage of a recent opportunity to spread the utility's message on a local radio broadcast. In this online exclusive, read about some of the ways Murphy puts a positive spin on wastewater. mswmag.com/featured



DIRECT REUSE

Your Drain Is Arizona's Newest Water Source

Until the beginning of this year, direct potable reuse in Arizona was unequivocally banned. But the state's Department of Environmental Quality has taken its first step in an effort to create a new set of rules and guidelines promoting DPR systems. As a drought-prone state, Arizona has faced increasing risk of water shortages in recent years. Read our interview online with the DEQ's value stream manager of groundwater protection and reuse. mswmag.com/featured

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A LITTLE BIT OF EVERYTHING



City of Palm Coast Utility Department foreman Matt Kehrle (left) observes as utility technicians Dusty Holloway (right) and Frank Reyes work on a service lateral replacement. (Photography by Rob Herrera)

Palm Coast handles the pressure of hurricane season and significant growth in an environmentally sensitive area

By *Jim Force*

The Palm Coast, Florida, wastewater collections department is getting good at dealing with “more.” More rainfall, more people, and more growth.

“It seems like this past year has been one of the most unusual, as far as rainfall is concerned,” says Danny Ashburn, wastewater operations manager, who has been with the city for more than 36 years.

Storms dumped 15 inches of rain last July, and with the ground already saturated, the flow through the treatment plant doubled. Hurricane Irma, which roared up the Florida Peninsula last fall, brought 75-90 mph winds and 10 inches of rain in just two days.

Meanwhile, the city’s growth is recovering from a slump brought on by the 2008-09 recession. “Now it’s picking up,” Ashburn says. Statistics show the city’s population increasing 18 percent to over 85,000 since 2008. Typical of Florida, it’s expected to double by 2030.

To deal with these increases, the city is nearing completion of a brand-new wastewater treatment plant that will not only help handle the additional load, but will also relieve pressure on the city’s collections system.

Collections system

Ashburn and his team of 27 collections specialists manage a system consisting of 600 miles of pipe and 159 pump stations. What’s unusual in Palm Coast is the existence of over 14,000 Pretreatment Effluent Pumping, or PEP, units owned and maintained by the city, each one serving a household. They were installed as a less-costly alternative to gravity sewers during the development of Palm Coast by ITT Community Development Corp. They act like a septic system, except the holdings don’t drain into the surrounding soil; they are connected to the city sanitary sewer system.

“It’s about a 60-40 split between gravity sewers and PEP units,” Ashburn says of the collections system.

The city has no stormwater sewers. Rather, stormwater is collected in 70 miles of freshwater and saltwater canals, more than 150 miles of interconnected ditches, and more than 1,200 miles of roadside swales. The water is directed to the Intra-coastal Waterway, which runs through the city.

Stormwater can also drain to the several lakes, tributaries and wetlands in the area, including Graham Swamp — a huge storm flow collection area.

Inflow and infiltration can overload the treatment facilities during unusually heavy wet weather. “It can inundate us at the treatment plant,” Ashburn says.

Cleaning and maintenance

The Palm Coast collections team strives to televise, clean and repair 20 percent of its system every year — covering the entire system every five years.

To accomplish that, the city uses its own Envirosight portable inspection system to identify areas that need attention. Any problems in the line are recorded and added to the repair list to be completed by the construction crews. “We have two vacuum-jetting trucks. One is a Vac-Con, and the other is a Vactor,” Ashburn says. “We use them for cleaning both the gravity mains and pump stations.” The city also uses root cutters to clear lines. “We televise and clean almost every day. Rags can be a problem when we flush the lines.”

A trio of 4,500-gallon capacity tanker trucks is another collections maintenance tool. “Whenever we have high flows, we use the trucks to help us keep up,” Ashburn says. The trucks can be dispatched to manholes to pump excess water from the system and deliver it to the treatment plant.

“We have 24/7 responsibility, and that includes after-hours and weekend calls.”

Danny Ashburn

Other maintenance programs include smoke testing of gravity sewers to identify infiltration sources, and repairs to failed gravity lines utilizing CIP fiberglass liners. Ashburn’s team is also responsible for grouting leaks in manholes and wet wells, and addressing backups or power failures in pump stations.

Because many pump stations are located close to private property, the utility has odor control technology on approximately one-third of them. “We use BIOREM Biocubes, as well as ozone, wherever we have the most problems and complaints,” Ashburn says. “Plus, we are experimenting with a new UV process.” The utility budgets for odor control every year in an effort to address and reduce customer complaints.

Daily calls

Ashburn’s crew has maintenance responsibility for the 14,000 PEP systems as well, and they can be labor-intensive. “We have 24/7 responsibility, and that includes after-hours and weekend calls,” he says.

“We respond to alarms on a daily basis. Customer service generates a work order, and a technician is dispatched to the site to make the repair.”

Ivan Sanderson



PROFILE:
Palm Coast, Florida,
Wastewater Collections
System

FOUNDED:
1972

POPULATION SERVED:
85,000

AREA SERVED:
City of Palm Coast

COLLECTIONS SYSTEM:
300 miles of force mains and 300 miles of pressure lines, 14,000 Pretreatment Effluent Pumping systems serving individual households, 159 pump stations

STAFF:
Danny Ashburn, manager of wastewater operations; Ralph Hand, utility supervisor; Ivan Sanderson, lead PEP technician; John Croote, lead technician; and Eric Serrano, lead technician

ANNUAL OPERATING BUDGET:
\$6.6 million for wastewater operations

WEBSITE:
www.palmcoastgov.com

Each system consists of a 1,050-gallon fiberglass tank equipped with a 1/2 hp pump, float switches and a control panel. The systems use polyvinyl chloride pipe placed not as deeply in the ground as conventional gravity sewers, eliminating the need for gravity sewer manholes.

The systems are primarily located in geographic areas west of Interstate 95, and once the existing



Utility Foreman Bryan Parreso (left) and technician Don Abbott work on a Pretreatment Effluent Pumping tank installation at a new home site in Palm Coast.

27,000 residential lots are built out, no more PEP systems will be allowed. “Housing developments beyond that will require gravity sewers,” Ashburn says.

Ivan Sanderson is the lead PEP technician, responsible for repairs and expansion of the system and the six technicians who operate and maintain the system. “We respond to alarms on a daily basis,” he says. “Customer service generates a work order, and a technician is dispatched to the site to make the repair.”

Educating the homeowner is an important first step. The city maintains extensive information on the PEP system on its website in an effort to keep homeowners informed. They are also given information about the system when applying for service.

Going forward, the utility will concentrate on upgrading the size of the PEP pressure mains to accommodate expected residential growth and to determine the need for upsizing the pumps. Tank size will remain the same.

Tanks can be damaged and sometimes need replacing. “Sometimes if you have flooding, the combination of weight on top of the tank from saturated soil and groundwater pressure from the bottom of the tank can cause the tank to crack or fail,” Ashburn says. “We’ll need to replace it.”

Heavy vehicles driving over the tanks can also cause damage. All new tanks have an H20 traffic

load rating. “It’s worth the extra expense,” Ashburn says of the tank material. “They generally last a long time.”

Emergency protocol

One good thing about wet weather: You can usually predict it and get ready for it.

That’s exactly what Ashburn and his team do. Their emergency preparedness plan is not just a three-ring binder on the shelf, it’s frequently put into practice, especially as each new hurricane season looms in the fall.

“We take special precautions,” he says. “First we go out and make sure everything works properly and everything is battened down at the sites. We get everyone prepared, make sure our tanker trucks are working properly and are fueled up and ready to go. We make sure we don’t have any obstructions in the lines. If we have any new construction going on, we secure those sites.”

Ralph Hand, utility supervisor, has special responsibility for wet-weather response and makes sure Palm Coast is ready for the worst. “For one thing,” Hand says, “we smoke test our sewer lines all year-round. That way when the rains hit, the infiltration’s not as bad. We also shoot and coat our manholes.”

As a storm approaches, Hand and his team pump out as much as they can from the sewer

(continued)

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MAKING A DIFFERENCE

People, and what they do or don't do, can have a big impact on stormwater management.

With that in mind, the city of Palm Coast, Florida, has developed an extensive web-based information program designed to let people know they can help mitigate the impact of stormwater in the community.

The information is called Making a Difference and resides on the city's website, www.palmcoastgov.com/stormwater.

Citizens are advised on improving lawn and gardening practices, controlling runoff of oil and chemicals, reducing stormwater runoff from their property, protecting stormwater swales, and more. "Proper watering techniques conserve water, reduce runoff, produce healthy roots, and train your lawn to be more drought-tolerant," the website says. "But too much of a good thing will actually hurt your lawn and the environment. Limit application of chemicals and apply properly. Do not apply chemicals or fertilizers when it rains because they may wash into our wetlands, lakes, and canals."

"Plants native or adapted to Florida make sense," the website says. "They require significantly less water, require less maintenance, and support local wildlife. Ask a local landscape professional or city staff to recommend the proper plants and grasses for your area."

Homeowners are urged to keep stormwater swales on their property clear and functioning and are given numerous examples of how they can reduce runoff from their property — such as rain barrels and rain gardens.

"If 20,000 homes in Palm Coast harvested and reused 500 gallons of rainwater from every 2 inches of rainfall (average 50 inches per year), the benefit to the city's stormwater system would be significant," the website points out. "That would equate to 250 million gallons of water per year that would not be pumped from Florida's aquifers and would not have to be disposed of in the city's stormwater system."

The website contains numerous links to other websites that encourage environmentally friendly homeowner practices.

Foreman David Cousin maneuvers an EnviroSight Rovver X crawler during a sewer line inspection. INSET: The Rovver X in position to enter the sewer line from the manhole.

system to increase capacity. In addition to the trio of tanker trucks that the utility has on hand, Palm Coast has agreements with three outside contractors to supply additional tanker trucks if needed.

For hurricanes or severe storms, Palm Coast adjusts its staffing as well. "We go to two 12 1/2-hour shifts," Hand says of his team's wet-weather protocol. "We get set to handle the tank trucking stations, the PEP systems, help at the treatment plants and take calls. This isn't anything new to us. We'll stay on two shifts until we get caught up."

Emergency generators at the pump stations also play a role during storms. "We employ a seven-technician team and continue to make upgrades to our pump stations, based on what we experience during storms," Ashburn says. Recently, the city received a Federal Emergency Management Agency grant to purchase 35 additional emergency generators for areas where power outages occur frequently.

That will add to the city's current 19 standby generators located at critical sites, plus nine portable generators that can be moved around the system. Ashburn says the city typically uses Tradewinds, Caterpillar and Generac Industrial Power generators.



“Ultimately, we’d like to have standby generators at all key sites, including pump stations near environmentally sensitive bodies of water — freshwater lakes, canals, and retention ponds that ultimately drain into the Intracoastal Waterway,” Ashburn says.

The PEP systems on the west side of town can be problematic during storms, too. Hand explains that it’s common in Florida for residents to have their own emergency generators to employ when the power goes out in their homes. “What they don’t realize for those who do not have generators,” he says, “is that they’re able to use water, which goes into their PEP tank, but there’s no power to pump it out.” This is one of the major issues during prolonged power outages in the PEP areas.

Future

Operating with a staff-written, five-year capital improvement plan, Ashburn, Hand, and Sanderson do their best to be prepared for the future. “The main thing we plan to do is upgrade our pump

stations, force mains, and the PEP systems to accommodate expected growth,” Ashburn says. That, plus the new generators and improvements to odor control are the top items on the list.

But the biggest step forward may be the new wastewater treatment plant Palm Coast is starting up on the city’s north side. At 2.0 mgd at startup and expandable to 4.0 mgd in the future, the plant will be able to take the load off the existing plant and help keep it from becoming overloaded. “It will help us out a lot with storm flow,” Ashburn says. “Instead of having everything end up at one place, we’ll be able to divert flow to the new plant.”

“We get set to handle the tank trucking stations, the PEP systems, help at the treatment plants and take calls. This isn’t anything new to us. We’ll stay on two shifts until we get caught up.”

Ralph Hand

Startup of a new plant, increasing growth and development, hurricanes, I&I, PEP systems, storm runoff, power outages, you name it. “We get a little bit of everything in Palm Coast,” Ashburn muses. ♦



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ACCENTUATE THE POSITIVE

Learning to turn off those all-too-common negative thoughts makes employees more resilient and better able to cope with change and stress

By Ken Wysocky

For too many employees, negative thoughts are the norm, not the exception.

You probably know the drill: A colleague gets assigned to a project you coveted, so you immediately question your abilities. Or you have a new manager who didn't stop to talk to you after a meeting, so you automatically figure your job is in jeopardy. Or you worked late to finish a report your supervisor needed for an important presentation, and when you didn't hear back about it right away after the meeting, you quickly assumed the presentation was a total bomb — and your report lit the fuse.

Unfortunately, most people's brains are innately wired to react that way, and there's science to back up that assertion. But the good news is that most of your negative thoughts/conclusions are unfounded, and there are strategies you can employ to break the cycle of negativity and become a more resilient and engaged employee.

That's the message from David Collins, president and chief executive officer of the

TRACOM Group, a consulting firm that specializes in developing employees' soft and social-intelligence skills — especially resilience.

"Essentially, we're usually our own worst enemy," Collins says. "Most of us do a ton of self-talk — negative words we speak to ourselves inside our heads. In essence, it's a leftover from back in the day when we had to face threats all around us at the watering hole.

"Nature rewarded people who were good at evaluating threats," he continues. "So seeking out and avoiding threats is hugely hard-wired into our brains. But they often lead us to conclusions that aren't correct."

Science confirms this cranial bias toward negativity. Studies show that we average 300 to 1,000 words a minute of self-talk, and the vast majority are negative thoughts. In addition, 62 percent of the words in the dictionary that describe emotion are geared toward a negative perspective, he says.

The real problem is that all those self-sabotaging talks lead to a

tremendous amount of stress. Even worse, if you're a manager, they can have a cascade effect and flow down onto your team. Conversely, resilient leaders are more likely to have resilient teams who are more engaged, Collins says.

Be more resilient

Developing more resilient employees should be a higher priority because resilient employees are better at supporting and dealing with change in the workplace and can be a valuable influence on others during stressful times. In fact, TRACOM Group data shows that people with good resiliency skills are 15 percent more actively supportive of change when it occurs — an important consideration in today's turbulent and evermore-demanding workplace. Moreover, they're 14 percent more likely to stay engaged during stressful periods.

"Resiliency is a foundation skill that interconnects with so many things inside companies, it's almost scary," Collins says. "Part of resilience is understanding that negative bias that we use to beat ourselves up. We need to learn how to program our brains to react differently — intercept those thoughts and program ourselves to produce a more realistic response."

Years of research performed by Collins and his team have identified key factors that lead to resilience, as well as a diagnostics tool that measures resilience. "We use that tool to diagnose where employees' strengths are and what areas need improvement," he notes.

The tool measures things such as realistic optimism, personal beliefs, self-assurance and self-composure, problem-solving skills, and social support. "People with strengths in these areas have more resilience," Collins explains. "In essence, the tool gives them a report and provides specific strategies for improving things."

Those strategies primarily center on two things: teaching people to automatically challenge their negative thinking and resulting behavior and how to develop more realistic responses that can replace those negative thoughts. The latter helps them better understand that their personal fears and doubts usually aren't realistic or imminent, he says.

"Most training in today's marketplace is process-oriented — how to do something, such as coaching or sales training, for example," Collins says. "But in the area of resilience, we're dealing with something very different than a process. We're trying to understand a mindset

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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and why people do what they do. Most of us are oblivious to what we do and how we act on a daily basis because our brains operate on a subconscious level. We elevate that to people's attention."

Not mission impossible

Collins says there are eight recognizable patterns of negative thought, and they're all very predictable. Better yet, it's not that difficult to break the cycle. "We teach people to recognize the pattern and escape from it," he explains. "It's not that hard to do once you become aware of it."

The most effective way to avoid those negative thoughts is to work on changing just one of those recognizable patterns. Just like breaking a big job into smaller chunks makes it seem more doable, working on one area of negativity creates a "halo" or "spillover" effect that makes it easier to improve in other areas, too, Collins says.

In effect, the training teaches people how to ignore the emotional, "fight-or-flight" part of their brain in favor of the more logical part. The emotional part of the brain tends to kick in first, but resilient people are able to catch the emotional brain in action, turn it off, and use the logical part of the brain instead.

"Instead of thinking, for example, that your new boss hates you, you train yourself to look at the situation as an opportunity to learn new things and operate differently," he says. "You reframe the negative thoughts — replace them with something more realistic."

And if you think you're crazy for having those nasty little negative self-talks constantly pop up in your brain pan, relax — there's strength in numbers. "It's amazing how many people come up to us on breaks during our training classes and tell us they thought they were the only ones who have conversations like that in their heads," Collins says. But with a bit of training, you can make them the exception, not the norm. ♦

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DON'T GET BORED

Cooperation between utilities, municipalities and contractors can prevent disaster

By Sheila Joy



“The worst thing that can happen is an operator runs across a cross bore and doesn’t do anything.”

Jerry Weimer

vation suggests,” says Jason Walborn, business development manager for Professional Pipe Services, or Pro Pipe, headquartered in Mission Viejo, California. “I have seen typical streets that have, for example, eight homes, eight clean-outs and eight green corresponding lateral marks from an 811 call. The reality, however, is that subsurface there are more like 10 sewer laterals. We are doing everything we can to coach facility owners on how to spatially map their subsurface infrastructure during routine maintenance to improve accuracy for 811 locate requests.”

Camera systems using lateral launch technology have made an incredible impact on finding those missing conditions. “We use state-of-the-art lateral launch cameras to locate potential cross bores in the laterals prior to the commencement of drilling,” Walborn says. “Cameras are launched from the main up each

Directional drilling is a fast and efficient way to install underground pipe and conduit, but when a gas line is bored through a sewer lateral, disaster can ensue.

Cross bores — when a line bores through a sewer line — has been the cause of catastrophic events in the past. As a result, utilities, municipalities, contractors, and the trenchless industry are joining forces to ensure proper pre- and post-inspections are conducted and disaster is avoided.

“There are always more connections than what surface obser-

lateral to identify and record potential conflicts. The data, including GPS position and time stamp, are captured, recorded, and provided to the utility or system owner to address and/or proceed with the drilling. Equally important, however, is the process of post-drill inspection to confirm laterals have not been breached during the installation of the utility.”

While gas or communication lines are typically the utilities most of us think of when we hear the term cross bore, directional drilling of other utilities can negatively impact the integrity of laterals as

well. Jerry Weimer of Jerry Weimer Consulting, formerly the wastewater collection supervisor for the city of Cincinnati, wrote the Cross Bore Prevention Detection Program for Cincinnati. He shared how waterlines, installed using directional drilling, compromised laterals during his employment for the city.

“Those waterlines hit just about every lateral,” Weimer says. “The city started getting calls. One house would back up, then the next, and so on — it was like a game of dominoes. Since the compromised pipes were waterlines, they were not part of the Cross Bore Prevention Program, as no real prevention, detection or standards were in place for installing this type of utility.”

The partnership between utility owners and municipalities is critical if cross-bore events are to be identified and addressed appropriately to keep our communities safe. Weimer also shared how the city of Cincinnati and Duke Energy came together to develop a comprehensive and mutually-beneficial cross-bore program. “It is rather uncommon for a city and utility to work so closely together on cross-bore prevention,” Weimer says. “In this case, both Duke Energy and the city recognized the importance of a comprehensive prevention program, so they shared the costs to get cross-bore inspection work done economically and responsibly. Since the city is under consent decree to televise a certain number of feet of pipe, it gets the assessment data needed while sharing the cost with Duke Energy. It’s a win-win for the city, the utility and the customers.”

NASSCO, whose mission is to set standards for the assessment, maintenance, and rehabilitation of underground infrastructure, identified the need to set standards for proper cross-bore prevention and detection. As a result, NASSCO recently introduced a cross-bore work group to address this topic. Specifically, the work group is developing protocol targeted to operators when cross bores are found during routine sewer inspection and cleaning.

“The worst thing that can happen is an operator runs across a cross bore and doesn’t do anything,” says Weimer, who also serves on NASSCO’s cross-bore work group along with Walborn.

“Our job is to get standard processes in place to support operators in identifying cross bores and provide the proper protocol to report them quickly to protect the public, the operator, the plumbers and the public,” Walborn says. “Awareness is the No. 1 objective of our work group.”

The standard assessment and cleaning of mainlines and lateral lines could also potentially uncover cross bores masked by roots. If a cross bore is hiding behind roots that have infiltrated the pipe and the roots are then cut, disaster could ensue.

“A significant benefit of a regular chemical root control maintenance program is the ability to kill the roots without cutting or damaging the pipe,” says Mike Hogan, president
(continued)



Camera systems using lateral launch technology have made a big impact on cross-bore detection.



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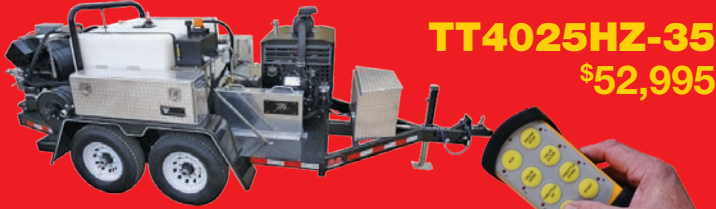
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TECH TALK



The worst thing an operator can do when running across a cross bore is ignore it. Proper inspection and reporting can help keep homes and business safe.

of Duke's Root Control. "Our product, for example, which has a thick, shaving-cream consistency, is released from a manhole into the main, killing roots in the entire system. The foam compresses pipe surfaces, penetrates cracks, joints and the connecting sewers. Killing roots in laterals using chemical root control assists in identifying and revealing laterals compromised by cross bores without mistakenly cutting the roots away and breaking through a gas or other utility line."

In addition to municipalities and utilities working closely together, the relationship between utilities and contractors is extremely important for the implementation of a successful cross-bore program.

Harley Peterson, a project manager with the SoCalGas Sewer Lateral Inspection Program, shares the importance of his relationship with contractors. "We work with a few contractors on our cross-bore program," he says. "Pro Pipe is the largest contractor and does the majority of the work. We started working with them back in 2011, and the reason our relationship has been so successful is because of our mutual partnership and Pro Pipe's willingness to adapt to our needs. Pro Pipe has their own fleet of camera trucks and crews, so we never need to wait to get out into the field. They also work with us to identify challenges and develop unique solutions. The result has been better quality data and a higher level of confidence that we are keeping homes and business protected."

The most common question pertaining to cross-bore inspection and remediation is always who is responsible. The answer: When it comes to keeping our communities safe, we all are. ♦

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NATURAL CAPITAL

The town of Gibsons has changed the rules by placing natural assets on the same footing as built infrastructure

By Peter Kenter



Gibsons (British Columbia) Chief Administrative Officer Emanuel Machado and Director of Infrastructure Services Dave Newman. Gibsons is the first North American jurisdiction to adopt an Eco-Asset Strategy that erases the distinctions between natural and built infrastructure. (Photography by Abigail Saxton)



Gibsons is small Canadian town that believes in a big idea. It's the first North American jurisdiction to adopt an Eco-Asset Strategy that erases the distinctions between natural and engineered assets.

For sewer and water utilities, that means lakes, aquifers, and wetlands sit side by side on the asset ledger with pipes and treatment plants. The program has not only gotten the town to think more carefully about its natural assets — it's also helped to ensure that each dollar invested in infrastructure is better spent.

Gibsons is an oceanside town of about 4,600 people in southwestern British Columbia. The town was established in 1886 and grew slowly over the years from a logging town into a community supporting a diversified economy including a strong recreational and tourism component. Although located on the British Columbia mainland, the town is inaccessible by road, so vehicles typically take a 40-minute ferry ride from West Vancouver. The town is divided into Lower Gibsons, located along the coast, and Upper Gibsons at a modest elevation above the old town.

The town's water was historically supplied by private wells until the early 1960s when Gibsons began to build a water distribution system.

Lower Gibsons is supplied by the Gibsons Aquifer, a source of water so pure that it is delivered untreated. Upper Gibsons is served by water supplied by the Sunshine Coast Regional District.

Town water is pumped from three wells and two reservoirs — one each in Upper Gibsons and Lower Gibsons. The older half of the pipe system is made of asbestos cement, while newer pipe is polyvinyl chloride. Frost is not an issue in the area, and pipes are buried to about 5 feet deep.

A solid system

"The system is in good shape," says Dave Newman, director of infrastructure services with Gibsons. "We don't have an unusual number of leaks. But we're also proactive with pipe replacement. Most of our leaks are at service connections."

An aggressive meter installation program has seen system-wide water use reduced from 800 liters per capita per day in 2008 — when water was billed at a flat rate — to about 350 liters in 2016.

Wastewater is handled by a sewage treatment plant that serves all but a dozen properties on septic systems. The plant is already sized to the

"The province was already requiring us to include life cycle asset management figures in our books for built infrastructure. However, the aquifer treats and stores our drinking water and wasn't listed anywhere."

Emanuel Machado

town's maximum planned build-out of 10,000 residents. A single lift station pumps wastewater for about half the population. Like the water distribution system, pipe construction is split between asbestos cement and newer PVC.

A maintenance crew of eight workers under a central project management group are cross-trained to handle maintenance for all of Gibsons' assets.

"We found initially that when crews were split into groups according to asset class they weren't particularly effective," says Emanuel Machado, chief administrative officer with Gibsons. "They're now working where needed on all town assets across all departments. We've also established a program to cross-train our water and wastewater operators, and we provide them with the hours on the job required to certify them."

“With the recognition of the full range of our assets, we could then decide where to most efficiently apply our capital and maintenance budgets.”

Emanuel Machado

Crews are assisted by a Vactor truck, which performs tasks ranging from sewer cleaning to excavating post holes for signs. The town is divided into eight wastewater zones and one zone is completely televised each year using a contracted service. Sewer mains are flushed as needed, although mains subject to grease buildup are flushed as



PROFILE:

Infrastructure Services, Gibsons, British Columbia

YEAR INCORPORATED:
1929

CUSTOMERS:
4,600 population

SERVICE AREA:
1.67 square miles

DEPARTMENT STAFF:
22, including nine parks staff.

CURRENT INFRASTRUCTURE:
Water — 26 miles, Sewer — 24 miles

ANNUAL BUDGET:
Water — \$2.58 million, Sewer — 1.86 million (2018), including \$1 million in capital works.

ASSOCIATIONS:
American Water Works Association, Asset Management BC, BC Water & Waste Association, Canadian Network of Asset Managers, Master Municipal Construction Documents Association, National Asset Management Strategy.

WEBSITE:
www.gibsons.ca/services

often as twice a year.

The town has developed a robust GIS system and continues to fine-tune its mapping program. All public works and parks employees carry iPads equipped with asset management and mapping software so they can access infrastructure information in the field.

“We’ve also improved our system communications capability since 2015 when we were still accessing information from the SCADA system through cell and radio,” says Machado. “We subsequently had fiber optic systems installed through town and this has vastly improved our efficiency.”

Recognizing natural assets

The town’s official adoption of natural asset valuation was preceded by an appreciation for sustainability.

“We felt it culturally and emotionally, but we lacked the framework for expressing that in our asset management system,” Machado says. “But we trace it to our aquifer mapping study,

which was completed in May 2013. We were having discussions with our financial auditors and others in the town around our dependency on these natural assets. The province was already requiring us to include life cycle asset management figures in our books for built infrastructure. However, the aquifer treats and stores our drinking water and wasn’t listed anywhere. In fact, none of our natural assets were incorporated anywhere in our asset management program. We asked ourselves, ‘Why not?’”

Gibsons worked with groups including the David Suzuki Foundation, the Smart Prosperity Institute and the Municipal Natural Assets Initiative (see sidebar) to create a methodology for valuating natural assets.

On further examination, the town realized that it not only had a wealth of natural assets, but also that it was spending most of its money to maintain its engineered assets — which represented the smallest asset class.

Following approval by the Town Council in July 2014, the town became the first in North America, and possibly the world, to formally recognize natural assets on equal footing with

(continued)

Clayton Klein performs routine maintenance on a waterline. Gibsons’ water was historically supplied by private wells until the early 1960s when the town began to build a water distribution system.



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“We were able to demonstrate that for just a few hundred thousand dollars, we could improve the service capacity of the channels, ponds, and creeks we already use and avoid the engineered expenditure and significant maintenance costs.”

Emanuel Machado

Tyler Musgrove performs some routine pump flushing. Some of the town’s water is supplied by the Gibsons Aquifer, a source so pure that the water is delivered untreated.

RECOGNIZING YOUR NATURAL INFRASTRUCTURE ASSETS

The Municipal Natural Assets Initiative assisted the town of Gibsons, British Columbia, in developing a methodology for its natural asset management strategy. The initiative is currently working with six other Canadian municipalities on similar pilot programs.

“There are great opportunities for communities to explore and reap the benefits of municipal natural asset management,” says Roy Brooke, director of Municipal Natural Assets Initiative.

Initial steps can include:

- Developing a policy directing the community to recognize natural assets
- Identifying key natural assets in the community and the services they provide
- Determining the condition of natural assets
- Determining which assets are highest priority through a basic risk assessment
- Determining which scenarios the community most wants to understand (e.g., land intensification)
- Developing management plans and other actions.

“Most fundamentally, local governments should not be intimidated by the prospect of creating a natural asset management strategy,” Brooke says. “It’s simpler than it may appear.”

built assets. In addition to engineered assets, such as pipes, pumps, and treatment facilities, the books now included natural assets such as aquifers, forests, and soils, as well as biophysical assets including human engineered bioswales, engineered ponds, and green roofs.

Accepted public accounting standards, however, failed to account for valuation of natural assets. Instead, Gibsons listed those assets in its annual report.

“With the recognition of the full range of our assets, we could then decide where to most efficiently apply our capital and maintenance budgets,” Machado says.

Natural asset valuation has substantially changed development plans for Upper Gibsons. In order to serve potential new residents, Newman anticipated a cost of \$4.5 million to develop increased engineered capacity for stormwater management.

“We compared those costs to those of our natural assets,” Machado says. “We were able to demonstrate that for just a few hundred thousand dollars, we could improve the service capacity of
(continued)

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Tyler Musgrove connects a hose for routine pump flushing. Town water is pumped from three wells and two reservoirs.

the channels, ponds, and creeks we already use and avoid the engineered expenditure and significant maintenance costs. Furthermore, the value of that infrastructure would not decline over the next 30 years. We sealed the deal with council entirely on the business case and demonstrated that it was made possible by their acceptance of the new asset management plan.”

A battle of business cases

Sometimes built infrastructure is simply the right choice — there’s no such thing as a natural equivalent for a sewage lift station. Sometimes it’s a close call. For example, a business case was made for the town’s White Tower Park area, which includes both natural and enhanced ponds.

“We looked at enhancing the area, building

another pond and removing some culverts in a creek below the area,” Newman says. “The capital costs would be the same as an engineered option. However, the natural assets won out in projected maintenance costs of the engineered asset, which would have been about \$50,000 per year.”

Machado says that some environmental purists have opposed the notion of placing a value on nature.

“I tell them that we’re not pricing nature, but the services it offers,” he says. “In the absence of a business case, natural assets have a zero value. How does that benefit nature? That approach leads to continued loss of natural assets and the business-as-usual practice of creating more built infrastructure. With our approach, we can have development but also maintain and expand the natural assets that serve our community.”

However, Machado notes that natural asset valuation isn’t simply a plan that inherently values natural assets over built infrastructure.

“It’s always a battle of business cases for the best use of the taxpayer’s money,” he says. “Natural assets have simply been on the winning side of many of our decisions because nature makes a great business case.” ♦

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SAFETY IS ABOUT CONVENIENCE

For many operators, safety depends on the accessibility of the proper tools and equipment

By Jared Raney

Whether you have one vehicle or 100, your operators spend nearly all their time in or around their service vehicles. Often, whether or not an operator follows proper safety protocol hangs on how easy it is for them to do so. They perform these job duties every day, and it is easy to become complacent when safety means going out of your way.

That's why it's important to have proper safety gear incorporated into your everyday fleet and to have all crew members properly equipped.

While some aspects of vehicle safety are required under Department of Transportation regulations, many are just good sense.

For starters

When it comes to DOT regulations, most important is researching and understanding exactly what is required for your specific service vehicles, as they don't all require the same gear.

For example, larger trucks often require fire extinguishers, and if you are hauling trailers or other equipment, DOT specifies a certain grade of chain for securement.

"That's important for compliance; a lot of companies don't know that your chains have to be rated for all of the various equipment," says Eric Wright, vice president of safety for Northwest Cascade, a multifaceted service company with over 300 service vehicles.

On a more basic level, most service vehicles are required by the DOT to carry reflective triangles or cones in case of roadside maintenance or road accidents. Consider adding flashlights and emergency phones for those incidents as well, especially if operators are driving long distances regularly.

(continued)



A first-aid kit containing even the simplest of supplies like bandages is a good idea for any fleet vehicle. They can be expanded depending on the nature of the work and tailored to specific applications, such as adding an eyewash kit for workers around hazardous chemicals. (Photos courtesy of Northwest Cascade)

A bag of supplies such as this — vest, hard hat, gloves, first-aid kit, safety regulations and glasses — is recommended for all work vehicles. In many cases, it's not just providing the necessary equipment for operators, but making it as convenient as possible for operators to use that equipment.





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One of the many items a company should keep on its fleet vehicles for emergency purposes is a spill kit for spills of fuels, gas, petroleum diesel, hazardous chemicals and battery acid.

Best practice

It's a good idea to stock all vehicles with first-aid kits, which can be as basic as bandages and antiseptics or as comprehensive as including emergency supplies like eyewash.

First-aid kits are a universally applicable feature, which could be expanded depending on the nature of the work. They can be tailored to specific applications, such as adding an eyewash kit for workers around hazardous chemicals.

Bel-Art carries two mobile eyewash products — a larger version that can rinse both eyes simultaneously, in any orientation, and a smaller, 120 mL belt-pouch version.

"It's highly mobile. It's one-time use, but it's sealed, and it has a long expiration date. So they can bring it wherever they need," says Peter Yoo, product manager for SP Scienceware, parent company of Bel-Art. "The solution — it's great, not just for physical dirt or debris, but also different things like acids and alkalis."

Northwest Cascade not only keeps first-aid kits on their vehicles, but also issues a personal first-aid kit to each operator.

The personal first-aid kit is part of a basic personal protective equipment bag that is provided. It also includes safety gear like a hard hat, two pairs of gloves, an orange vest, safety glasses (regular and tinted), headlamp, earplugs, and a safety regulations booklet.

In many cases, it's not just providing the necessary equipment for operators, but making it as convenient as possible for operators to use that equipment.

Bel-Art offers an eyewear holder for safety glasses or goggles that can be installed in service vehicles. Other shelving units and organizational products across the market could be used for similar easy-access safety items.



Any fleet truck should have cones or road safety triangles if the truck breaks down. They should also be on the truck for any roadside work.

Emergency lights are also recommended for work trucks. Having safety reminders in rearview mirrors is a way to keep employees thinking about safety.

Worth a try

Beyond the basics, there are many safety-enhancing additions to consider on your trucks.

Laws against cellphone and mobile device use are becoming more prevalent in states across the country, which makes Bluetooth and hands-free GPS options increasingly helpful.

Northwest Cascade stocks spill kits on their vehicles in case of oil or other hazardous waste spills.

"The spill kit we carry as just a company policy type thing," Wright says. "Same as the first-aid kit."

Needs are different for every operation, but some outfits benefit from going toward the far end of safety precaution, as Northwest Cascade has done with the addition of dashcams.



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Their dashcams are integrated into a vehicle monitoring system that also records hard braking, speeding and other driver habits that could affect safety.

“It has parameters that you can set, so it ties in with the vehicle, what’s happening with the vehicle, as well as the driver,” Wright says.

Backup cameras are fast becoming a standard feature on both service and pickup trucks, but they may be something worth adding to older trucks as well.

Small things can make a difference too, like stickers in the cab and on the mirrors of service trucks — reminders for the busy operator to observe common safety practices.

“On the newer trucks, obviously there are lots of new safety features being incorporated,” Wright says. “Our newer trucks actually come with an orange seat belt, so you can tell if the drivers are wearing their seat belt or not.”

Careful consideration

Safety shouldn’t be a throwaway checklist item for any company. That being said, every organization has its own needs, and managers should think carefully about what is best for the operators.

In the end, it depends on the specific jobs that operators will be tackling and frankly the operators themselves. All of these factors need to be considered when assessing safety protocol. The only thing that’s a certainty: There is no shortage of options. ♦

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FIGHTING FOR FUNDING

We're working to present a unified voice to Washington for the benefit of the industry

By Sheila Joy

So far, 2018 has proven to be a critical year for the water and wastewater industry, and NASSCO has made a commitment to understand the implications of infrastructure bills and budgets, inform our members of those changes, and partner with other organizations to ensure we have a unified voice to effect positive outcomes for our industry.

While the perception is that things move at a snail's pace in Washington, D.C., the reality is that if you aren't on top of the ever-changing political environment, you will quickly be left behind.

Trump's proposed infrastructure package will generate \$1.5 trillion in new infrastructure investments, of which only \$200 billion will be from federal funding sources. The remaining will be funded from state, local and private sources. In response to this new plan, NASSCO has identified three main areas of focus and respective recommendations:

1. Strengthen asset management requirements and funding.

1. Require that systemwide asset management plans be in place for all applications to request federally-subsidized grants and loans including Clean Water State Revolving Fund, Drinking Water SRF, and all federal programs that fund collections and conveyance infrastructure.
2. Require that certified inspectors perform inspections of collections and conveyance systems and that a standardized identification and assessment method be used to assess pipe conditions.
3. Require that technical and grant assistance be provided to hardship communities that lack the financial and technical resources to develop comprehensive asset management plans.

2. Maintain regulatory compliance enforcement.

1. Require full funding annually to federal programs and offices that directly (and indirectly) ensure that the Clean Water Act and National Pollution Discharge Elimination System permits remain in full, regulatory compliance.

3. Increase funding for collections and conveyance infrastructure.

1. Expand funding available through federal programs to increase funding to assess, maintain and rehabilitate wastewater and stormwater collections and conveyance systems.
2. Require the Government Accountability Office to complete a report to Congress analyzing the state of collections and conveyance infrastructure and the national need for its maintenance and repair.

NASSCO's close proximity to Washington makes it possible for our staff and members to attend congressional fly-ins, and — with the help of our government relations committee and federal relations consultant — stay abreast of the issues that matter most to our organization, our members and our communities.

In order for Washington to listen, however, we need to clearly, reasonably, and frequently share our concerns and proposed solutions, and the only way to do that is through a unified voice. NASSCO has provided turnkey programs to make it easy for members and others aligned to our industry to engage in grass-roots activities such as letter writing, phone calls, participation in fly-in events, social media and other communications. To learn more about ways you can become involved, please visit www.nassco.org. ♦

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By Craig Mandli



DM55 SPP



Model C



Speedroooter XL



M888

CABLE MACHINES

Duracable DM55 SPP

The **DM55 SPP** sewer cleaning machine from **Duracable** has a maintenance-free gearbox, an indestructible frame and an industrial 3/4 hp motor that operates at 175 rpm to clear tough clogs. A power cable feed and return helps push and retrieve the drain cable at a steady rate to break up roots. Its 10-1 gear ratio delivers torque and horsepower. It can be combined with a Spearhead or Double Saw Blade for ideal root removal from residential, industrial and commercial mainlines. It is recommended to treat lines with a product such as RootX within an hour after root removal for maximum absorption and to prevent regrowth. **877-244-0662; www.duracable.com.**

Electric Eel Model C

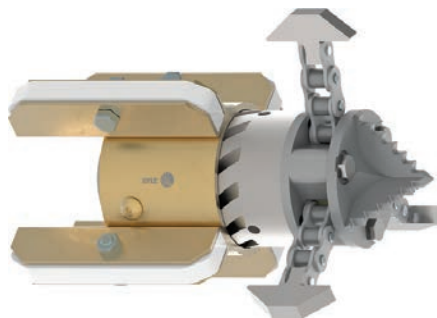
The **Model C** dual-cable sectional drain cleaner from **Electric Eel** runs up to 200 feet of 1 1/4-inch, self-feeding dual cable in 8- or 10-foot sections that require no handling when rotating. It spins cable at twice the revolutions per minute of a continuous cable machine for cleaning 3- to 10-inch lines for distances up to 200 feet. One-man operation means less time and labor expense. A heavy-duty, 1/2 hp motor comes standard, and 3/4 and 1 hp motors are also available. A custom-designed and manufactured gearbox ensures higher quality, lower cost, and parts availability. The heavy-duty, fully adjustable safety clutch keeps cable and tool breakage to a minimum and provides overload protection. A fold-down handle allows for easy transportation, storage and use in crawl spaces. Its carry handle allows for balance and easy transport. **800-833-1212; www.electriceel.com.**

General Pipe Cleaners Speedroooter XL

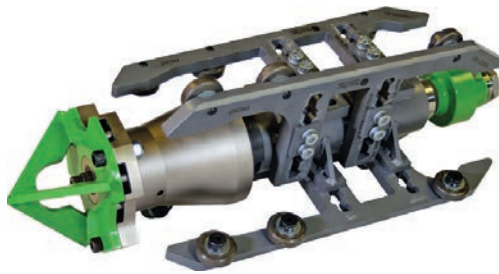
Using easily interchangeable drums, the **Speedroooter XL** from **General Pipe Cleaners** clears tough clogs in 3- to 10-inch lines. It has a 3/4 hp motor and 100-foot-capacity drums for Flexicore cable. Change the drums to add cable lengths or swap cable sizes easily. Loosen three knobs and remove the drum to switch between 3/4- or 5/8-inch cables in the large drum design. With a see-through inner cage, quickly gauge how much cable remains — or substitute the small drum with 100 feet of 1/2-inch cable for smaller lines. A variable-speed cable feed offers driving and pulling power for long, tough jobs, feeding and retrieving 3/4-, 5/8- and 1/2-inch cables. Turning a knob on top of the feed adjusts 3/4- or 5/8-inch cables. **800-245-6200; www.drainbrain.com.**

MyTana Mfg M888

The **M888** cable machine from **MyTana Mfg.** clears roots and obstructions from 3- to 10-inch lines. The unit ships with a 150 rpm, 1/2 hp motor. With its easy reel change design, additional reels and the gearbox can push the cable up to 400 feet. The upright design is easier on a technician's back than sled-style machines because the transport handle is already at operator height. Built-in stair climbers and a removable pneumatic loading wheel allow a technician to load in and out efficiently. Safety features include an air-actuated foot pedal, reverse switch, and built-in GFCI circuit with water-tight electrical switches and boxes. The automatic feed/retriever is standard, and the unit is available with 11/16- or 3/4-inch cable in either 100- or 125-foot lengths, with a choice of ends. **866-948-7576; www.mytana.com.**



10.125TR



Lumberjack



Raptor



Ripsaw



Red Dawg Root Dawg

CUTTING NOZZLES

Enz USA 10.125TR

With operating flows as low as 13 gpm at 2,000 psi, the **10.125TR** turbine nozzle from **Enz USA** is a powerful cleaning tool. The turbine design allows for lower flow and less water usage while maintaining high torque for effective pipe cleaning in lines ranging from 5 to 12 inches. Because of its sealed bearings, this nozzle can be operated with both clean and recycled water while being relatively maintenance-free. It is a powerful root remover and conquers grease, solids, mineral deposits, concrete and grout. The kit includes a selection of pre-cut chains, skids and two head styles. **877-369-8721; www.enzusainc.com.**

Hydra-Flex Ripsaw

The **Ripsaw** rotating turbo nozzle from **Hydra-Flex** blasts a 0-degree water stream at up to 3,200 psi while rotating at a high speed to provide an 18-degree cone of coverage. Its cone-shaped flow pattern is ideal for potholing applications. The heavy-duty, high-impact nozzles are constructed with stainless steel housings and tungsten carbide wear surfaces to withstand harsh environments and provide long life. Repair kits are available for extended life and lower operating costs. Select from traditional blue coating or upgrade to the heavy-duty green coating, a formulation designed for use in extreme environments. Greater impingement allows users to complete jobs faster or use a smaller nozzle size while getting the same impact as nozzles with higher flow rates. **952-808-3640; www.hydrflexinc.com.**

NozzTeq Lumberjack

The **Lumberjack** cutting nozzle from **NozzTeq** is a low-torque, variable-speed multipurpose cutting nozzle powered by common sewer jetting or combination trucks. Its cutting chains rotate at speeds of 10,000 to 50,000

rpm, depending on pressure and flow rate. The precisely engineered cutter is designed to cut roots, but it also effectively clears out concrete, tuberculation, grease, protruding laterals and other obstructions. Low torque means it won't get stuck, won't harm host pipe, and won't spin off the hose end. It has sealed, grease-lubricated bearings and is water-cooled so it won't need daily maintenance. The cutter drive shaft and turbine are made of hardened steel and the supply tube is made of stainless steel, so the nozzle lasts for seven to 15 years' heavy use and is easy to rebuild. Five models clear pipes from 3 to 48 inches. **866-620-5915; www.nozzteq.com.**

PipeHunter Red Dawg Root Dawg

The **Red Dawg Root Dawg** from **PipeHunter** has an easily field-rebuildable component design. The rotating forward jet is flow straightened to make sure it removes organic blockages. It is safe to use in any line type without the fear of incurring damage in the line. It has an easily replaceable acetal ball skid, stainless steel rear adapter and replaceable stainless steel rear inserts. It is ideal for use on 4- to 12-inch lines. **281-485-9513; www.reddawgnozzles.com.**

Sewer Pro Shop Raptor chain cutters

Raptor chain cutters from **Sewer Pro Shop** are made of high-grade stainless steel and are furnished with ceramic nozzle inserts. They require no maintenance and have been designed to be operator-friendly for the municipal and industrial markets. The powerful hydrodynamic tool can be used to remove heavy obstructions caused by roots, grease, mineral deposits or other solid organic material quickly. It is driven by a high-performance turbine that doesn't require any lubrication. It comes with a guide skid that is continuously adjustable from 6 to 12 inches and can easily convert from a root cutter to a total blockage remover by replacing the chain cutter with a drill head. It can also be used with recycled water. **470-592-1717; www.sewerproshop.com.**



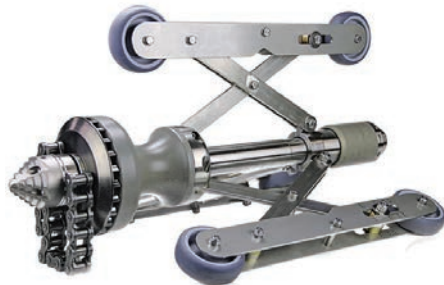
WGR Switcher



51T3 Series



TT4025HZ-350



Turbo S600



Crap Shooter 2 HD

StoneAge WGR Switcher

The **WGR Switcher** sewer nozzle from **StoneAge** can run in pulling or cleaning mode without being removed from the pipe. By doing the job of two different nozzles, it uses less water and time compared to making multiple runs with different nozzles. When the pump is idled down and brought back to pressure, it will switch the water flow between two different patterns of jets. One jet pattern pulls and flushes debris down the pipe, and the other is a cleaning and descaling pattern for cleaning deposits and cutting roots. The two-in-one unit navigates pipes 8 to 36 inches in diameter and handles pressures up to 5,000 psi at up to 100 gpm, running more jobs with one tank of water. **970-259-2869; www.stoneagetools.com.**

USB-USA Turbo S600

The **Turbo S600** chain cutter from **USB-USA** is made of high-quality stainless steel and has a continuously adjustable guide skid. Turbine technology powers the durable chain retainer on a durable body to remove concrete, calcium deposits, hardened grease and tuberculation from 12- to 24-inch sewer lines. The unit's 3D fluid mechanics in conjunction with one-piece ceramic nozzle inserts allow the cutter to be used with recycled or clean water. Adjusting the cutter to different pipe dimensions is as easy as turning the rear spindle, which makes the cutter open or close. This type of adjustment allows the cutter to be adjustable within 1/16 inch. Different cutting attachments are also available for the end of the chain. **844-285-5770; www.usb-usa.com.**

motors, creating the cleaning power of 111 hp while avoiding costly emissions maintenance on Tier 4 diesel engines. Low water shut-off prevents pump damage if the optional 330- to 800-gallon tanks run low. Hose reel speed control allows for precise cleaning in both directions. A long-range wireless remote option allows for water on/off, engine shutdown and hose reel control. The heavy-duty square tubing trailer offers standard electric brakes on both axles. **866-944-3569; www.americanjetter.com.**

BullFrog Industries Crap Shooter 2 HD

The **Crap Shooter 2 HD** sewer jetter — “The Deuce” — from **BullFrog Industries** weighs less than 25 pounds and features a full 2,000 psi, 1.76 gpm running off a 15-amp circuit. It offers similar specifications to the company's previous model, but it comes encased in a polyethylene case. The unit comes with 75 feet of high-pressure hose with an upgraded quick connect that attaches to the unit, as well as two heavy-duty nozzles (the Flusher and Thruster). It is designed to handle up to 4-inch pipes. Two different faucet adapters allow the user to hook the unit up just about anywhere. All included fixtures and hoses can handle up to 120 degree F water temperatures. It has a 25-foot power cord with two-prong GFCI plug, along with a 25-foot expanding feed hose. **888-890-1555; flushafrog.com.**

Cam Spray TT4025HZ-350

The model **TT4025HZ-350** trailer jetter from **Cam Spray** produces 25 gpm at 4,000 psi using an Environmental Protection Agency Tier 4 Final Hatz Diesel 74 hp turbo intercooled, liquid-cooled engine. It comes with an over-center clutch, control panel with hour meter, low-fuel gauge, low-fuel shutdown, over-pressure shutdown and digital pressure readout. The reel is hydraulic powered with variable speed and comes mounted on a slide-out with angle adjustment fitted with 500 feet of 5/8-inch hose, manual shut-off valve and analog pressure gauge. RCM wireless remote control

JETTERS

American Jetter 51T3 Series

The **51T3 Series** by **American Jetter** offers flows from 8 to 40 gpm up to 5,000 psi. Consistent power is provided by up to three Kohler gasoline



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modes include valve open, valve close, engine idle down with a 15-second time delay shutdown, emergency shut-off, two-speed engine revolutions per minute control and auxiliary 10-amp circuit with on/off control. **800-648-5011; www.camspray.com.**

GapVax GJet

The **GJet** truck jetter from **GapVax** offers 500- to 3,000-gallon stainless steel water tank options and 40 to 100 gpm water pump options along with a front-mounted hose reel, various toolbox options, room for a vice or crane, and 10-foot tube trays. **888-442-7829; www.gapvax.com.**

Hot Jet USA HotJet II

The **HotJet II** sewer and drainline jetter from **Hot Jet USA** is a dual-purpose machine that cleans drains and serves as a high-powered, hot-water pressure washer. It can be used to clean drains up to 300 feet long and 12 inches in diameter. It has a 35 hp Vanguard engine by Toyota, delivering 10 gpm at 4,000 psi using hot or cold water, mounted on a diamond plate tandem-axle trailer and powder-coated for durability. **800-624-8186; www.hotjetusa.com.**

Presvac Systems jetting truck

Presvac Systems jetting trucks provide a complete range of cleaning solutions for pipes from 4 to 100 inches. Powerful vacuum provides effective removal of flushed material. Modular filtration configured to blower size provides superior blower protection and minimal maintenance. The pictured truck includes a split-compartment aluminum tank offering a 300-gallon water and 4,700-gallon debris capacity. It comes with a Robuschi USA Robox 65 Blower providing 900 cfm free air at 27 inches Hg maximum vacuum. Its US Jetting pressure pump offers 18 to 20 gpm at 4,000 psi. It has a head-mount hose reel with 250 feet of 1/2-inch jetting hose and a 5 gpm at 2,000 psi washdown pump that comes with 50 feet of 3/8-inch hose. It has

heated valves and a winterizing system for the water system. **800-387-7763; www.presvac.com.**

RIDGID KJ-1350 Water Jetter

The **RIDGID KJ-1350 Water Jetter** propels a highly flexible hose through 1 1/4- to 4-inch lines, blasting through sludge, soap and grease blockages. As users pull the hose back, it power scrubs the line, flushing debris away and restoring drainlines to free-flowing capacity. A working pressure of 1,350 psi and flow of 1.4 gpm provides fast, effective cleaning of lines. It comes standard with a 1.5 hp motor that draws a maximum of 14 amps, can run on most standard 115-volt circuits, and is CSA and UL standards approved. Simply guide the hose into the drain while the thrust propels the hose down the line. Activate the pulse action to easily navigate difficult bends and traps, and utilize the pressure control valve for quick and easy pressure adjustment. An optional H-10 cart makes for easy job site transport. **800-769-7743; www.ridgid.com.**

Super Products SuperJet

The **SuperJet** truck-mounted jetter from **Super Products** has a double-acting, single-piston hydraulically powered water pump that offers a 1-1 oil-to-water ratio and rated design capacity of 100 gpm and 3,000 psi continuous duty. Its modular water tank setup easily accommodates capacities from 1,000 to 3,200 gallons. It has a single-engine design that emits lower sound levels, reducing fuel use by 40 percent compared to dual-engine units. Its rear compartment is heated with an 80,000 Btu/h heater that enables year-round operation in freezing environments. An easy-to-use control panel performs a number of functions including adjustable engine throttle with water pressure speed dial, on/off water pump PTO, water pressure and gallons per minute, and hose reel joystick, as well as pay-in/pay-out with speed control. **262-796-5939; www.superproductsllc.com.**



Hot Shot



Sewer Equipment



Razorooter II



RamJet 850 Series



S906M1-Ak

Vac-Con Hot Shot

The **Hot Shot** high-pressure water jet machine from **Vac-Con** is designed for removing stones, bottles, cans, grease, sludge, and other debris from sanitary sewer and/or storm drainlines. Engineered for one-person operation, all high-pressure water and hose reel controls are located at the front of the machine for ease of operation and increased safety. Models are available with 1,000- and 1,600-gallon water tanks. Options include variable flow, articulating hose reel, polyethylene water tanks, 30 gpm at 3,000 psi water pump system, auxiliary engine or hydrostatic drive, cold-weather recirculation system, side-mounted toolboxes, air purge system, hose footage counter, arrow board, strobe lights, inspector cam, high-pressure spray bar, hose rewind guide, 600 psi hand-gun system with 25 feet of hose, and a selection of nozzles. **855-336-2962; www.vac-con.com.**

Vactor RamJet 850 Series

The **RamJet 850 Series** truck jetter from **Vactor** has a choice of front or rear hose-reel locations and productivity-enhancing options such as an aluminum rear shroud and JetRodder water pump-heated cabinet. An integral aluminum rear shroud with heavy-duty, see-through Lexan windows is available. Large service access doors on both sides of the shroud enable easy greasing, maintenance and service. The rear shroud keeps the hose and components warm and protected for quick setup and cleaning in extremely cold conditions. It comes standard with a certified flow of 0 to 80 gpm at a variable pressure up to 2,500 psi at the hose reel to clean any size of line. An optional JetRodder water pump-heated cabinet keeps the pump and plumbing covered and protected. **815-672-3171; www.vactor.com.**

configured in truck or trailer packages. All units offer the ability to cut roots all day without using a drop of water and only a small fraction of the fuel consumed by a traditional jetting unit. They are able to climb long or extreme grades and clean in temperatures below freezing. They include NEMA 4-rated wiring for watertight electrical component storage, locking shroud doors for increased operator safety and a one-piece shrouded enclosure designed to maintain cosmetic and functional integrity throughout the life of the equipment. **888-477-7611; www.sewerequipment.com.**

Southland Tool S906M1-Ak

The **S906M1-Ak** root/tap/pipe cutter from **Southland Tool** works for recycler units. This process improves hydraulic performance and eliminates internal corrosion. Advanced kinetics improve the friction coefficient, which reduces drag, saves water and increases productivity. In testing, units have been left weeks without oil and show no signs of corrosion. Since recyclers can have 50 micron-plus particles, the user only needs to open the motor, remove the particle and wipe down internals to keep working. It is available for lines from 6 to 30 inches in tail nozzle sizes, for hoses 3/4, 1, 1 1/4 and 1 1/2 inches, and for flows from 40 to 170 gpm. **714-632-8198; www.southlandtool.com.**

MECHANICAL ROOT CUTTERS

Sewer Equipment rodders

Rodders from **Sewer Equipment** include continuous and sectional designs

ROOT CHEMICALS

Duke's Root Control Razorooter II

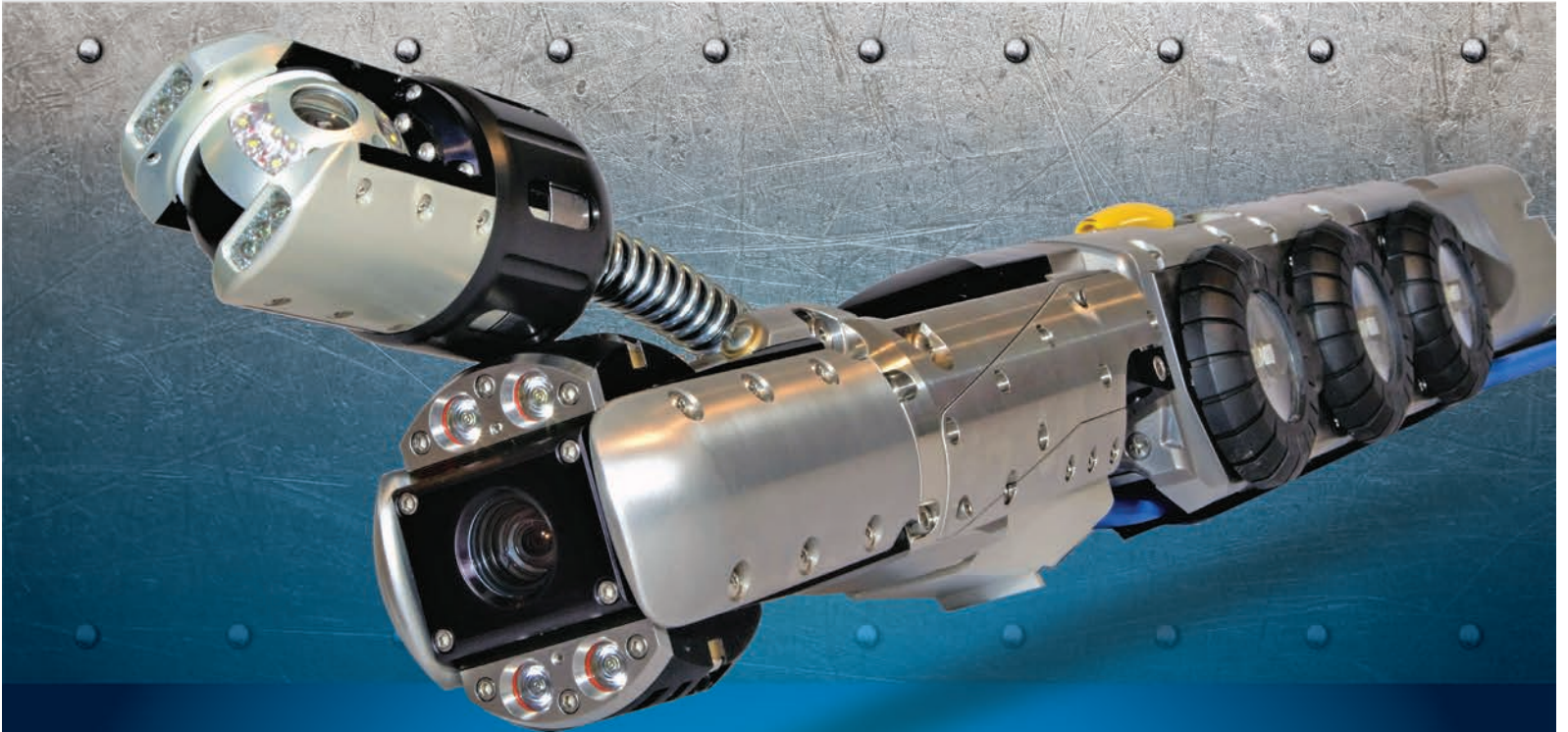
Diquat-based **Razorooter II** root-control herbicide from **Duke's Root Control** is registered by the U.S. EPA for controlling nuisance tree roots in sanitary sewer collections systems. It kills roots and eliminates mainline stoppages caused by live tree roots. **800-447-6687; www.dukes.com.**

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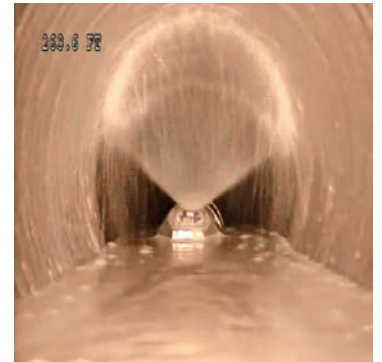
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RootX chemical root control

Chemical root control from **RootX** is a long-term solution to pipeline root intrusion. It stunts new root growth without damaging the pipe, clearing pipeline roots that can cause blockages and sanitary sewer overflows. The chemical won't harm water treatment systems and is registered with the U.S. EPA for both sanitary and storm use (EPA Reg. No. 68464). Simplicity of application enables crews to perform root control on demand or as scheduled preventive maintenance. **800-844-4974; www.rootx.com.** ♦

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Drain cleaning machine conquers tough root mass



Problem:

A homeowner from Manistee, Michigan, called about a sewer line backup that resulted in water and sewage in the basement. Salmon Sewer & Plumbing responded, and the technician found an enormous volume of roots causing the blockage in the line. The roots were so large and the clog was so bad that the technician knew it would be a difficult job.

Solution:

The technician knew the **Spartan Tool Model 1065** drain cleaning machine was tough enough to conquer these roots. The unit has heavy-duty power for 3- to 10-inch lines up to 250 feet. The outer drum keeps dirt contained for customers' peace of mind while the independently rotating inner drum prevents cable kinking and buckling, yet allows quick torque buildup. The Dial-A-Cable power feed allows for quick cable changes, and feeds cable in and out automatically.

RESULT:

The technician pulled roots from the line both in the basement and the outside clean-out. Once the root mass was removed, the water receded and the line ran clean. "I've used many other machines in the past that never would have gotten this out of there, but the Spartan 1065 pulled it right out," the technician says. "The right cable and machine really do make that much of a difference." **800-435-3866; www.spartantool.com.**



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Product Spotlight

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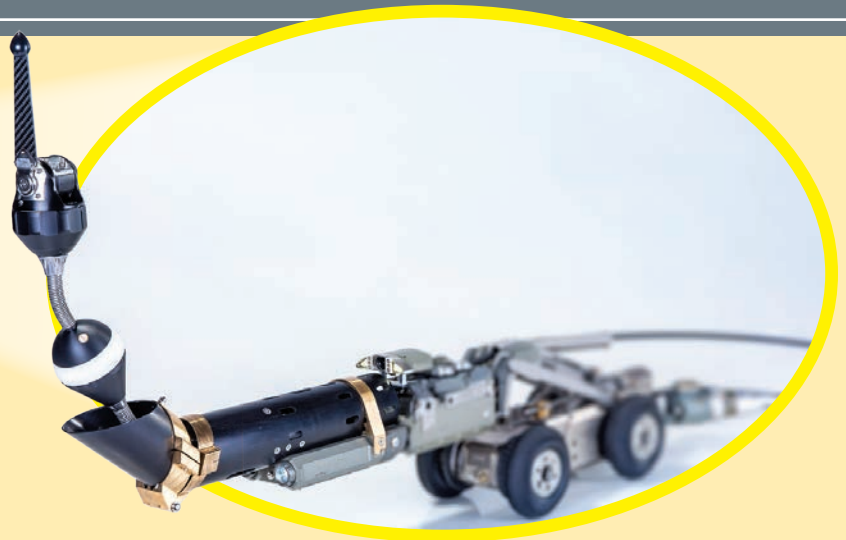
By Craig Mandli

Tracking and mapping sewer laterals can be a tricky proposition. The practice often leaves the technician depending on outdated and inaccurate maps. That's why the ability to electronically map laterals in a sewer system can be a timesaver and money saver for utilities. The LATRAS lateral tracking system from RauschUSA is designed specifically for that task.

The unit is a modular upgrade to the Rausch M-Series product line for the automatic measuring and graphic documentation of the entire lateral. The system's control electronics capture the direction of motion of the LATRAS sensor head behind its KS 60 DB digital lateral camera. These coordinates are then registered constantly in parallel with the inspection and allow the documentation of the laterals at the same time without any significant additional work for the operator. With this information about the pipe system, the quality of the inspection can be considerably improved.

"It's all about being able to increase accuracy and decrease your guesswork," says Jeff Rager, field applications manager for RauschUSA. "It can really help speed up your mapping process."

All RauschUSA lateral launch systems with the KS 60 DB lateral camera can be upgraded with the LATRAS sensor and software package. The system

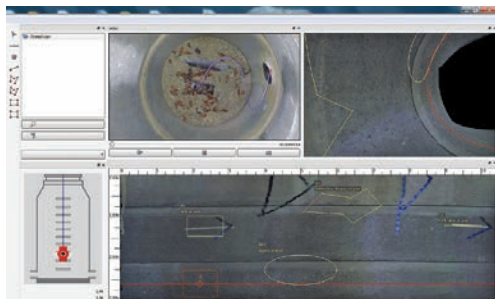


is operated through RauschUSA digital lateral launch system, with the LATRAS sensor positioned behind the lateral camera. The sensor then records movement of direction and tilt angles, with distance measurement achieved with an incremental encoder with an error accuracy of less than 0.5 percent. The system then creates, in essence, a real-time drawing of the pipe system with GPS mapping and XYZ coordinates.

"It's a nearly instantaneous map with all lateral locations drawn out," Rager says. "It is accurate down to the millimeter, eliminating the educated guesswork that technicians are used to doing."

The system allows for the recoding of measurements for forward and backward movement, along with recalibration of the measurement results through endpoints. A 512 Hz transmission sonde is available, and the unit is compatible with the company's lateral launch jetting nozzle for forward propulsion using water pressure.

"Anyone who does work on municipal sewers, including spot repairs and relining, knows that knowing the exact location of your laterals is a huge benefit," Rager says. "We know this can be a huge help to municipalities." **877-728-7241; www.rauschusa.com.**



WinCan Manholes Module

WinCan Manholes Module

The Manholes Module from WinCan imports imagery and geometric data from automated manhole inspection equipment and provides the tools to analyze, annotate, report and share information. Users can use the module to create a virtual manhole, using pan, tilt, and zoom to scrutinize defects. It supports defect-coding standards like Manhole Assessment and Certification Program and Water Resource Center and makes it easy to generate custom reports that include tables, images and schematics. The module is fully compatible with WinCan Web, so inspection results can be uploaded to grant others access to view reports and navigate virtual manholes instantly on any device with a web browser. **877-626-8386; www.wincan.com.**

Super Products Camel Maxxx 1200 sewer cleaner

The Super Products Camel Maxxx 1200 sewer cleaner offers 1,500-gallon water and 12-yard debris capacity and a large, 7-inch display at the front control panel. It utilizes a heavy-duty transfer case with a hot shift blower control at the front operator's station, eliminating trips back inside the cab to turn the vacuum pump on and off. An extreme transfer case and hydraulic cooling system allow for continuous work without the fear of overheating. The front-mounted hose reel extends 18 inches and is capable of



Super Camel Maxxx

270-degree rotation, even when fully retracted, and is lockable in any position. **800-837-9711; www.superproductsllc.com.**

Mueller Water Products ME-8 encoder

The Mueller Encoder Eight (ME-8) register combines reliable mechanical components with a new automated data acquisition system that improves meter accuracy and functionality for utilities. Using a heat-treated tempered glass lens and corrosion-resistant copper can to house the register light tubes, electronics, self-lubricating gearing, and drive magnet, the ME-8 is designed to provide dependable service with no maintenance required. It is available for use on all current Mueller Systems positive displacement meters from 5/8- through 2-inch sizes. **800-523-8618; www.muellersystems.com.**



Mueller ME-8

Picote Solutions Liner Cannon pipe lining drum

The Picote Solutions Liner Cannon is a lightweight, transparent tool designed to assist in the installation of CIPP linings, particularly smaller diameters. The transparent shell allows the user to watch the lining process in real time as it progresses. It uses the Fast Lock System to install liners from 2 to 4 inches in diameter. The single Cannon inversion kit includes multiple inversion heads and a Fast Cap to cover the varying-diameter installations. For particularly tight spaces and shorter liner lengths, the Cannon Mini is also available. Both systems are constructed using heavy-duty polycarbonate and aluminum and are safe to use with two independent pressure release systems and a maximum operating pressure of 29 psi. **219-440-1404; www.picotesolutions.com.**



Picote Liner Cannon

Scot Pump stamped 304 stainless steel pumps

The expanded line of Scot Pump's stamped 304 stainless steel pumps with NPT connections includes nine new ANSI flanged centerline discharge models. The new 320-328 series covers up to 385 gpm and 275 feet of head. The pumps feature a slip-fit O-ring/flinger design, which prevents leaks caused by deformation as a result of overtightening. They are mounted on a JM frame and incorporate a back pullout design and weep holes in the impeller. The weep holes extend seal life by creating fluid movement in the seal cavity, which aids in venting of air at startup. **888-945-6872; www.scotpump.com.**



Scot Stainless

Felling Trailers EZ Tilt Technology

Felling Trailers EZ Tilt Technology allows for ground-level loading with its rotating torsion suspension, providing a 5-degree load angle. The low load angle makes it possible to load and unload low-clearance equipment such as floor sweepers, scissor lifts and rollers. The EZ Tilt has an 18.5-foot deck length, including a 3.5-foot approach plate at the rear of the deck. The electric/hydraulic lift system, with corded remote and 12-volt battery in a lockable enclosure, gives the operator the ability to load and deliver two scissor lifts at a time. **800-245-2809; www.felling.com.**



Felling EZ

Uticom Systems U1864D confined space cover sign

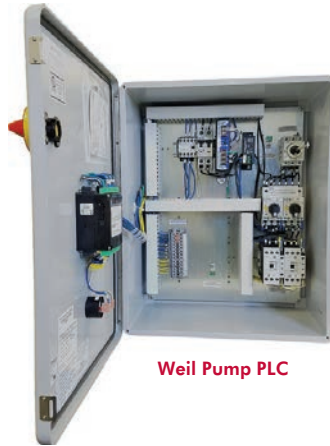
The U1864 confined-space cover signs from Uticom Systems are durable and easy to install and store. The signs increase confined-space safety and reduce the risk of falling into or entering an uncovered manhole. They comply with OSHA 1910.146, 1910.121 and ANSI Z535.1, Z535.2 and Z535.3. The signs have a nonskid overlaminates and are made of 0.125-inch reflective polycarbonate material. They are also available in an 18-by-36-inch label, backed with a high-strength adhesive to apply to plywood. **800-548-5321; www.uticom.net.**



Uticom Confined Space Sign



Trelleborg Pipe Seals



Weil Pump PLC



Krausz HYMAX 2



Wilo FA Kits



Water Cannon Industrial Washer

Trelleborg Pipe Seals watertight pipe seals

Specifically designed for high-pressure potable water pipe relining, the I-Lock-P Mechanical Seal and the L-Lock-P Liner End Seal from Trelleborg Pipe Seals provide a watertight seal for most types of pipe, including steel, cast iron, concrete and plastic. Both are easily installed using a high-force hydraulic expansion tool and are available in multiple diameters. The I-Lock-P is a mechanical seal applied without a liner to repair sections of cracked or damaged pipe, and the L-Lock-P is a rubber liner end seal with stainless steel expansion bands, designed to keep the liner firmly in place. **800-626-2180; www.trelleborg.com.**

Weil Pump PLC panels

PLC panels from Weil Pump provide a platform for the control of most pumping systems, including commercial, industrial, process and booster service pumps. The panels have the flexibility to control up to four pumps and work with a variety of level controls, from state-of-the-art transducers to traditional float switches. The PLCs have advanced monitoring capabilities, multiple fail-safes and built-in troubleshooting, and provide early detection of faults to help keep mission-critical systems running smoothly without interruption. In addition, the panels offer detailed metrics on pumping operation, maintenance intervals and alarm histories for offsite management and control, reducing the likelihood of having to enter the confined conditions on site. **888-945-6872; www.weilpump.com.**

Krausz USA HYMAX 2 Coupling

The HYMAX 2 Coupling from Krausz USA features a flip gasket that easily flips in or out to accommodate different pipe O.D.s, allowing for faster and more efficient installations. The gasket also eliminates gasket removal mistakes since there is no need to tear out gasket layers to accommodate larger pipe O.D.s. The coupling's two top-facing bolts eliminate the need for extensive under-pipe digging, minimizing installer time in the ditch and maximizing worker safety. The HYMAX 2 features a T-handle to make it easy to carry and adjust on the pipe and is a durable, long-term repair solution that can reliably withstand harsh ground conditions. **855-457-2879; www.krauszusa.com.**

Wilo USA pump parts replacement kit program

Wilo USA's kit program features two types of standard kits for both oiled and oilless motors: the Power Kit and the Hydraulic Kit, for select FA pumps ranging from 2.8 to 25 hp. The Power Kit has the pump motor and necessary cables, while the Hydraulic Kit includes a volute kit, suction cover (if applicable) and an impeller kit, which has a full-sized unbalanced impeller that can be trimmed and balanced per the necessary specifications. The program was designed to allow locally authorized distributors to configure complete pumps within 24 hours, reducing lead time. **888-945-6872; www.wilo-usa.com.**

Water Cannon Inc. - MWBE indoor application pressure washers

The new industrial-duty line of indoor pressure washers from Water Cannon Inc. - MWBE are powered with a Baldor Electric 20 hp motor and the General Pump TSP Series pump. Three models are available, offering up to 5.5 gpm and 7,000 psi. The attachment kit includes a 50-foot hose, trigger gun, and wand, and it comes with quick-connect nozzles. The auto-stop/start feature shuts down the motor and pump when the trigger gun is closed. **800-333-9274; www.watercannon.com. ♦**

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Sewer Equipment names new president

Sewer Equipment announced the appointment of John Wichmann, vice president of operations, as the company's new president. Wichmann graduated from the University of Illinois in 1983 with a bachelor's in mechanical engineering and in 1998 completed his MBA at the University of Detroit Mercy. He takes over for Dan O'Brien, the company's past president. O'Brien will continue to stay involved as the company's owner.

InfoSense hires new sales director

InfoSense announced it hired Walt Woodard as global sales director. He has over 30 years' sales, management and business development experience in a variety of capital intensive industries. He has an MBA and Bachelor of Science degree in chemistry from Georgia Southern University.



Walt Woodard

Walker names bluefrog Plumbing + Drain chief operating officer

Bluefrog Plumbing + Drain announced that James Walker has joined the brand as chief operating officer. In this role, Walker will oversee bluefrog Plumbing + Drain's ongoing operations and procedures as the company continues to expand into new markets across the United States.

HammerHead Trenchless announces management promotions

HammerHead Trenchless announced the promotion of three of its top personnel to newly created management positions. Ryan Boldan is now director of support services, and his responsibilities include marketing and e-commerce, inside sales, customer service, service and training, and technical services teams. Brian Kenkel is now director of rehabilitation and replacement. In this position, he leads sales teams and provides product management for the rehabilitation and replacement division. Jeff Urbanski was named the training and technical services manager. He will lead a team of seven technicians tasked with building HammerHead University, an edu-



Ryan Boldan



Brian Kenkel

cation center dedicated to the trenchless industry. He will also oversee the training facility and direct creation of all e-learning and testing solutions.

QuakeWrap hires Sever as head of Pipeline Division

Dr. Firat Sever, P.E., joined QuakeWrap as head of its expanding Pipeline Division. Sever earned both his civil engineering bachelor's and master's degrees in Turkey. He earned his doctorate from Tulane University as a Spaar scholar. He's also a board-certified environmental engineer.



Firat Sever

CSI Controls names new manufacturers' rep

Watermark Engineered Product Sales is CSI Controls' new manufacturers' representative for Indiana, Ohio, Kentucky, Michigan, West Virginia and western Pennsylvania. The addition of Watermark increases CSI Controls' growing distribution network into areas previously unrepresented and will provide a higher level of service to customers in that region.



SJE-Rhombus breaks ground on new manufacturing facility

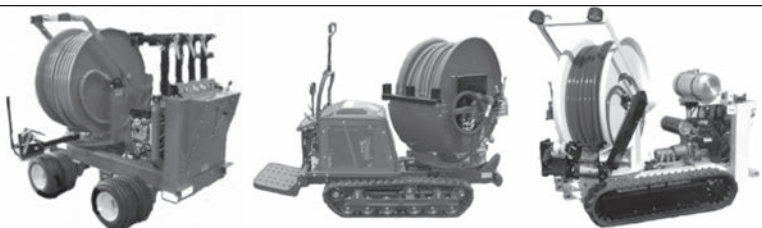
SJE-Rhombus broke ground on a new 51,000-square-foot manufacturing facility in Ashland, Ohio. SJE-Rhombus had been leasing a space for manufacturing in Ashland since acquiring CSI Controls in 2008. However, the current space became insufficient, with manufacturing production areas spread over four separate floors in one building. The new space will increase efficiency by having all areas on one level.

Case Construction Equipment names new vice president

Case has named Michel Marchand as vice president for North America, replacing Scott Harris, who has taken a similar role at Case IH. Marchand, who previously served as the regional sales director for Canada, will now oversee all Case operations in North America. ♦



Michel Marchand



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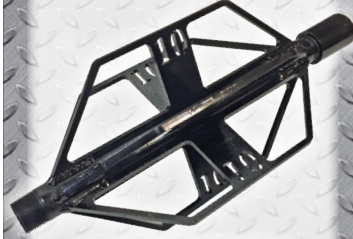
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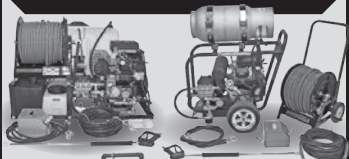
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PEOPLE/AWARDS

Midwestern Engineers of Indiana hired **Lauren McCleary** as a project engineer. Her areas of expertise include stormwater management. Midwestern Engineers is a consulting engineering firm with core competencies in the stormwater, water, wastewater and electrical/mechanical sectors.

The **Wyoming Valley Sanitary Authority** (Pennsylvania) and **Jim Tomaine**, executive director, received a 2018 Governor's Award for Local Government Excellence in the category of Building Community Partnerships. The Wyoming Valley Sanitary Authority earned the honor for its Regional Stormwater Management Project.

The Wisconsin Department of Natural Resources awarded a \$32,000 grant to the **village of Somers** to help with restoration of a wetlands area in Neumiller Woods Park.

Escambia County (Florida) received a \$1.6 million grant for the plan and design of an upgrade of the Hollice T. Williams Park, which will create a dual-use stormwater and recreation park under Interstate 110 in Pensacola. The project is part of the RESTORE Act. Congress passed the RESTORE Act to ensure all fees and fines BP paid the federal government for the 2010 oil spill would go to help the Gulf Coast region.

The **city of Boiling Spring Lakes**, North Carolina, received more than \$1.7 million from the Federal Emergency Management Agency to help fund a stormwater project for Allen Creek. The improvements will help protect the flood plain and surrounding properties and help mitigate erosion and flooding caused by the spillway at Sanford Dam.

The Big Bend Branch of the American Public Works Association awarded **Leon County** (Florida) with stormwater-related Project of the Year awards for its Lake Heritage Dam Improvements (Emergency Construction/Repair category), Magnolia Drive Multi-Use Trail Phase One (Multifunction category) and Robinson Road Flood Relief (Environmental/Stormwater category). The Lake Heritage Dam Improvements restored function to the structure and allow stormwater to pass through the dam in a safe and controlled manner. The Magnolia Drive Multi-Use Trail project included a 10-foot multiuse trail and an enclosed drainage system to deal with stormwater mitigation. And the Robinson Road Flood Relief project repaired the existing pavement of Robinson Road, which has helped provide flood relief.

LEARNING OPPORTUNITIES

Colorado

The American Water Works Association is offering a Summer Workshop on July 24-26 in Denver. Visit www.awwa.org.

Kentucky

The AWWA is offering an Effective Utility Management seminar on Sept. 19-20 in Louisville, Kentucky. Visit www.awwa.org.

Virginia

The American Society of Civil Engineers is offering a Young Member Leadership Symposium on Aug. 3-5 in Reston, Virginia. Visit www.asce.org.

Online

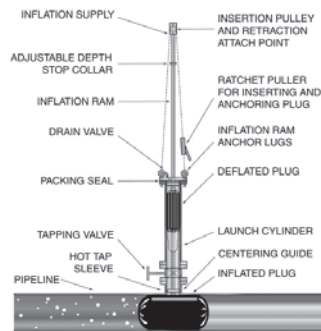
The American Water Resources Association is offering a Forecast Informed Reservoir Operations Improve Water Management webinar on Oct. 10. Visit www.awra.org. ♦

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CALENDAR

July 9-11

American Water Resources Association Summer Specialty Conference: Managing Transboundary Groundwater; Worthington Renaissance Fort Worth Hotel, Texas. Visit www.awra.org.

July 10-12

National Association of Flood and Stormwater Management Agencies Annual Meeting, Santa Fe, New Mexico. Visit www.nafsm.org.

July 15-18

American Society of Civil Engineers Pipelines Conference, Sheraton Centre Toronto Hotel, Toronto. Visit www.asce.org.

July 29-Aug. 1

American Society of Agricultural and Biological Engineers Annual International Meeting, Cobo Center, Detroit. Visit www.asabe.org.

Aug. 12-16

StormCon, Hyatt Regency Denver at Colorado Convention Center, Denver. Visit www.stormcon.com.

Aug. 26-29

American Public Works Association Public Works Expo: PWX, Kansas City Convention Center, Kansas City, Missouri. Visit www.apwa.net.

Sept. 17-19

National Rural Water Association WaterPro Conference, Fort Worth, Texas. Visit www.nrwa.org.

Sept. 29-Oct. 3

Water Environment Federation Technical Exhibition and Conference, Morial Convention Center, New Orleans. Visit www.weftec.org.

Oct. 12-15

American Society of Civil Engineers 2018 Convention, Hyatt Regency Denver at Colorado Convention Center. Visit www.asce.org.

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

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