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Barry Orr
Sewer Outreach
and Control Inspector
London, Ontario

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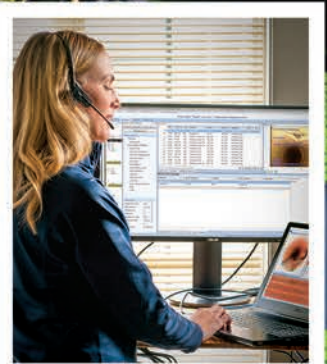
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Luke Laggis

FOUNDING PRINCIPLES

A healthy community is made of good stewards, good citizens and good neighbors

It's Oct. 6. I'm finishing up this column, the last piece of the last issue of *Municipal Sewer & Water* for 2020. And what a strange year it's been.

I have no idea where things stand as you read this. That's one of the challenges of trying to be topical and current when you're writing a column two months in advance. But I hope things are calming down. And I do hope the incredible polarization of virtually every issue is ebbing and we're starting to invest more in finding — and serving — the common ground.

Part of that, I hope, is investing more in water and wastewater infrastructure for a healthier future.

If your candidate won, congrats. But remember, the people across

the political divide are still your friends, neighbors, family members and fellow citizens. They aren't really the other side at all. They're all people, with the same basic wants and needs. You still depend on them for everything from medical care to car repair, and they still depend on you for the important roles you play in your communities.

I'm not here to talk about my politics other than to say, politics really shouldn't be a part of everyday life. Who you voted for and what you believe in is no more or less valid than who I voted for and what I believe in. That's what makes this country great. We don't all have to follow the same religion or pledge unwavering support to a supreme leader. We can be who we are and aspire to whatever we want to be. Those are founding principles. We should all have the room to learn and grow, to improve ourselves and to contribute to the greater common good. That's citizenship, and it's a responsibility we all share equally.

Some people say government should be run like a business. But it isn't a business. The bottom line isn't really the measure of success. The health and well-being of the people should be the real focus. And in that way, I say government should be run more like a municipal utility.

Your job is about serving that common good. And it's a two-way street. You expect good citizenship from your customers, too. You want them to conserve water, dispose of cooking oil responsibly and keep trash out of the storm sewer system. Those things benefit all of us, and while it may at times be a thankless mission to keep your systems operating efficiently, it is critically important and it affects those who pay no attention just as much as those who champion your mission.

Do politics play a role in regulation and oversight? Of course they do. But making sure your communities have clean water isn't political. Preventing sanitary sewer overflows isn't political. Being good stewards of our resources, good citizens and good neighbors isn't political either. It's just the right thing to do.

That's how a healthy community works. We're all in this together so let's all do our part to make it better.

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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RAIN GAUGES

Ensuring Accurate Data

When critical upgrades depend on your rainfall data, it's important to get it right. This is especially true in cases where inflow and infiltration issues are present, and expensive sewer system rehabilitation decisions are on the line. It's crucial you're doing everything you can to ensure the accuracy of that rainfall data. mswmag.com/featured



CIPP RESINS AND TUBES

The Value of Testing

In CIPP lining, it's not as simple as pairing any type of resin with any tube. There's a balance to strike in making the final product, and testing can help ensure it holds up. This online article explores the factors that go into the finished product, including the three resin systems acceptable for use in the process. mswmag.com/featured

DIRECTIONAL DRILLING

Fluid Handling System Maintenance

In directional drilling, much of the focus is put on the drill itself, but if you want to eliminate downtime on job sites, fluid handling systems cannot be ignored. Check out some tips we've compiled about the two main pieces of equipment in this category: fluid mixers and reclaimers. mswmag.com/featured



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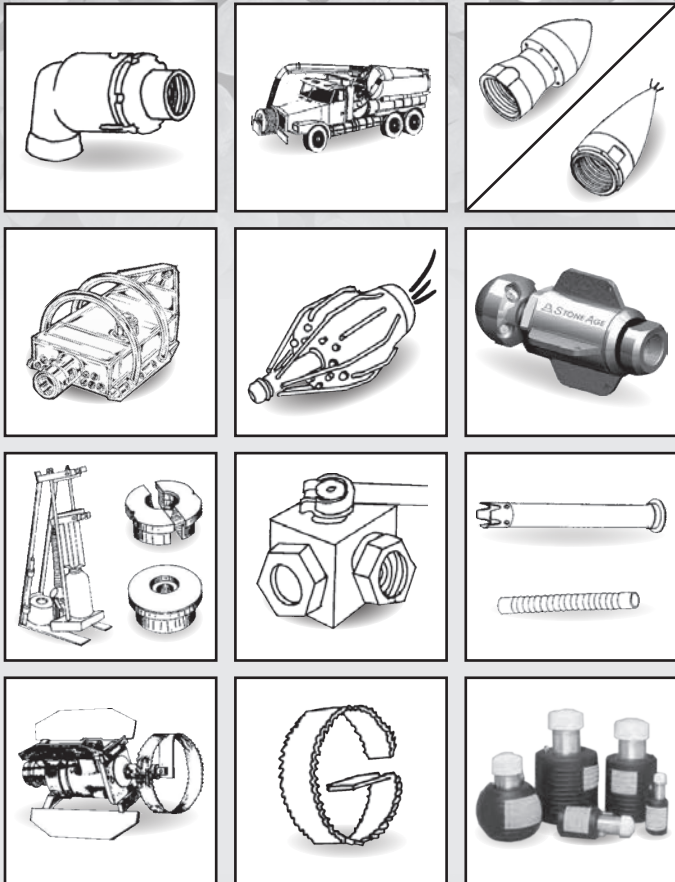
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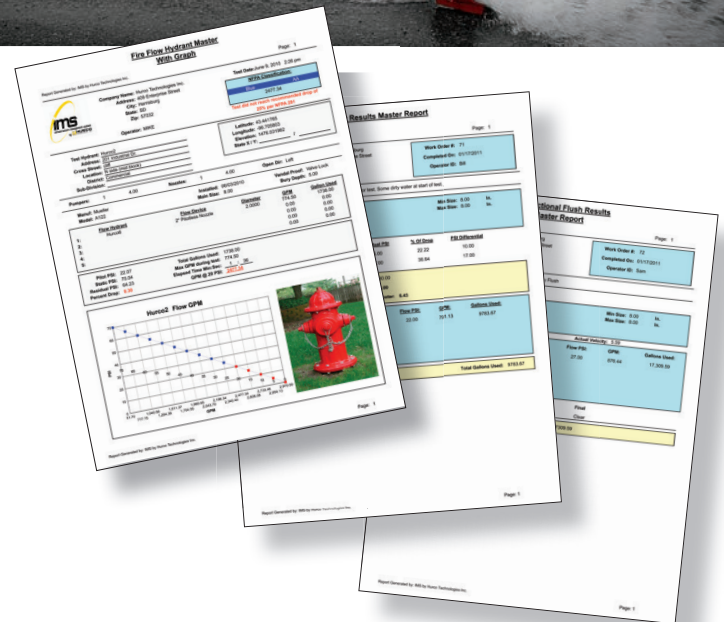
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CALM UNDER PRESSURE

Tennessee utility handles unprecedented flooding like any other day at the office

By Giles Lambertson

“Nothing can withstand the type of pressure they were put under.”

Brad Brummett

First Utility District water plant operator Chris Smith replaces the backflow valve pump at the water treatment plant after the old pump failed. (Photography by Martin Cherry)



“We are fortunate to have a strong network of utilities here and help each other whenever we can.”

Brad Brummett

First Utility District was ready when a series of heavy downpours drenched Knoxville, Tennessee, in February 2019. Unprecedented flooding inflicted \$2 million in damage to district infrastructure, yet the utility reacted much like it does any other day.

“You find out on normal days who you are and respond that way in an emergency,” is how Bruce Giles puts it. Readiness comes from training capable people to handle a crisis with the same aplomb they do routine operations. While responses to emergency and daily situations differ dramatically, they are formulated by the same team of administrators and in-the-field personnel. In February 2019 and for several months after, First Utility District team members proved their mettle.

No status quo

Giles is general manager of the suburban utility district, which serves 62 square miles of southwest Knox County. He has been at the helm of the state-chartered agency for a decade. It is governed by a three-person board and serves more than 90,000 customers through 34,000 water and wastewater connections.

The utility is a progressive agency in the best sense of the word. Status quo is not even in the same area code. “We take an aggressive approach when looking at new things,” Giles says. “We’re careful with our dollars but as new technology is rolled out and tested, if we determine it will improve efficiencies in our organization or solve a problem, we’re willing to make the investment.”

District personnel are active in the Isle Utilities program, which originated in England and came to the U.S. in 2011. Twice a year, Isle sponsors regional gatherings of U.S. utility experts and municipal leaders to introduce innovative technologies and methodologies and foster interactive discussions. Giles terms it a clearinghouse.

A new idea becomes a staple at First Utility only when it’s merited. Case in point: The district’s waste-

water treatment plant was the first in the state to earn a Class A biosolids permit, letting it reuse treated material as fertilizer. However, the process wasn’t cost-effective. “It proved cheaper to go to the landfill with the material,” Giles says. But that’s not the end of the story: New centrifuges are being installed and future plans include reintroducing the drying process that produces the biosolids if it becomes economically feasible.

Low-pressure

When the utility isn’t dealing with historic floods like the one that arrived in 2019, it is immersed in day-to-day operations and maintenance programs like any other water utility. In September, crews were relocating 10,000 feet of waterlines and 600 feet of sewer lines in a six-month-long effort to accommodate a Knox County road improvement project.

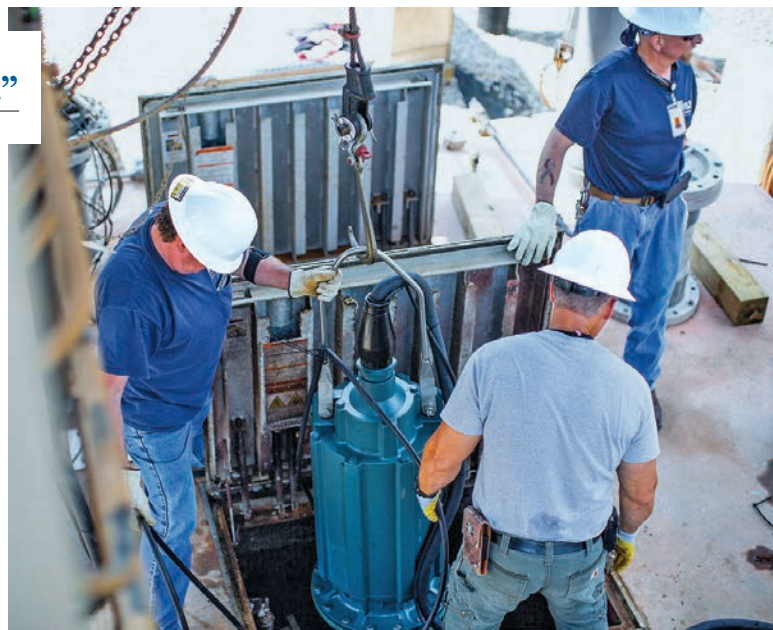
In two other neighborhoods, utility crews were upgrading waterlines by replacing stretches of pipe. But dig-and-replace isn’t the only approach.

“We use an assortment of different techniques,” Giles says. “We’re not married to any one technology.” Crews, in fact, do a lot of cured-in-place rehabilitation work where best practices dictate.

The district’s equipment yard is home to more than \$5 million of machinery, from Ingersoll Rand 185 trailered air compressors to CCTV inspection vans and even a pair of 14-ton Caterpillar 924K wheel loaders.

“We have some pretty large iron — whatever the crew needs to do a job effectively,” Giles says. Among the newest pieces of machinery is a Vactor 2112 Plus jet/vac truck with a 12-cubic-yard debris body and 1,500-gallon water tank. In all, the agency has four sewer cleaning rigs.

First Utility District has an \$80 million, five-year capital improvement budget. The financial health of the utility is captured in a single fact: Operations and capital improvements are funded from a cash account.



Top: Davin Olafson, Scott Harrison and Rodney Lawson (from left) install replacement pumps at the Ten Mile Pump Station after the February 2019 flood destroyed them.

Above: Jason Chandler (left) and Davin Olafson guide the water plant intake pump into place as a crane lowers it through the roof. The pump had previously required maintenance.

Currently, the electric systems in the water treatment plant are being updated at a cost of several million dollars. The district sells about a half-million gallons of water per day to neighboring districts. Meanwhile, the wastewater plant is undergoing a \$12 million upgrade to its solids-handling equipment along with new pumps and screens.

Because the utility system is sit-



PROFILE:
First Utility District,
Knox County, Tenn.

SERVICE AREA:
62 square miles

NUMBER OF CUSTOMERS:
90,000 (34,000 connections),
including 2,200 commercial

WATER VOLUME:
34 mgd capacity, 4 billion
gallons delivered annually

WASTEWATER VOLUME:
34 mgd peak capacity

EMPLOYEES:
105

WEBSITE:
www.fudknox.org



First Utility District Operations Manager Brad Brummett assists Knox County in setting up temporary pumps after Bluegrass Lake overflowed, causing flooding of surrounding neighborhoods. Knox County asked First Utility District to advise as well as offer technical expertise.

uated in the Tennessee Valley rather than up and down mountainsides, drastic elevation changes in distribution and collections lines are not a problem. And while some elevation challenges do exist, operations manager Brad Brummett says they are mitigated by careful planning. “On the collections side, if we do new installs, we try to minimize the depth of our sewer lines.”

Wherever it can, First Utility District utilizes a low-pressure collections system instead of relying on gravity flow. The E/One-branded low-pressure system employs grinder pumps that collect

sewage and reduce it to slurry, which then is pumped to sewer mains. The half-century-old technology also reduces maintenance work, according to Brummett. “Some studies were done and it was found the I&I component was less using a low-pressure system. We shifted to that as much as possible.”

Historic flood

All this day-to-day work at First Utility District was dramatically disrupted in February of last year when a storm unlike any other in local recorded

“We think it’s all kind of commonsense. I’m very proud of my team.”

Bruce Giles

history inundated the area. For several days, multiple inches of rain fell and pooled. “It was described as a 500-year flood,” Giles says. Water rose 20 feet above the designated 100-year floodplain.

Of the system’s 36 sewer pump stations, three were affected by the storm, with two of those being completely submerged. “The water level got so deep it reached the electric panels that were installed to a 200-year-flood standard,” Giles says. “The panels were up on a mezzanine 20 feet higher than the pumps.”

The panels are enclosed in boxes advertised as being waterproof. “They were waterproof from rain falling on them, not from being submerged under 20 feet of water,” Brummett says. “Nothing can withstand the type of pressure they were put under.”

All the flood water came from Ten Mile Creek. The stream, like some others in that part of Tennessee, flows above ground and then periodically disappears into caves and keeps moving at a subterranean level before resurfacing. The swollen creek overwhelmed normal outlets and flooding ensued, including in the areas where the pump stations were situated.

Quite suddenly, all those management and operations skills honed during routine workdays had to be applied under emergency conditions. When the two stations became submerged in muddy waters, Giles had to decide whether to order replacement pumps.

DELIVERING OVERALL EXCELLENCE

Crises either bring out the best in people and organizations or expose weaknesses. The unheard-of deluge that struck First Utility District in Knox County, Tennessee, early last year turned out to be a proving experience.

“I don’t say this from arrogance but the team really killed it,” says general manager Bruce Giles. “You almost had to be there to watch how they did it. The financial side, the communications with regulatory agencies once or twice a day, sampling crews and maintenance teams walking in from a different direction to reach and monitor stations — it was a well-oiled machine.”

Giles deserves some credit. He has headed the agency for 10 years and brought to the job 13 years in municipal government experience before entering the private sector as a consultant in sewer rehabilitation programs. Brad Brummett, the system’s operations manager, was a sewer rehab client whom Giles subsequently lured to First Utility District.

Brummett brought plenty of his own experience, gained over the course of his 25-year career. “I’ve been through it all,” he says. “Underground construction, gas lines and waterlines, pulled wires overhead, I’ve seen a little bit of everything. In my opinion, it all helped prepare me for this flood event.”

Giles praises the district’s incredible staff, but recognition isn’t just coming from within. The staff includes a chief water plant operator, Gary

Massey, who has been with the district for 40 years. At the other end of the spectrum, Jeremy Bailey, who heads two programs at the utility, last year earned the Young Professional Award from the Tennessee Association of Utility Districts.

The district’s wastewater treatment plant — now dubbed the water resource recovery facility — received an operations excellence award last year at a Water Professionals Conference in Kentucky. Giles himself was appointed by the governor last year to his third four-year term on the Tennessee Utility Management Review Board.

And the team’s workplace seems to be mutually supportive: First Utility District has collected a Knoxville-area Top Workplace Award for three consecutive years. “When we ask for 110%, they give it,” Giles says of staff. “I make one or two calls and 30 or 40 people show up and we have to make them go home.”

Giles says the unity evident in the organization is a top-to-bottom thing. The expectation of senior staff is that they will pitch in as needed just like everyone else on the team.

“Our whole senior staff started at ground level. We have multiple MBAs and master engineers and everyone started at the bottom. I think it’s significant that all of our senior-level staff have had their hands dirty. That really helped us during the flood emergency. To this very moment, I never realized that.”

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“It was a gut call,” he says. “We say around here that sometimes we have to do quick risk assessments. We couldn’t get to the pumps to assess the damage, but we knew if the pumps were ruined that we would have to take aggressive steps immediately to get new pumps here when we’d need them.”

So, two days after the stations disappeared under the water and six days before the water receded to where a visual inspection was possible, Giles ordered six new Vaughan chopper pumps, 75 and 100 hp models. “It’s my responsibility to make decisions like that.”

Inspection teams subsequently confirmed that the pumps and panels were unsalvageable. The new pumps arrived in September of last year.

An earlier decision also benefited the district — having on hand two diesel-powered bypass pumps. The pumps were a fruit of regular contingency planning sessions where emergency scenarios are posed and appropriate responses plotted. “That training was the key to the whole thing,” Brummett says. “All of our stations have bypass connections where you can hook up pumps and bypass the normal operation of a facility.”

The diesel pumps were hooked up and performed as designed. Operating the pumps cost \$600 a day in diesel fuel, however, so Brummett called friends at the Dixon County Water Authority. The neighboring utility had electric bypass

pumps of the same size as the diesel pumps and agreed to lend them for as long as needed, which, as it turned out, was five months.

“We are fortunate to have a strong network of utilities here and help each other whenever we can,” he says. “We’ve helped out others in the past.”

The right way

Eventually, of course, the water did recede. Infrastructure was repaired, new pumps and panels installed, and routine maintenance and capital improvement projects again became the order of the day.

The electric components of pump stations were raised even farther above ground elevation, and a few more safeguards and redundancies were implemented.

The general manager expresses no regrets about any of the decisions made under duress. Nor does he see any overriding lessons learned during the crisis. “I don’t know that we have learned anything new from the experience, but we have solidified in our minds what works. You have to have plans and processes in place. The flood solidified that what we have been doing is the right way to go.”

Through the years, First Utility District has won industry awards for organization-wide and individual performance. However, it had never been recognized nationally by the Water Envi-

ronment Federation until it was cited in the aftermath of the 2019 flooding. Its months-long response to the disaster earned the WEF’s Water Hero Award.

The district’s overall excellence in financial management and proactive policies has resulted in numerous speaking invitations for managers and administrators. “We find it kind of uncanny that people like to hear our story,” Giles says. “In the last three years, we’ve done a lot of speaking in a lot of conferences. We think it’s all kind of commonsense. I’m very proud of my team.”

The Great Flood of ’19 — or however the event comes to be known — undoubtedly will bring more speaking requests. Brummett says the message is simple: “We empowered the employees to do their jobs and they performed exceptionally.” ♦

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SHARE A STORY

A storytelling approach can engage and motivate employees better than facts and figures

By Ken Wysocky

The next time your organization decides to launch an initiative — improve diversity and inclusion, for instance — you could use facts and figures and charts and graphs to communicate the program’s goals to employees and show why it’s important.

Or you could try something completely different: Tell a compelling story that emotionally engages employees, builds empathy and motivates them to buy into the initiative.



“Studies have found that people are more likely to remember information delivered in story form as opposed to conveying it just as pure facts.”

Patti Sanchez

The latter approach is much more likely to succeed, says Patti Sanchez, chief strategy officer at Duarte, a communications and training company based in Santa Clara, California. Duarte specializes in helping corporations use storytelling to create high-impact presentations for product launches and other programs.

“When you use stories about people and the challenges they’ve encountered, it tends to make an audience feel emotions of various kinds,” Sanchez explains. “They almost can’t help but put themselves in the shoes of the person in the story. This phenomenon is known as narrative transportation.

“When we’re transported like that, it quiets the critical mind — the part of our brain that asks questions and creates challenging and disagreeing thoughts,” she continues. “At the same time, the emotional and memory centers of the brain become more active.”

In addition, these physiological reactions create a rush of hormones, including oxytocin (often referred to as the “cuddling” or “love” hormone), which helps reinforce bonds between couples or mothers and their babies.

As a result, whatever employees hear is more memorable. “Studies have found that people are more likely to remember information delivered in story form as opposed to conveying it just as pure facts,” Sanchez says.

Building empathy

During her tenure at Duarte, Sanchez says she’s seen many great examples of clients who have switched to storytelling as a communication conduit and achieved better outcomes as a result. In one case, a chief executive officer used stories in the 1990s to launch a program to make his carpet-manufacturing company fully sustainable — a first in the industry.

The CEO used storytelling principles to announce the company’s mission to employees. He told a story about a customer who asked him what the company was doing to be more eco-friendly. He also talked about a book he’d read that inspired a new “green” vision for the company.

“He eventually gave a TED Talk about his experience,” Sanchez adds. “Storytelling was very effective in terms of getting employees behind their goal to change not only the way they made their products, but their place in the industry.”

In another instance, a large technology company hired Duarte to help it explain to employees the importance of a new initiative to increase diversity and inclusion. To do this, the company’s leadership team talked to managers and told stories about being excluded or treated with bias.

“At that point, they didn’t communicate the actual strategy of the diversity program,” she notes. “They instead impressed on managers why bias can be a painful experience for employees and why

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.

it's important to change things.

"It helped create more awareness and empathy for people who aren't treated equitably," Sanchez adds. "That paves the way for change because it made something that perhaps was abstract into something more concrete and relatable — created more awareness about why this is a problem."

Moreover, as senior management talked about their experiences with bias, Sanchez says they became more animated about the issue. The result? A shift in their own perspectives that helped them become more open and vulnerable, too.

Changing perceptions

There's another benefit: Storytelling can dramatically change employees' perceptions of managers and senior executives. Sanchez recalls a CEO who told employees how he had experienced bias because he's a Christian conservative. But he also talked about one instance where he heard a gay employee was afraid to disclose his sexual orientation.

"He didn't realize that because he was so open about his faith, people were worried that he'd judge them unfairly," Sanchez says. "He apologized and said he didn't want anyone to ever feel that way.

"Later, when employees filled out a survey about the quality of his communication and how much they trusted and would follow him as a leader, he got the highest ratings ever."

While there are those who say emotion shouldn't be part of business communication because it clouds judgment, Sanchez argues that people already feel emotions at work.

"We all would like to think we're more rational, but you start to form opinions quickly and rationalize them later through intellectual thought," she says. "Wouldn't you rather shape those feelings and use them to purposefully and intentionally motivate employees to do what you want them to do, instead of just putting out information and facts?"

Ages-old tradition

Storytelling as a communication tool is nothing new. Centuries ago, the Greek philosopher Aristotle wrote *Poetics*, in which he described the basic three-act structure of stories: beginning, middle and end. The most compelling form of this structure is the so-called hero's journey, in which an individual faces numerous challenges and emerges from them significantly changed, Sanchez explains.

"The same basic structure is inherent in much of our business communications, but we just don't realize it," she says, "We can use even more aspects of storytelling besides the three-act structure to make our communications more interesting to an audience — and make those communications more persuasive, too.

“Storytelling is a form of communication that can increase transparency and create more openness and honesty in your organization’s culture.”

Patti Sanchez

“Storytelling is a form of communication that can increase transparency and create more openness and honesty in your organization’s culture. And I hope that’s what business leaders want, because it creates awareness and openness to change.”



Visit www.duarte.com to learn more about using storytelling as a communication tool.

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SAFETY IS AN ACTIVE PURSUIT

Committing to a safe workplace starts at the top and requires meaningful employee involvement

By Giles Lambertson

There are many workplace safety mantras, such as “safety is a habit” and “safety is everyone’s business.” While there is truth in the maxims, they nevertheless are just words — and cheap, as they say. Danger arises when the words become substitutes for the work of actively teaching safety and monitoring a workplace for unsafe situations.

It’s the job of safety managers to move a company beyond just talking about safety—and the job is a tough one. A safety manager’s very worth to a company ultimately is measured by how many accidents or injuries do not happen on his or her watch.

“Management and ownership have to show their genuine interest in what employees have to say.”

Chris Ravenscroft

Safety personnel may have different approaches to their work, but all seem to agree that the most insidious cause of unsafe behavior is routine, and how important it is for everyone to be committed to returning home unharmed at the end of a workday.

Start from the top

“I’m the safety manager,” says Chris Ravenscroft of Koberlein Environmental. What’s interesting about that is that Ravenscroft is also president and owner of the diversified wastewater services firm in Pennsylvania with commercial, residential, industrial and municipal clients. Considering all the responsibilities that come with ownership and administration of a burgeoning company, delegating employee safety to a subordinate certainly could be justified.

But Ravenscroft’s decision to be directly involved in the company’s safety program reflects his fundamental belief that the integrity of the program determines its success. “I really do think that it all has to do with credibility,” he says. “Management and ownership have to show their genuine interest in what employees have to say.

“Employees come to the monthly safety committee meetings with their



Encouraging active participation in regular meetings where everyone can express ideas and concerns leads to meaningful discussion that can improve worker safety.

own ideas and concerns and we have an open forum. Their active participation starts with the belief that we’re having a meaningful discussion. They have to see that we really are concerned about their safety.”

Daily operations of the company occasionally interfere with assembling a safety committee quorum. For the meeting to occur, at least four committee members besides management representatives are required to be present. That requirement alone serves to validate the meeting in the eyes of employees. They can see their presence at the meeting truly is valued.

The meetings are not allowed to drone on either, Ravenscroft says. “Realistically, we try to keep them as short as possible and as long as necessary. That means usually about 45 minutes. After that much time everyone’s attention starts to wander. There are diminishing returns after 45 minutes.”

While each meeting has an agenda, urgent topics are raised as determined by circumstances, he says, including accidents. The company has gone several years without a lost-time accident, but incidents do happen from time to time. “Whenever an accident does occur or a near-miss of an accident, it definitely focuses people. Such incidents go to the top of our agenda.”

He adds that sometimes committee members respond to an incident “sooner than the next month’s regularly scheduled meeting. We sometimes call a special meeting or decide to act on something immediately and follow up at the next meeting. These meetings are not window-dressing. The safety committee is not a token or a gesture.”

One indicator that management means business in stressing safety is how readily it will pay for it. “There has to be a willingness to consider real solutions based on employee input,” Ravenscroft says. “Sometimes this includes spending money. There has to be a willingness to make the investment for safety.”

Safety is a culture

As safety manager of North American Pipeline Services, John Flanagan brings to the table hands-on experience keeping workers safe: He spent years in the oil refinery industry where, he says, “safety is huge.” Leading a refinery crew of 40 workmen, Flanagan each day stressed to employees the necessity of working safely and looking out for one another.

“It was easy to do that then because everyone met in the construction trailer every morning. Here, everyone is scattered to different workplaces,” he says. The scattering comes from North American Pipeline Services (NAP) being a full-service underground utility rehab and repair contractor serving customers in New Jersey, New York and Pennsylvania.

A year ago, safety became Flanagan’s sole focus after NAP owner Tom Mullen hired him to enhance the company’s environment. Flanagan says the new program is a work in progress. “Tom asked me to enhance the company’s safety culture while he continues to grow the company. Safety is a culture. We’re still developing it.”

Flanagan’s first undertaking was to develop a health and safety manual. “It tells employees what they can expect the company to do for them and what the company expects of them to help protect themselves and each other.”

Flanagan also began to hold monthly safety meetings with individual groups of employees. Topics include hand safety, eye protection, the dangers of hydrogen sulfide gas in manholes, and confined-space entry procedures. Eventually, that gathering of employees will become a monthly safety committee meeting with a representative from each division of the company.

He recently held a “refresher” meeting, a classroom gathering he convenes every six months for half of the employees. The other half has their next scheduled safety awareness refresher a few months later. “It’s an eight-hour course,” Flanagan says. “I’m not teaching it. I call in a certified trainer to lead a discussion on a safety topic for one whole day.”

While topics are thoughtfully chosen, sometimes they are dictated by what’s in the news — such as a workplace accident. One example: a confined-space incident in a neighboring state where hydrogen sulfide gas killed a worker and two would-be rescuers. The tragedy captured everyone’s attention and became a springboard for discussion.

“There always is something happening somewhere, some sort of accident,

“If you put a safety practice in place and it’s not enforced, employees come to believe you are just doing it for paperwork.”

Kyle Irwin

and the biggest reason for accidents is the repetitiveness of every job,” Flanagan says. “The danger is complacency. That’s what we have to guard against. Don’t take safety for granted. Every day. That’s what I tell employees. All accidents are preventable.”

Involve everyone

Kyle Irwin got into the safety business the old-fashioned entrepreneurial way: As president of an employment company, he witnessed a less-than-satisfactory safety management performance at a job site in 2009 and believed he could do a better job of it. So, he started his own firm, Irwin’s Safety. Today, the Calgary, Canada, enterprise operates from eight offices scattered throughout the provinces of Alberta and British Columbia.

The 39-year-old founder leads a program that teaches safety online, on-site and in instructor-led classrooms with simulated workplace environments. In respect to meeting length and frequency, Irwin counsels company safety specialists to hold 20-minute meetings if they are scheduled weekly and to limit monthly meetings to an hour or less.

“Weekly meetings are especially valuable if employees are involved in an ongoing project because things can happen on a weekly basis, particularly if multiple subcontractors are employed,” he says. “But if you are routinely operating ... a monthly thing is OK.”

He says safety committees should be comprised of labor, supervisory and management personnel. In every case, a meeting’s agenda should include an Old Business section to ensure that safety recommendations actually were implemented after a prior meeting. “You need to make sure you resolve any questions employees have. If you put a safety practice in place and it’s not enforced, employees come to believe you are just doing it for paperwork. They don’t believe you actually care.”

Irwin also believes in teaching from shared experience, that is, by periodically having “safety moments” keyed to a workplace incident somewhere. “It can be a good thing to mention in a meeting that, not too far away, an employee was, for example, working in a confined space and died from heat stroke. Make the example as relevant as possible.”

The universality of such a workplace episode is the lesson there, a reminder that working routine can be deadly. “For people who are pretty confident in their performance of a job, this is a way to remind them to take a step back every single time they start to work. It’s a way to tell them that just because they’ve been doing a job for a long time doesn’t mean they shouldn’t take a step back daily and make sure they are proceeding safely. A safety moment in a meeting can help them do that.”

The key to having lively and meaningful safety meetings, Irwin says, is management giving employees the opportunity to tell what’s on their minds. “Provide feedback opportunities,” he says. “People like to talk. They like to feel that they are making a difference. Create that open and welcoming environment and you will get employee engagement big time.” ♦

HELPING MUNICIPALITIES MEET CHALLENGES

NAME:
Matt Sutton

JOB TITLE:
Partner, vice president sales and marketing

YEARS IN THE INDUSTRY:
43

YEARS WITH COMPANY:
17

RapidView builds its name on quality inspection equipment and quick service

By Luke Laggis

If you operate a collections system, you're more than familiar with inflow and infiltration, roots, joint misalignment, collapsed pipe, corrosion, cross bores and other maladies. Whether you find those problems early or discover them when an emergency arises is often dependent on your inspection program.

RapidView was formed in 1991 with a focus on bringing good equipment and service to the people who needed it. Today, RapidView IBAK North America is a top provider of inspection equipment for contractors and municipal utilities. And good equipment is at least part of a good inspection program.

Municipal Sewer & Water recently spoke to Matt Sutton, vice president of sales and marketing for RapidView, about the company, its customers and how sewer inspection is evolving.

MSW: Tell us a little about the history of RapidView and how it got started.

Sutton: The RapidView team grew up in the sewer industry. We were members of family-owned businesses that were inspection contractors, septic pumpers, pipeline installers and manufacturers of technologies used in the sewer industry. Because of our contractor- and service-based backgrounds, we understood the importance of high-quality equipment. We also knew that spare parts availability and repairability are perhaps the most important factors determining a user's success with equipment. We were frustrated that we couldn't purchase this level of technology and support locally, so we decided to form RapidView to provide those things to the North American market.

MSW: Can you explain the relationship with IBAK and how it has helped RapidView evolve and grow?

Sutton: RapidView IBAK North America is the exclusive partner for IBAK in the U.S., Canada and the English-speaking Caribbean Islands. This partnership was formed exclusively to service these markets and has grown to be the largest external market for IBAK products in the world.

MSW: What's the most common problem you see your



The most successful municipalities train employees well and foster a sense of ownership with the employee and tools that they use.

municipal customers facing and what mistakes do you see them making in their inspection efforts?

Sutton: Municipal customers face many challenges. They have a big job and limited resources to get it done. Devising an inspection and rehabilitation program for a system is not a simple task. Aside from those issues, the biggest difference we see between really successful programs and normal programs is people.

The most successful municipalities train employees well and foster a sense of ownership with the employee and tools that they use. It doesn't really matter if it's a dump truck, a set of hand tools or a pipeline inspection system — if the employee knows that they are responsible for a specific piece of equipment they take better care of it, and as a result, are much more productive in the long run. Municipalities that share equipment across multiple teams or many employees will find that the sense of ownership and responsibility is lessened, and repairs become more frequent. This seems pretty self-evident when you think about it, but in our experience, there is no better way to ensure success.

MSW: What are some recommendations for customers shopping for inspection systems?

Sutton: As with any large capital purchase, the selection of a pipeline inspection system can be tough, but there are some strategies to help make sure that you get equipment that meets your needs. Communicate your goals and budget to equipment manufacturers so they can tailor systems to meet those requirements.

Secondly, get to know the companies you are considering purchasing from. Did they give you good references? Are they responsive? Are they professional and knowledgeable? You may have this equipment for the next 10 to 15 years and you want to make sure that they will be able to support you effectively in the future. Can they provide you data on repair times, processes, training and support?

Third, try to understand the true cost of ownership of a piece of equipment. Poor-quality equipment, purchased cheaply, will break down more often, leading to higher repair bills, increased downtime, decreased employee safety and stress. Higher-quality equipment such as high-definition systems or systems with additional sensors and capabilities will provide you with better deliverables, which will lead to more accurate and effective decisions based on those deliverables/data. Making sound rehabilitation decisions based on high-quality imagery and data is a priority for every municipality.

MSW: How has your product line evolved to better meet the needs of municipal utilities with aging infrastructure and limited budgets?

Sutton: IBAK was the first manufacturer of pipeline inspection cameras in 1957. From that day forward, quality and innovation have been the focus. IBAK is responsible for most innovations in our industry over the intervening six decades including pan-and-tilt cameras, color cameras, camera tractors, lateral launch systems, data logging software, PANORAMO 360 technologies and other high-definition optics.

That commitment continues to this day with over 15% of the company dedicated to research and development. Quality continues to also be a focus and today all systems are manufactured to ISO9001 standards. As the world's oldest and largest company in the market, our customers can be confident that we will support them with the best technology for years to come. Because municipalities have limited resources, it is important that their equipment performs well, stays in the field longer, and provides them with good high-quality deliverables.

MSW: What differentiates your line of inspection systems from the competition?

Sutton: While other companies focus on using consumer-grade parts and keeping their price lower, IBAK has focused on technical innovation, uncompromising quality, and value for long-term ownership. RapidView has focused on providing a network of best-in-class service and support for our equipment. We are also focusing on the technologies of the future that will make operators' jobs safer, increase productivity and provide underground infrastructure system owners with higher-quality data with which to make better rehabilitation and maintenance decisions.

MSW: Do you sell direct to contractors and municipalities or go through distributors?

Sutton: We partner with local and regional dealers to provide equipment and support to our customers. Our partners are some of the best equipment dealers in the country and are a great resource to their customers. Our philosophy is to support these

Communicate your goals and budget to equipment manufacturers so they can tailor systems to meet those requirements.

local professionals so that they have everything they need to help customers be successful.

MSW: What sort of training and support does RapidView offer?

Sutton: We view training and support as core to our value proposition. Our staff is professionally trained, our inventory control equipment is state-of-the-art, and our modern repair case management system keeps customers up to date throughout the repair process.

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Our support team utilizes process control tracking and state-of-the-art case management tools that keep customers up to date on their repairs throughout the process. They receive updates when the equipment arrives, when it is put on the bench, when it is diagnosed, when it is repaired and when it is ready for shipment back. We collect data on our repair turnaround times and constantly make improvements to our process to ensure that customers get their equipment returned to them quickly. We stock \$5 million worth of spare parts inventory at our headquarters in Indiana, and at our dealer service centers throughout North America. Our goal is to keep average repair times under 48 hours. Not every repair can be done so quickly, but we continually strive to improve our performance.

MSW: How do you see the subsurface inspection industry evolving as technology improves?

Sutton: We are focused on a few key areas. The first is increasing the quality of data and imagery. Providing users with higher-quality images, internal pipe geometry, three-dimensional pipeline tracking data, and AI-assisted coding will dramatically increase productivity and accuracy of inspections. Adoption of these technologies will increase the effectiveness of a customer's rehabilitation decisions.

Secondly, we are focused on performance, usability and safety. These factors increase overall production, which is critical to help users with limited time and budgets meet their inspection goals, all while reducing operator stress and increasing employee safety. A utility's mission is often so much bigger than the scope of their resources, so in the future we will need to empower them to do more with the resources they do have available.

MSW: What's coming up for RapidView in 2021 and what can customers expect out of you in the future?

Sutton: In 2020 we began a large expansion of our headquarters in Rochester, Indiana. This expansion will dramatically increase the space available for service and software support. We are experiencing increased demand for our high-definition products, laser profiling, PANORAMO 4K technologies and 3D GeoSense pipeline tracking systems, and anticipate that this trend will continue. We are excited for what's in store in the next few years. ♦



When it's time to purchase an inspection system, communicate your goals and budget to equipment manufacturers, get to know the companies and try to understand the true cost of ownership of a piece of equipment.



Started in 1957, IBAK is the oldest and largest inspection equipment company in the world.

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MAKING A DIFFERENCE

Award-winning, globally known sewer official keeps 'fatbergs' top-of-mind in Ontario and beyond

By Ken Wysocky

Barry Orr's 12-year tenure as sewer outreach and control inspector at the London (Ontario) Environmental and Engineering Services Division has been filled with imaginative and humorous approaches to swaying public perceptions about FOG. (Photography by Bruce Bell)

Years ago, fats, oils and grease blockages in sanitary sewers in the city of London, Ontario, posed a fairly significant problem. But those issues declined substantially after Barry Orr, aka Captain FOG, and his team developed innovative communication and outreach programs that dramatically moved the needle on public awareness.

During his 12-year tenure as sewer outreach and control inspector in the city's Environmental and Engineering Services Division, Orr has led a variety of imaginative and whimsically humorous approaches to swaying public perceptions about FOG, with programs that build awareness about the importance of protecting the city's roughly 869 miles of sanitary sewers.

There are programs with catchy acronyms for names, like PIE and WIPE. A FOG-reduction effort built around residents using compostable paper coffee cups has diverted 15 tons of FOG from sewer lines since 2013. Another program employs a sticker to remind people that toilets aren't garbage cans. And those are just the tip of the fatberg, so to speak.

Along the way, Orr also has made more than 500 presentations at community events and to civic organizations, professional groups, high schools and colleges, spreading the gospel of sewer-system preservation and environmental protection.

"I've probably talked to more than 50,000 students from kindergarten to universities," he says.

In addition, Orr has served for years on an international panel that's been trying to get manufacturers to stop labeling their disposable wipes as "flushable."

Orr's tireless efforts, which also include podcasts and television appearances, inspired the creation of a heroic



PROFILE:
Barry Orr

TITLE:
Sewer outreach and control inspector

UTILITY:
London (Ontario) Environmental and Engineering Services Division

HONORS:
WEF Collections System Award

“We’ve saved at least \$100,000 annually in expenses because of this proactive approach.”

Barry Orr



Barry Orr rakes a solids bin at one of the city’s wastewater treatment plants.

comic book character, Captain FOG, aimed at informing children about the perils of sewer abuse.

To recognize his efforts, the Water Environment Federation awarded Orr a Collections System Award in October. The honor is presented to individuals for their contributions to the advancement of state-of-the-art wastewater collections.

“Orr’s efforts on policy and innovation have contributed to his global reputation, but his ability to reach the public and communicate the importance of sewer-related issues is perhaps his greatest strength,” WEF stated in a press release. “He continuously promotes the professional recognition of the collections system field during his numerous podcasts, interviews and television appearances.

“Whether the discussion is about toilets, grease, wastewater, stormwater, ‘fatbergs’ or so-called ‘flushable products,’ Orr is pivotal in the conversation. He has tirelessly increased the awareness of and respect for sewer collections systems and personnel.”

Orr says the award is absolutely humbling, but he’s elated that the little things he’s been doing are making a difference in his community and beyond.

“It’s exhilarating that people around the globe are listening to what we’re doing here in the city of London.”

Working his way up

The London EESD hired Orr in May 1994 as an operator at one of the city’s wastewater treatment plants. He then held acting supervisor and chief operator roles until 2008, when he was asked to assume responsibility for enforcing sewer-related regulations and creating public-education programs.

“No one had really been communicating how important it is for the community to pro-

tect the sewer system and the value it provides,” he says. “Because sewers are underground and not visible, people don’t appreciate them — until there’s a blockage.

“So we decided to be proactive instead of reactive about communicating the importance of the sewer system and how citizens and industries and commercial sectors can help to protect it.”

To do that, Orr established an over-arching program called Protect, Inspect and Educate. One of the program’s first targets was grease interceptors, which in 2008 — the year the program started — contributed to 40% of the sanitary sewer system’s overflows.

By educating restaurant owners and food-service operations about best practices for maintaining interceptors, along with developing a citywide inspection program, London has experienced no FOG-related overflows in five years.

“We whittled a list of 101 hot spots down to 26, for about a 75% reduction,” Orr says.

The initiative included a program called the Washing Initiative to Protect the Environment, or WIPE. This involved educational presentations that encouraged food-service establishments to stop scraping food waste off plates and down sink drains.

“We gave many, many presentations to food-service staffs and they were very receptive,” Orr says. “This collaborative approach was very successful. In fact, Canada’s largest chain of coffee stores, Tim Hortons, ran a national training program for their employees based on information we provided.”

Improving compliance

In addition, the inspection program revealed that 80% of interceptors at an estimated 2,000 food-service operations were noncompliant, with parts missing or lines completely rotted-out or even removed, Orr says.



A lobby display includes free 32-ounce compostable cardboard cups for FOG collection, as well as a comic strip panel featuring Orr, aka Captain FOG.

After an intense compliance campaign in which businesses were told to make interceptor repairs, noncompliance now is at about 20%. “With 2,000 locations and a small staff, it’s hard to get to all of them,” he says of the remaining noncompliant interceptors.

The compliance program also yielded another dividend. With significantly fewer emergency calls for sewer backups caused by FOG, the division is saving money on employee overtime pay for emergency-service calls. Furthermore, fewer emergencies free up employees to do other things, which boosts productivity.

“We’ve saved at least \$100,000 annually in expenses because of this proactive approach. And even though the city keeps growing (it’s population is around 400,000), we haven’t had to hire new staff because we’re allocating labor more efficiently.”

The EESD also maintains a stringent cleaning and inspection program for the city’s sewer system, which in addition to sanitary sewers includes 821 miles of stormwater sewers, nearly 36,500 manholes, 32,00 catch basins, five wastewater treatment plants and 38 pumping stations.

It also features 100 stormwater management facilities that collect surface-water runoff, then release it at a controlled rate to help control erosion and flooding.

Ready to roll

For cleaning sewer lines, the division relies on three water-jetting trucks and two combination sewer trucks. Sewer Equipment CO. of America built the jetting trucks on International chassis.

Sewer Equipment also built one of the two combination sewer trucks; it features an International chassis, a 1,200-gallon water tank and a 12-cubic-yard debris tank. The other truck was

“We’re harnessing something that was going down drains or into landfills and turning it into energy.”

Barry Orr

outfitted by Vactor and features a 1,200-gallon water tank and a 12-cubic-yard debris tank.

“We flush about 683 miles of sanitary sewer lines a year, even though our tasks keep increasing as the city keeps expanding,” Orr says. “We’re doing really well ... we have one of the highest ratings in Canada for cleaning lines and preventing overflows.”

The city also owns three catch-basin cleaning trucks built by Vacall on Freightliner chassis with 10-cubic-yard debris tanks.

Renewable energy

To reduce FOG issues on the residential side of the sewer system, Orr came up with a creative solution in 2013: The Your Turn program, centered on a 32-ounce compostable cardboard cup that residents use to collect FOG instead of putting it down drains.

When the cups are full, residents can take them to one of four so-called enviro-depots — sites where people can bring yard waste, recycle electronic devices, dispose of fluorescent light bulbs and so forth. While they’re there, residents also can pick up a new cup, Orr explains.

The program is effective: Since 2013, residents have collected an estimated 15 tons of FOG that otherwise likely would’ve gone into sewer lines, he says.

Better yet, four privately owned anaerobic-digester plants collect the full cups at the enviro-centers, then put the FOG into the digesters. A byproduct of the anaerobic digestion process is methane gas, which is used to power turbines that produce electricity.

“It’s really amazing when you think about it,” Orr says. “We’re harnessing something that was going down drains or into landfills and

turning it into energy. If a resident turns in 10 cups, that produces enough electricity to power a laptop for 30 days or a refrigerator for 10 days. This is really impressive in my world — taking FOG that was causing sewer blockages and turning it into renewable energy.”

Widespread participation

So far, the EESD has distributed more than 125,000 cups, which feature instructions and fun facts printed on the exterior. The division partners with other agencies, such as libraries, churches and fire departments, to distribute the cups, which also are included in Welcome Wagon-like gift packages for new residents. In addition, community groups volunteer to collect cups at apartment buildings.

“It’s been a fascinating social experiment. We’ve even had students from environmental clubs at local schools organize cup pickups. It’s been amazing.”

The key to participation is public engagement and good communication, Orr says.

“You tell people that you want to do the right thing for the environment, then tell them what they can do to help and make information readily available. They want to do things like this.

“If it makes financial and environmental sense to them and it attaches them to their community, it becomes a no-brainer for them to participate.”

The EESD supports other initiatives, too. One example is a Toilets Aren’t Garbage Cans campaign, featuring a sticker that reminds people to put only human waste and toilet paper into toilets. The stickers get distributed to businesses, residents, hospitals and other places.

STRAIGHT OUT OF THE COMICS



Of all the things Barry Orr ever dreamed about achieving as a steward of the sewer system in London, Ontario, becoming a comic book superhero probably wasn’t on the list.

Nonetheless, the sewer outreach and control inspector in the city’s Environmental and Engineering Services Division has gained a small measure of fame as Captain FOG, a caped crusader who defends sewer systems from “fatbergs.”

It all started during a conversation about five years ago with an executive at SwiftComply, which makes software that helps municipalities monitor businesses’ compliance with sewer cleaning regulations. The conversation turned to fatbergs as well as a children’s graphic novel, *The Adventures of Fatberg*, created by illustrator Nathan Wright. The book features Fatberg, a loveable and misunderstood sewer creature that eventually became the “spokesblob” for SwiftComply.

Orr already was familiar with the book, having used it as part of presentations about sewer systems for school children. So when the executive offered to connect Orr and Wright, Orr readily agreed.

As a result of that collaboration, Wright wrote another graphic novel, *The Attack of the Fatbergs*, used as a promotional piece for SwiftComply.

The star of the book is Captain FOG, aka Barry Orr, wastewater operator by day, protector of sewer system infrastructure by night. Then a Canadian magazine called *Water Canada* commissioned Wright to create a series of comic strips that also featured Captain FOG, a nickname colleagues created for Orr years earlier.

Captain FOG also appears in coloring books created by Wright; the EESD hands them out to children at school presentations and other events, Orr says.

“I never dreamed I’d be a comic-book character. But I’m really happy about the fact that it gets people to listen and learn about the issues facing sewer systems, as well as helps them change their ways to protect the environment.

“It’s quite exciting to see all of the unique ways we’ve been able to engage the public and make changes, including Captain FOG.”



The EESD is proactive with repair and maintenance of its sanitary and stormwater systems, which has reduced emergencies and boosted productivity.



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"We probably have more than 25,000 stickers throughout the city," Orr says.

Another outreach program centers on evidence-based projects and experiments that Orr does with students at local schools. The projects show students that there's a connection between their toilet-flushing behaviors and the environment.

Orr credits "a really great team" within the division, along with collaboration with other municipal entities like the solid-waste and fire departments, for coming up with the innovative ideas.

"Whatever you do, it has to be engaging," he advises. "Just printing up some pamphlets doesn't seem to work all that well. You have to find unique ways to get the public's attention."

Deep respect

Orr's environmentalism stems from growing up on a farm outside London, where as a youth he spent countless hours with his black Labrador, Chris, exploring along the banks of the Sydenham River.

"I've had this connection with water from a very young age," he explains. "So as a young man, I wanted to protect this natural resource and my community, and it just so happened that my desire to do this and my love for water

Orr uses fatberg samples to help educate school and community groups.



"Whatever you do, it has to be engaging."

Barry Orr

turned into a very gratifying career path.

"I feel very fortunate because I truly love my job."

As a side bonus, the success of the various programs has made Orr a bit of an international figure in the sewer field. He's made presentations about the division's initiatives in Japan, Australia, The Netherlands, the United States and the United Kingdom, and routinely fields phone calls from municipal sewer officials around the globe.

Orr never imagined he'd become a global figure in the municipal sewer industry.

"All I wanted to do was serve my community. And I'm profoundly grateful to have so much fun doing this job while protecting this community for future generations." ♦

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UPDATING THE STANDARD

Certification programs get new revisions, expand to virtual classrooms

By Sheila Joy

NASSCO's Pipeline Assessment Certification Program continues to grow in a variety of ways. To date, NASSCO trainers have certified nearly 40,000 individuals in the proper assessment and coding of conditions, defects and other pipe features.

The COVID-19 pandemic presented the opportunity to expand PACP to include virtual classrooms, enabling students to become certified in PACP as well as ITCP (Inspector Training Certification Program) from the comfort of their own homes or offices. NASSCO is also expanding courses in South and Central America, as well as Canada and beyond.

This growth demands continual improvements to PACP and ITCP. This year NASSCO released PACP version 7.0.4 and is busy planning for PACP version 8.0. We are also updating ITCP for CIPP and Manhole Rehabilitation and are revising NASSCO's licensing and certification procedures for software vendors. Below are a few highlights of recent (or planned) updates to NASSCO's PACP and ITCP:

Pipeline Assessment

PACP version 7.0.4 was released on Oct. 1, 2020. This revision includes minor updates and both imperial and metric measurements to address a growing international audience. Spanish and French translations of this revision are in progress. A timeline has also been established for the release of PACP version 8.0 in early 2023. NASSCO has gathered suggestions and

recommendations to improve the program to meet the ever-changing needs of the industry, including new codes, grade alterations, photos, etc.

Inspector Training

NASSCO is also updating the ITCP for CIPP and ITCP for Manhole Rehabilitation manuals and training materials. With the help of multiple NASSCO committees including Health and Safety, Operations and Maintenance, and Manhole Rehab, as well as help from our trainers, we hope to release new materials sometime next year.

If you have any suggestions or comments regarding either program, please email heather@nassco.org. NASSCO's Infiltration Control Grouting Committee is also working on curriculum for a new ITCP for Grouting to bring this important technology to the forefront.

Software Licensing

NASSCO regularly works with companies that provide tools, including software, for the industries we serve, and we seek to encourage innovations that support the efforts of our members, clients and constituents. However, we must protect and ensure the proper use of our intellectual property rights and the quality of products that use NASSCO condition assessment codes. If you are a software vendor who uses PACP, LACP or MACP codes, please be sure to obtain a license by emailing heather@nassco.org. ♦

NASSCO (National Association of Sewer Service Companies) is

located at 2470 Longstone Lane, Suite M, Marriottsville, MD 21104; 410-442-7473; www.nassco.org

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

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Trainer: Gerry Muenchmeyer

(252) 626-9930 • gerry@muenchmeyerassoc.com

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Trainer: Brandon Conley

(574) 201-7704 • brandonconleypacp@gmail.com

December 2

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Trainer: Tim Back

(513) 253-8461 • timbacktwo@gmail.com

December 7

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Maryland, 20707

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Trainer: Ed Carpenetti

(443) 930-3591 • ecarpenettipsu@gmail.com

December 8

Henderson, NV

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Trainer: Marilyn Shepard

(916) 899-8961 • mshpard1@hotmail.com

December 8

Manchester, NH

Includes: MACP, PACP, LACP

Trainer: Laurie Perkins

(888) 621-8156 • laurie.perkins@wright-pierce.com

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Trainer: John Jones

(678) 527-4212 • plumblineconsultant@gmail.com

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Includes: PACP, LACP, MACP

Trainer: Don McCullers

(727) 423-3392 • donmccullers@tampabay.rr.com

December 14

Lawrenceville, GA

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Trainer: John Jones

(678) 527-4212 • plumblineconsultant@gmail.com

December 14

Cincinnati, OH

Includes: ITCP - MANHOLE REHABILITATION

Trainer: Tim Back

(513) 253-8461 • timbacktwo@gmail.com

December 15

Cincinnati, OH

Includes: PACP, LACP, MACP

Trainer: Jerry Weimer

(513) 659-5008 • jerryweimerconsulting@gmail.com

December 15

VIRTUAL CLASS 8:00 AM EST

Includes: ITCP - CIPP

Trainer: Gerry Muenchmeyer

(252) 626-9930 • gerry@muenchmeyerassoc.com

March 9

Roanoke, VA

Includes: ITCP - MANHOLE REHABILITATION

Trainer: Tim Back

(513) 253-8461 • timbacktwo@gmail.com

March 10

Roanoke, VA

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Trainer: Gerry Muenchmeyer

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March 23

Columbus, OH

Includes: ITCP - MANHOLE REHABILITATION

Trainer: Tim Back

(513) 253-8461 • timbacktwo@gmail.com

March 24

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OTHER CLASSES FORMING

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

Liquid Environmental acquires FloHawks Plumbing + Septic

Liquid Environmental Solutions announced that the company has acquired the assets of FloHawks Plumbing + Septic that serves the Pacific Northwest. Terms of the transaction were not disclosed.

FloHawks, based in Puyallup, Washington, will continue to operate under the FloHawks name. FloHawks customers include owners of sewer systems, septic systems and grease traps/interceptors that must be serviced regularly to prevent sewer spills and to protect the public wastewater collections system.

NCPI introduces operations and maintenance handbook

The National Clay Pipe Institute has published a comprehensive manual for cleaning and maintaining any sanitary sewer system. The handbook includes SOPs derived from NCPI's Kent Carlson's more than 30 years' experience with the city of Los Angeles, and a guide to the use of aggressive cleaning techniques to achieve the goals of the CMOM program and reduce SSOs. The full handbook is available on the homepage of the www.ncpi.org website or printed copies are available from NCPI member companies.

RIDGID and Greenlee bring experts in JobSite Live series

Emerson's RIDGID and Greenlee brands are putting its experts in front of people everywhere with JobSite Live, a new virtual event series that gives professionals the chance to interact with their peers and ask questions about everything related to the skilled trades. The series kicked off with a RIDGID Instagram Live event dedicated to the latest trends in diagnostic and monitoring technologies, including RIDGID cameras with TruSense technology. The interactive question-and-answer format allowed viewers to learn how certain tools can help them work more efficiently on the job site.

Mary Joyce Ivers assumes presidency of APWA

The American Public Works Association announced Mary Joyce Ivers, deputy public works director for Ventura, California, has been sworn in as president of APWA. Affirmed by APWA's more than 30,000 members, Ivers will lead the organization for the 2020-21 term. She succeeds APWA President William Spearman III, P.E.



Mary Joyce Ivers

Woolpert's David Wegner named to WRRC Advisory Committee

Woolpert Senior Strategic Consultant David Wegner was named to the External Advisory Committee for the Water Resources Research Center at the University of Arizona. The WRRC is part of the National Institutes for Water Resources network, which addresses water-related concerns for individual states and the nation. The NIWR network is governed by U.S. Geological Survey and represents the only federal-state program focused on applied water resources research, education, training and outreach.

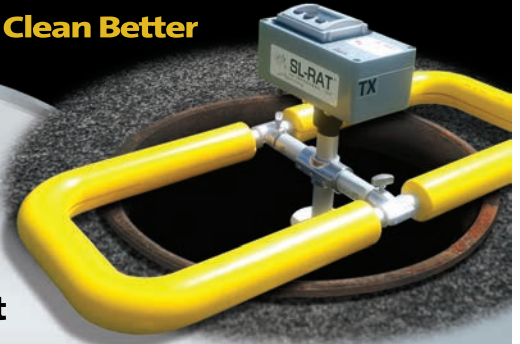
IPEX opens Illinois distribution center

IPEX held a grand opening of its new Joliet distribution center, southwest of the Chicago metropolitan area. The new facility has a starting size of 50,000 square feet, with a possible expansion to over 200,000 square feet, increasing IPEX's available warehouse space in the region and bringing more products closer to customers and end users. ♦

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Product Spotlight



System simplifies valve data collection

By *Tim Dobbins*

Data collection on critical assets like valves and hydrants can be a time-consuming task when field crews are recording by hand, but technological advancements have increased the efficiency of this work significantly over the past few years.

Exercising valves in a water distribution system is a vital part of ensuring their health and long-term function, and is best done on a routine basis. In the past, field workers recording and storing data on numerous valves in large systems did it by hand. The ValveSTAR Data Collection System was designed by Hurco Technologies to take the burden of data collection off your field crew, allowing them to focus on exercising valves in a time-efficient and accurate manner.

Hurco's Infrastructure Management System Mobile software powers the ValveSTAR and utilizes a full version of Windows software for fast and detailed collection and reporting. Data collected is fully exportable, providing detailed reports to manage water distribution systems, and it can also be configured for fire flow testing, unidirectional flushing, C-factor testing and hydraulic modeling.

With ValveSTAR, users can track critical information such as applied peak torque, revolution number at peak torque, number of revolutions required to open and close a hydrant or valve and GPS coordinates.

IMS Mobile clearly displays information for torque, revolution count, revolution speed, number of cycles and can also be used to test data live. Torque can be recorded continuously throughout the exercising activity or users have the option of recording peak torque and the revolution in which it occurred. Torque alarms will alert users when the preset torque has been met, and the exerciser will stop and return to the fully open position automatically to help prevent damage to the valve or hydrant.

ValveSTAR works using an integrated GPS system with 900 MHz of wireless communication. An optional ValveSTAR Auto is available for hands-free valve exercising, but manual controls remain in case of emergency situations. Operators can simply select a valve and calibrate torque and speed, then start the exercise from the comfort of their vehicle or a location up to 100 feet away.

Not only does using software eliminate manual recording time, allowing more valves or hydrants per day, it also eliminates the risk of human error by automatically keeping a detailed log of all valve and hydrant exercising activities that can be downloaded to any commonly available spreadsheet or database application. **800-888-1436; www.hurcotech.com.**



OTEK NTM-X explosion-proof digital panel meter

The NTM-X digital panel meter from OTEK features an explosion-proof metal housing that meets industry standards EX and ECex1M2 Case FM. Excellent for applications in which instrumentation shielding is important, the single-channel bar-digital meter carries dimensions of 4.3 inches wide and 3.9 inches high with a 360-degree rotating display. It is available in loop 4-20mA, AC signal or

external power options. Ideal as a one-for-one replacement for older and/or obsolete explosion-proof meters, the NTM-X has an automatic tricolor bar display with intensity control and 4 digits at 0.35-inch apiece. The digital panel meter features an input fail alarm with runtime stamp that alerts in the event of a dead or lost signal. **520-758-7900; www.otekcorp.com.**

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CAS DataLoggers OdaLog gas data loggers

CAS DataLoggers introduces OdaLog portable gas data loggers, from Thermo Fisher Scientific, for wastewater odor and hydrogen sulfide control. OdaLog instruments are used extensively in the wastewater industry to record the level of hydrogen sulfide and other gas emissions in pumping stations, manholes and sewer lines. The loggers are designed to survive the humid and corrosive conditions found in these areas while recording ppm gas levels. OdaLog provides the latest sensor technology and weather-proof seals to prevent damage. All three OdaLog models now include Bluetooth communications and are supported with the OdaStat software, an easy-to-use application for configuring the devices and downloading stored data. **800-956-4437; www.dataloggerinc.com/products/odalog.**

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CUES Micro pan-and-tilt camera

The CUES Micro pan-and-tilt camera is designed to work with the LAMP II lateral launcher as an optional pan-and-tilt push camera. The camera is steerable to navigate through multiple wyes when traversing 45- or 90-degree bends or sweeps. It can be easily deployed with or against the flow. The camera includes a detachable

steering wand, an automatic, powered, self-leveling camera head, built-in lens wiper and two banks of LEDs with variable light intensity. Additional features include 360-degree pan and tilt, and built-in sonde with switchable frequencies. **800-327-7791; www.cuesinc.com.**



Makita LXT brushless 9-inch power cutter

The 18V X2 (36V) LXT brushless 9-inch power cutter from Makita U.S.A. has the power to cut through concrete, masonry and metal materials with all the benefits and convenience of cordless operation. The power cutter is available as both a bare tool and a kit. The bare tool has a maximum cutting depth of 3 1/2 inches, which allows for single-pass cuts in many common materials,

including standard residential 4-inch concrete slabs, common 3 1/2-inch paver/blocks, 3-inch Schedule 40 pipe and 3-inch conduit. Active Feedback-sensing Technology turns the motor off if rotation of the wheel is suddenly forced to stop. An electric brake stops the wheel in 4 seconds or less allowing for faster repositioning. **800-462-5482; www.makitatools.com.** ♦



STORMWATER MANAGEMENT

By Craig Mandli

Catch Basin Hoods/Traps/Filters

Cretex Specialty Products PRO-RING

PRO-RING from **Cretex Specialty Products** is a concrete-alternative manhole and catch basin grade-adjustment system that is available in round, square and rectangular shapes. The rings are manufactured from expanded polypropylene, which is renowned for its strength-to-weight ratio, durability, chemical resistance and long service life under harsh conditions. One person can install the watertight system to within 1/4 inch of finished grade in just minutes. Where concrete rings break and may cause injury, PRO-RING system eliminates the hazard, helping minimize the risk of injury. A 6-inch unit weighs just 14 pounds and stands up to all kinds of physical abuse. It dramatically speeds up manhole installation and repair time. Manhole repair sites can be opened, repaired and closed in one day, reducing overall costs from 20 to 30%, based on conditions. Angle rings are available to match slopes, which eliminates the need for mortar and shimming. **800-345-3764; www.cretexseals.com.**



Collection Systems

RELINER/Duran Modular Manhole Invert Channel System

RELINER/Duran Modular Manhole Invert Channel Systems use molded fiberglass flumes with smooth sewer pipe interfaces to rehabilitate inverts without flow interruption. The field-installed modular components bolt together inside the manhole and serve as the form for a new concrete bench. They eliminate the inconsistencies associated with field-formed concrete channels. The full-depth lined channels are high-flow and easy to clean and maintain. Standard 8- and 12-inch-depth channel sections fit through a 24-inch manhole frame and will accommodate 6- through 12-inch pipes. Larger sizes are available. Parts are selected based on the unique configuration of each manhole. **800-508-6001; www.reliner.com.**



I&I Detection/Prevention

Avanti International AV-100

Avanti International's AV-100 chemical grout is used to stop leaks, stabilize soil and rock, and permanently control groundwater. And now it comes in 30-pound bags. Using two 30-pound bags in a 60-gallon batch gives

a 12% grout concentration without having to recalculate mix components. AV-100 is an ultralow viscosity, chemically reactive gel that can travel anywhere water can travel, and it cures to create an effective, long-lasting water barrier while providing soil stabilization. It is designed to stabilize soils and stop water infiltration in manholes, mainlines, laterals, tunnels, mines and other underground structures. **800-877-2570; www.avantigrout.com.**



CUES Steerable Pipe Ranger II

The CUES Steerable Pipe Ranger II

is a versatile robotic camera transporter designed to traverse silt, mud and debris commonly found in storm and sanitary sewers. It is designed with single-point wheel removal to facilitate speedy configuration changes for various pipe diameters and conditions. Optional high traction tires are available for extreme slippery conditions. The unit is designed to operate with all CUES inspection systems with up to 2,000 feet of single-conductor or multiconductor cable to inspect 7- through 72-inch pipe. **800-327-7791; www.cuesinc.com.**



Optional high traction tires are available for extreme slippery conditions. The unit is designed to operate with all CUES inspection systems with up to 2,000 feet of single-conductor or multiconductor cable to inspect 7- through 72-inch pipe. **800-327-7791; www.cuesinc.com.**

Envirosight ROVVER X SAT II

Envirosight's ROVVER X SAT II lateral launch inspection crawler maneuvers around obstacles and challenging pipe geometries to rapidly detect

gas line cross bores in sewers and other hard-to-reach defects. The crawler can travel as far as 984 feet down mainlines at speeds up to 98 feet per minute, then launch its camera probe as far as 147 feet down adjoining service connections at up to 23 feet per minute. Its belt-driven push mechanism minimizes wear on the push-rod while maximizing pushing force. Steerable eight-wheel drive makes it easier to move past debris, roots, offsets and protruding taps. During launch, the pan/tilt lateral camera with detachable steering wand navigates through bends and branches in lateral lines. The crawler comes with wheels of varying sizes that interchange without tools, and a launch chute that accepts off-the-shelf PVC tubes to adapt to different pipe diameters. The complete range of configurations offers launch capabilities in pipes from 6 up to 80 inches. **973-252-6700; www.envirosight.com.**



GE Digital Proficy iFIX 6.1

Proficy iFIX 6.1 from **GE Digital** enables smart operators by leveraging the latest technologies to deliver greater efficiency for operations while speeding time-to-insight for system integrators. It includes a native OPC UA client driver, web-based configuration with automatic tag population in its database, and high-performance alarm-related Dynamos to decrease deployment time while increasing operational efficiency in a secure-by-design method to improve equipment uptime and reduce cost and risk. In addition to an HTML5 optional interface, it has a graphical engine to modernize the HMI/SCADA experience to reduce operator errors and improve response time to events. **800-433-2682; www.ge.com/digital.**



Hurco Technologies Power Smoker 2

The **Power Smoker 2** from **Hurco Technologies** quickly locates leaks in new and existing plumbing systems. The machine is connected to a cleanout and smoke is sent through the system to reveal any problem areas. The system uses LiquiSmoke, a laboratory-tested safe smoke that costs cents per minute to use and has an indefinite shelf life. When the test is complete, the smoke dissipates without leaving any odor or residue. **800-888-1436; www.hurcotech.com.**



Prime Resins Primecell Kit

The **Primecell Kit** from **Prime Resins** is composed of Soakem Oakum (a dry oakum) soaked in a hydrophilic polymer solution. When wet and either packed or worked into a joint or crack, the resin will foam to form a flexible and tight joint to stop groundwater infiltration. It reacts with water and becomes a watertight rubber-like nontoxic composite. The oakum cord gives strength and density to the composite and makes the application of the resin easier, especially when gushers are present. Primary applications include manholes, culverts and stormwater structures. The kit includes one 10-foot strip of Soakem Oakum, 48 ounces of resin, two insertion sticks, and eight pairs of vinyl gloves. **800-321-7212; www.primeresins.com.**



Reline America RE4000 UV GRP

The **RE4000 UV GRP CIPP** curing unit from **Reline America** has a built-in Total Quality Management system with a QR code reader that automatically sets all system curing parameters based on



the manufacturer's specifications, as well as a tamper-proof reporting and QC monitoring system. Pre-cure CCTV inspection of the liner is enhanced with the onboard pan-and-tilt camera. It is equipped with six 4,000-watt UV light bulbs providing up to 24,000 watts of UV light. It allows for curing of liners over 24 mm in thickness and greatly reduces the cure time, allowing for quicker return to service. The built-in model has 1,100 feet of cure cable, while the portable unit has 650 feet of cable. The portable unit allows curing in hard-to-access areas. **276-496-4000; www.relineamerica.com.**

Sauereisen SewerGard 210XHB

SewerGard 210XHB from **Sauereisen** is an epoxy protective lining specifically formulated for municipal wastewater environments. It provides a chemical-resistant barrier for concrete, masonry, brick and steel substrates. As a 100% solids epoxy polymer, it sets fast and provides a quicker return to service. The high-strength lining enables high-build capabilities from 10 up to 300 mils in a single coat, reducing the need for a second coat. It is moisture-tolerant to accommodate damp substrates and may be applied to SSD substrates, reducing time spent waiting for the substrate to dry out. It is also resistant to hydrogen sulfide, sulfuric acid, microbiologically induced corrosion and wastewater treatment chemicals. Installation is completed using plural-component spray equipment. **412-963-0303; www.sauereisen.com.**



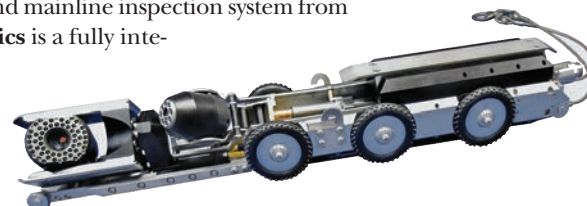
Sealing Systems Flex-Seal 2.0

Flex-Seal 2.0 from **Sealing Systems** is an all-purpose sealant that adheres to many surfaces and has over 800% elongation. It is designed to prevent inflow and infiltration and to provide corrosion protection at the grade adjustment ring or joint section of manholes and catch basins. It is 100% safe and Prop 65 compliant. The internal seal is manually applied using a paintbrush, and the kit is designed to cover 12 vertical inches on a 27-inch-diameter manhole or 6 vertical inches on a standard catch basin. **800-478-2054; www.ssisealingsystems.com.**



Subsite Electronics lateral and mainline inspection system

The lateral and mainline inspection system from **Subsite Electronics** is a fully integrated single-conductor-technology lateral launch system that performs mainline and lateral pipeline inspections simultaneously. This second-generation system uses picture-in-picture or dual video monitors and can inspect mainlines up to 500 feet in length and laterals of up to 200 feet. It can be used to inspect mainlines from 6 to 24 inches and lateral lines from 4 to 8 inches in diameter. It has a 40-1 zoom, pan-and-rotate mainline camera with auto



iris and autofocus, a color rear-view camera, tilt connector for easy deployment, and a high-resolution RodStar lateral camera. It offers a dual video monitor view format that lets the user view the mainline and lateral simultaneously. The six-wheel-drive tractor has three forward speeds, reverse and freewheel. **800-846-2713; www.subsite.com.**

Superior Signal smoke generator

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



JWC Environmental Channel Monster

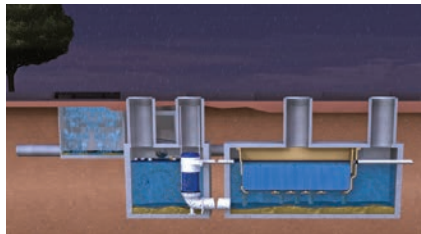
The **Channel Monster** from **JWC Environmental** uses rotating drums to capture solids and directs them to the Muffin Monster dual-shafted grinder. The result is a high-flow system that will shred rags, rocks, wood and other trash into small pieces that can pass harmlessly through pumps, pipes and process systems. The sewage grinder is designed to capture and grind down the toughest wastewater solids in high-flow systems. Common applications include protecting pumps in lift stations and grinding up solids at the plant's headworks. There are multiple versions available to meet a variety of needs including the 2.5 heavy-duty model for higher flows, as well as combined sewer applications where first flush storm loading is possible; and the 3.0 extreme duty model for combined sewer applications with the highest flows. **800-331-2277; www.jwce.com.**



Pre-Treatment

BioMicrobics BioSTORM

The pre-engineered **BioSTORM** stormwater treatment system from **BioMicrobics** effectively filters and captures more than 90% of the common pollutants, such as trash, oils, sediment and other suspended solids that would otherwise end up in the combined sewer overflows, waterways or receiving environment in flows from 0.5 to 10 ft³/s. Used for primary and secondary applications, the versatility of the off-line, two-phase design consists of a StormTEE deflector screen to physically separate trash (cigarette butts, etc.) and large debris, and a fixed-film media that acts to separate liquids from solids and oil from water. They can be used together to form a complete system or separately for different sustainable site applications. The system allows for design flexibility and mounts easily in local precast tanks with minimal maintenance. **800-753-3278; www.biomicrobics.com.**



Stormwater Management

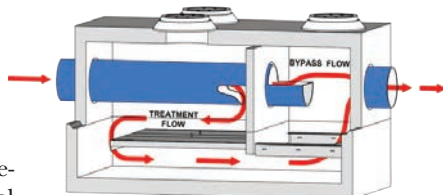
Hach Data Delivery System

The **Data Delivery System** from **Hach** is an efficient flow-monitoring service tailored to deliver relevant data when needed. For a fixed monthly fee, it provides all of the equipment, data transmission and technical support needed to acquire flow data — delivered in real time for immediate analysis. It allows operators to know their flow status anytime, anywhere, for either long- or short-term applications. **800-368-2723; www.hach.com.**



Environment 21 StormPro

The **StormPro** from **Environment 21** is a vault configuration hydrodynamic separator that has been certified and verified through NJCAT and NJDEP. Its single-structure design with internal bypass allows it to help meet the EPA goal of 80% net annual TSS removal. Its shallow sump design ensures reduced excavation costs and ease of access, mitigating the need for confined space entry during maintenance. Its internal bypass was designed to allow the required treatment flow to be routed through the unit, while bypassing higher flows to minimize re-entrainment of settled particulate matter. Unlike other hydrodynamic separators it doesn't require the purchase of any inserts. All internal components can be easily produced by concrete precasters. **800-809-2801; www.env21.com.**



PRIMEX Arc Armor

Multiple-compartment **Arc Armor** enclosures from **PRIMEX** reduce the risk of injury resulting from arc flash and electric shock by limiting access to electrical equipment capable of producing arc flash incidents. The control and power circuitry are isolated in separate compartments, where only control voltage is present (120-volt max), thus preventing unnecessary operator exposure to arc flash. The enclosures are designed to reduce exposure to arc flash and arc blast with a multiple-compartment design and single-wall construction. There is a single-sheet drip cap with rolled edge drip loops on free-standing models. They have 304L stainless steel construction, electrostatically precipitated white polyester powder coating that reduces heat buildup, and three-point padlockable operating handles. Free-standing, wall-mount and pole-mount versions are available. **844-477-4639; www.primexcontrols.com. ♦**



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Nestled in the Panhandle of northern Idaho, South Fork Coeur d'Alene River Sewer District is located in a vibrant community approximately 30 miles East of Coeur d'Alene. We are searching for a Wastewater District Manager to lead our experienced team and serve our growing Silver Valley community. The District has undergone significant changes to modernize our operations with up-to-date equipment and technology. The new District Manager will continue to make improvements to take the District to the next level. All of this in Northern Idaho which offers an abundance of recreational opportunities and amazing scenery, providing a quality lifestyle and enjoyable working environment. The board of directors is accepting applications for the District Manager position through December 15, 2020. Applications and a full job description can be found on our website at www.southforksd.com. (M12)

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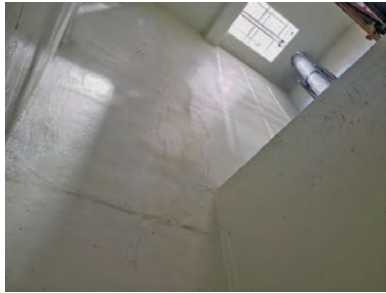
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High-build epoxy coating a solution for lift station

Problem:

A Florida utility needed to coat a concrete lift station/wet well. The structure measured 21 by 21 feet and contained two tanks. The city was searching for a solution to line and protect the structures effectively before the typical 30-day concrete cure time.



Solution:

Universal Painting Corp. was able to deliver the desired solution using **Epoxytec** products. **Mortartec Ceramico** was applied at 1/4-inch minimum thickness. The product was kept under humid conditions while curing and away from direct sunlight to avoid dry-out conditions. **CPP Sprayliner** was applied as a protective topcoat.

RESULT:

The application qualities of Epoxytec allowed the project to be completed on time. “It has been the easiest plural application we have ever had,” says John Aldrich, president/CEO of Universal Painting Corp. “We absolutely love the surfacer. We are planning on submitting the product for some thin-film systems whose manufacturer doesn’t have an equal.” **877-463-7699; www.epoxytec.com.**

Stormwater issues rectified with resident-friendly wetlands

Problem:

The city of Lenexa, Kansas, needed a watershed management master plan for flood control. A number of houses downstream of Clear Creek had been impacted by stream erosion and flooding. The city needed a solution that would reduce flooding incidents for area homeowners.



Solution:

Olsson developed a concept for the 130-acre tract that coupled wetlands with resident-friendly features such as nature trails and a 40-acre recreation area. The plan called for a watershed upstream. The firm worked with the city’s stormwater engineers to create two regional, water-absorbing wetlands and incorporate existing stormwater best management practices. The plan also incorporated green infrastructure to improve water quality issues, and relocated a 1,300-foot-long, 18-inch-wide sanitary sewer line while navigating around a 42-inch water main owned by a neighboring city.

RESULT:

The plan is working as planned and is reducing flooding, improving water quality for area residents, and providing Lenexa citizens with more greenspace and recreational opportunities. The plan connected adjacent developments with a mile of trails and added more recreational amenities. The Clear Creek project is still going strong. The wetlands provide water treatment; the detention basin provides flood control; and both provide residents peace of mind — not to mention access to walking trails. **402-474-6311; www.olsson.com.**

Remote canal monitoring system improves overflow response time



Problem:

Lake Worth Drainage District operates approximately 500 miles of canals and 20 major water control structures across more than 200 square miles in southwest Florida. The district was hampered by an outdated operational philosophy and lacked systemwide integration with weather and tidal data. Operators found themselves continuously struggling to react quick enough to protect their customers from overflows.

Solution:

The district deployed **SmartCover** to remotely monitor its canals while integrating local radar and tidal data with National Oceanic and Atmospheric Administration rainfall information along with the SCADA and remote-control gate operation.

RESULT:

This revolutionized the district’s response time. “Before SmartCover, we would drive out to check conditions, call the office, make our operational decisions, drive to the gate, operate the gate. It was a two-hour exercise. With SmartCover, we’ve reduced response time to minutes,” says Tommy Stroud, the district’s executive director and district engineer. Hurricane Irma put the SmartCover system to the test in September 2017. Canal level visibility, in addition to rainfall intensity and duration, enabled the district to monitor flow, predict peak stages and manage its infrastructure during this historic storm event. The system allowed it to minimize the impact of flooding and operate with no service interruptions before, during or after Irma. **760-291-1980; www.smartcoversystems.com.**

Lining used to keep storm pipe from collapsing

Problem:

The city of Carmel, Indiana, was in a dire situation when a rusted water pipe ruptured, creating a massive sinkhole in the road at a major intersection. Fortunately, officers arrived at the scene and were able to secure the area surrounding the 12- by 18-foot hole before any accidents occurred. The storm pipe was removed and replaced, but the city was faced with another obstacle:



CASE STUDIES

STORMWATER MANAGEMENT

There was another 220 linear feet of storm pipe from the replaced section to a drainage lake that could collapse at any time.

Solution:

Removing the remaining pipe was not a practical option due to the location of utilities in the area. Conco Spray Solutions provided the city with an alternative solution: a structural liner that would hold infiltration back and provide a long-term structural solution with a 50-year design life. Time was of the essence so after the lake was pumped down, the pipe was dried and cleaned to remove debris. The Conco Spray team pressure washed the pipe surface at 5,000 psi. Mortar was used to repair rusted voids in the invert. As voids were filled, more leaks became evident so chemical grout was utilized. The ASTM F1216 formula was calculated using a fully deteriorated pipe for a 50-plus-year design life. **Sprayroq's SprayWall** lining was applied at a thickness of approximately 630 mils.

RESULT:

By providing a quick application and not removing the existing structure, Conco Spray Solutions minimized the disruption of traffic flow and preserved the natural landscape. 205-957-0020; www.sprayroq.com.

Flushing tipping buckets keep basin clean

Problem:

More and more new developments and paved surfaces were straining the water treatment plants in Napanee, Indiana, as larger volumes of runoff water flowed into the combined sewer overflow system. In response, the city decided to build a large retention basin to withhold the great quantities of water discharged during storm events. The excess storm flow was full of sediments and debris accumulated over the whole runoff path. Once storms passed, the basin emptied and the debris settled on its floor. Accumulation of such debris is a real problem as it diminishes the potential retention ability of the tanks.



Solution:

Veolia Water Technologies supplied flushing tipping buckets in order to wash the floor of the basin with a powerful wave that removes all of the sediments in only one flush. This keeps the basin clean and empty, ready to accept big loads of water over and over again.

RESULT:

Storm runoff has been stopped from entering public waterways (streams, rivers and ditches) and as a result the city is preserving the environment, limiting the presence of harmful bacteria like E.coli and ensuring that storm sewers and wastewater remain separate. 855-564-3747; www.veolia.com. ♦

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WORTH NOTING

PEOPLE/AWARDS

Allword Project Management, a professional and technical engineering, geospatial and consulting solution provider, received a \$19 million, four-year contract to lead the stormwater program for the city of Memphis (Tennessee).

The **San Antonio River Authority Water Quality Master Planning Project** received a Project Excellence Award from the Water Environment Federation. Awardees included the San Antonio River Authority of Texas; Lockwood, Andrews & Newnam, consultant; and RESPEC, software developer. The entities partnered to develop water-quality modeling tools to manage stormwater and improve water quality in the San Antonio River Basin.

Mark Padula, owner of Padula Engineering Co. of West Chester (Pennsylvania), received a SCORE Award from SCORE, a national nonprofit organization of business volunteers dedicated to providing services to small businesses. Padula Engineering is a land development and stormwater management business.

Lexmark received a Manufacturing Leadership Award for the ninth straight year from the Manufacturing Leadership Council. Lexmark's award came in the Sustainability Leadership category for its rainwater harvesting system project at its Lexington (Kentucky) headquarters.

Jonathan Archibald was hired as manager of PACE Engineers' Lake Oswego (Oregon) land development group. He has 23 years' civil engineering experience, including stormwater management design, dam and flood control systems, and city program management. Archibald specializes in FEMA and U.S. Army Corps of Engineers water resource permitting and repairs to hydroelectric facilities.

Eric Landwehr was hired as Cole County (Missouri) director of public works following the retirement of Larry Benz, who had served in that role since 2005. Landwehr joined the department that same year as county engineer. In his 15 years in that role, Landwehr has overseen numerous stormwater projects. ♦

CALENDAR

April 11-14

American Public Works Association North American Snow Conference, virtual event. Visit apwa.net.

June 13-16

American Water Works Association ACE21 Conference, San Diego (site TBA). Visit awwa.org.

July 11-14

American Society of Agricultural and Biological Engineers Annual International Meeting, Anaheim Marriott Hotel, Anaheim, California. Visit asabe.org.

July 19-21

American Water Resources Association Summer Conference, Hyatt Regency Denver Tech Center, Denver. Visit awra.org.

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

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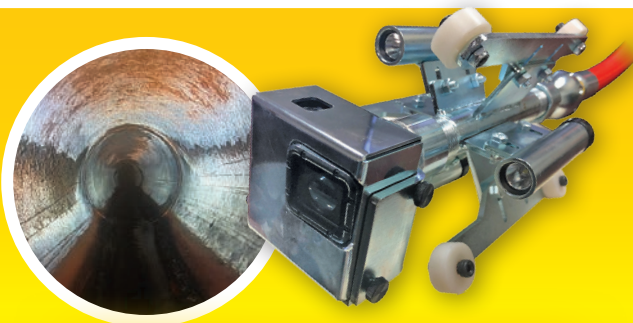
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