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EMPOWERING FIRST STEPS

Atlantic First Nations Water Authority
makes history as first Indigenous water
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SEWER NOZZLES
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John Lam
Manager of Engineering
Atlantic First Nations Water Authority

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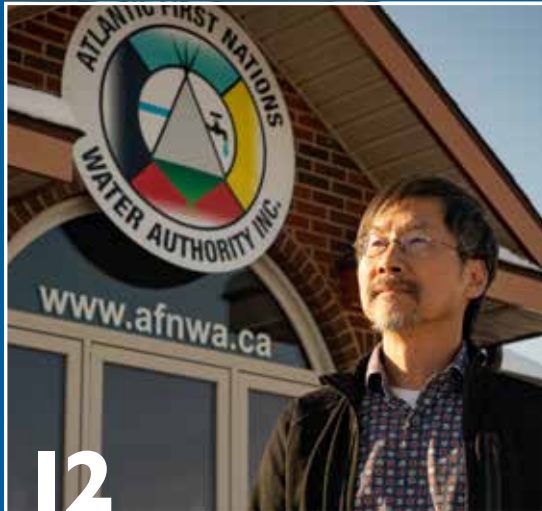
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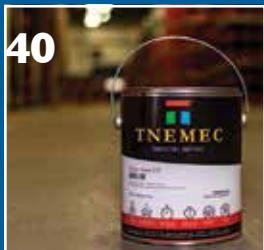
ON THE COVER: John Lam is the Atlantic First Nations Water Authority's manager of engineering. His organization will serve all participating First Nation communities in Atlantic Canada, including Nova Scotia, New Brunswick, Prince Edward Island and Newfoundland/Labrador. (Photo by Warren Robertson)



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Luke Laggis

LIGHTING UP THE SCREEN

It's good to see a little more attention on the importance of your work

Some of you, no doubt, had dreams of being famous when you were kids. I don't think many of you told your kindergarten teachers you wanted to be water and wastewater system operators when you grew up. Yet you all found your way to this industry and your communities are better for it.

I was pleasantly surprised when I was flipping through the channels the other night and came across a show I'd somehow never heard of: *Sewer Divers*. I didn't even catch the full episode, but I was immediately happy that this is on TV and the general public is being exposed to the work you do to keep your communities clean, safe and healthy.

For me, it was kind of like watching an issue of

Municipal Sewer & Water. I was familiar with all the equipment, the problems they were facing and their methods for resolving them. I am most certainly not the average viewer in this case, however, and I was struck by how positive it is for people to be getting an inside look at your work. You read about your peers in this magazine, but *MSW* stays within the industry.

It's not hard to imagine a kid watching a diver make his way up a massive submerged out-fall pipe to remove a blockage and think that's something they'd like to do when they get older. Or sucking up rocks and sludge with massive machines operated by remote control. Or just working hard, having fun and enjoying their jobs. At a more base level, just the opportunity to see this type of work, to see the challenges

you face and the dedication to your work, has the potential to instill a greater understanding among the general public of what's really involved in bringing water to their homes and carrying wastewater away.

Kids are fascinated by construction work. A walk through any toy store will make clear the infatuation with trucks and equipment. I had Tonka trucks long before I'd ever even considered where my water came from. Or what happened when I flushed the toilet.

The crew members featured on this show might at best gain a bit of recognition, but all together, they are helping put a spotlight on the industry. When the systems you work on are largely underground, the work you do mostly unseen, even a bit of light to illuminate its significance can make a real difference.

We highlight the best of what you do in this magazine and hold it up for the rest of the industry to see and learn from. I appreciate being a part of that, and I'm excited that some of these stories are being shared outside the industry.

I've been a fan of the work you do for a long time, and I hope this show earns you a few more well deserved fans.

Enjoy this month's issue. ♦

I was struck by how positive it is for people to be getting an inside look at your work.



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LONDON'S NEW SEWER

Cyclists Take a Unique Ride

Six cyclists recently had the opportunity to ride their bikes nearly 200 feet below the surface of London inside a 2.8-mile-long sewer. Tideway London employees working on the project bought raffle tickets to win a chance to take their bikes down into the new sewer. mswmag.com/featured



REBUILDING INFRASTRUCTURE

Queens Completes Major Project

A nearly \$80 million project in Queens, New York, rebuilt 3.5 miles of streets, 9.5 miles of water mains and sewers, and enhanced fire protection for residents. The recently completed project brings more reliable drinking water plus improved drainage and street conditions to the neighborhoods of Bayside, Auburndale and Flushing. mswmag.com/featured

OVERHEARD ONLINE

“In order to fully understand the impacts of drought on water affordability, we have to include people’s behavioral responses to how the drought is unfolding and the restrictions that are put in place.”

—*How Droughts Can Cause Higher Water Bills for Low-Income Households*
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OVERCOMING HURDLES

Field Worker Management

Utility supervisors may encounter several problems managing employees in the field when monitoring productivity, tracking safety compliance and managing work orders and inventory. This online article offers a detailed look into common field worker management problems and how to mitigate them.

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EMPOWERING FIRST STEPS

Atlantic First Nations Water Authority makes history as first Indigenous water and wastewater utility in Canada

By *Mary Shafer and Suzan Chin-Taylor*

In 2019, the ministry of Indigenous Services Canada was created, following the dissolution of the Department of Indian Affairs and Northern Development. The ISC is responsible to Parliament, with a mandate to work “collaboratively with partners to improve access to high quality services for First Nations, Inuit and Métis” peoples.

On November 7, 2022, an agreement was formally signed in Halifax, Nova Scotia, recognizing the Atlantic First Nations Water Authority as the first Indigenous water utility in the country. This significant milestone puts control of water and wastewater firmly in the hands of First Nations, initiating transfer of responsibility for the operation, maintenance, and capital upgrades of all water and wastewater assets in participating First Nations to the Indigenous-owned, non-profit AFNWA.

According to John Lam, AFNWA’s manager of engineering, his organization will serve all participating First Nations communities in Atlantic Canada, including Nova Scotia, New Brunswick, Prince Edward Island and Newfoundland/Labrador.

“Currently, the communities that have expressed an interest in membership have been from Nova Scotia, New Brunswick and PEI,” Lam says. “That would be just a fraction of communities in these areas, but it’s more than 50% of the population.”

Making it stick

There was a December deadline to get joining commitments from a number of communities, for which each had to pass a Band Council Resolution confirming that the AFNWA is taking over responsibility to provide their water and wastewater services. ISC now has a commitment to fund a program through AFNWA, to deliver water and wastewater system upgrades and operations. AFNWA in return accepts responsibility to properly steward those funds to ensure these services are delivered to participating First Nations communities.

Ahead of the transfer, AFNWA hired Dillon Consulting of St. John, New Brunswick, to survey current infrastructure assets. AFNWA needed to get a handle on what it’s going to manage and operate moving forward, as well as these assets’ condition. As one of the project deliverables, Dillon prepared a 10-year capital plan for all projects required to repair, replace and upgrade those assets and facilities.

Julie DiCicco, Dillon’s environmental engineer, puts this into perspective: “The water authority choosing to do asset management as one of their first big capstone projects is a major shift for First Nations,” referring to management of Canadian First Nations infrastructure.

She explains that First Nations communities have in the past, “often been left with insufficient funding to complete reactionary repairs. This is why you see the greatest discrep-



PROFILE:

Atlantic First Nations Water Authority

COMMUNITIES SERVED:
17 total – Tonique (Nequotuk), Esgenopetit, Elsipogtog, Lennox Island (L’nui Mni-kuk), Abegweit (Epekwitk), Kingsclear (Pilick), St. Mary’s (Sitansisk), Oromocto (Wel-amukotuk), Glooscap (Kluskap), Acadia, Sipekne’katic, Millbrook (Mulin Sipuk), Pistou Landing (Piktuk), Paqtnekek, Potiotek, Eskasoni Mi’kmaw (Essisoqnik), and Membertou (Maupeltu)

TOTAL POPULATION:
Approximately 26,000

TOTAL WATER & WASTEWATER FLOW:
8,000 mgd (estimated)

TOTAL WATER MAINS:
Approximately 176,000 miles

TOTAL SANITARY SEWERS:
Approximately 120,000 miles



ancies between municipal infrastructure versus First Nations infrastructure.”

The water authority completing an asset management plan signaled its intention to switch to more proactive planning. This led to the capital plan, Dillon’s ultimate deliverable.

Based on these plans, the budget was submitted to the federal government, and approved. “So, we have a commitment from the government to provide that funding over the 10-year period, for the work of delivering water and wastewater services,” Lam says.

Foundational footwork

The AFNWA came about as a result of regional work by the Atlantic Policy Congress of First Nations Chiefs. A number of the representatives and attendees at the conference gathered to talk about the state of existing water and wastewater services. Clearly, existing management of these resources was falling far short of the mark.

Through a series of workshops and other meetings, they determined that a regional water utility — owned and operated by First Nations, for First Nations — would provide them with the self-governing sovereignty they sought, as well as control over their water and wastewater system quality.

A report was prepared, looking at the governance and management structure of effective water utilities. It determined that a full-service, decentralized system would best serve these communities. It envisioned a headquarters that would provide some of the more technical skills, corporate and IT services, as well as housing an engineering department. Service areas would be delineated for each of the localized regions across Atlantic Canada, with one

John Lam is the Atlantic First Nations Water Authority’s manager of engineering. His organization will serve all participating First Nations communities in Atlantic Canada, including Nova Scotia, New Brunswick, Prince Edward Island and Newfoundland/Labrador. (Photos by Warren Robertson)

Lead project engineer Laura Jenkins and process engineer Zach Levisky at Paqtnkek, one of 17 First Nations communities served by AFNWA.



community in each service area designated as its hub, to provide support to water and wastewater operators in each of its communities.

Shaping the plan

DiCicco recalls that when Dillon was awarded the contract, they had their work cut out for them.

“We were going to be starting on a journey of creating 17 different asset management plans, so the first deliverable was a framework.”

Julie DiCicco

“We were going to be starting on a journey of creating 17 different asset management plans, so the first deliverable was a framework,” which would hold the effort together as a cohesive project. “This framework originally was meant to guide what the asset management plans were going to look like, and it did. But it also helped to guide the entire asset management system.”

Describing a graphic created for the official framework document, she explains:

“If you can picture looking from above into a wigwam, that’s represented by the circle in the middle.” The four pillars (represented by different colors around the center), she says, are:

People and Leadership – “This is who governs the asset management system: the inputters, the main people that are going to be utilizing the information.”

Information – “The inventory, condition and system performance.”

Life cycle process – “The level of service and risk; understanding the level of service you’re cur-

rently providing, and what risks are associated with your assets and potentially not providing that level of service; then life cycle strategy.”

Financial sustainability – “The long-term look at project needs. The capital plans were a component of this; part of the water authority’s regular business planning. They have multiple different plans, all integrated into this main capital plan. Then the funding, secured with Indigenous Services Canada. The funding doesn’t fall unless you do all of this work.”

The outer ring of the stylized wigwam’s interior lists components of each of these four pillars that support the operational concept.

In its totality, the graphic framework embodies “an understanding of what we own, where it’s located, the value of our assets. This was the biggest thing (to eliminate data gaps); to gather the information together in a template in one place, that’s consistent across all communities.”

How it works

When it comes to day-to-day operations, the water authority plans to help engineer its asset management projects, but largely hire proven outside contractors, and trust them to capably perform the work.

“Most of the work will be contracted to others, including design, which we don’t have a production team for. They’re more skilled and experienced,” Lam explains. “Very minor repairs and replacements, we can do internally. If a chemical feed pump has failed, we’d be able to buy and install a replacement pump. But if it’s more intense — like lining of sewers, upgrades of water and wastewater treatment facilities, or even pipe in the ground — if it’s more than just a very short section, we won’t have the equipment to do the excavation, trenching and pipe-laying.

“Drafting and specification writing, we’ll probably be getting consultants to do that work; unless it’s something very straightforward, then we might

take that on ourselves. Though we have a fairly healthy number of technical staff, a lot of (their work) is to identify problems and get the right people on those pieces of work, whether it’s design, construction or troubleshooting.”

Lam has 42 years of engineering experience, but tries to stay out of designers’ way. “They’re the professionals. I will have a lot of questions for them, make sure they’re addressing (the right issue) and that I feel comfortable with it. But I’m going to stay out of micromanaging as much as possible, knowing I’ve gone through the designs of a lot of these components. Bringing some fresh eyes and new technology really assists.”

DiCicco feels that this level of professional oversight will be a major factor in the higher success rate for such projects, expected under the new water authority. “This level of oversight hasn’t been available for First Nations communities, at least in Atlantic Canada, where it used to stay with the Indigenous Services Canada engineer. This lack of oversight sometimes caused systems that were not up to what was actually meant to be designed for. Some did not consider population growth, for example. So I think the level of presence as an organization is welcome for these communities.

New approach

Lam agrees that one of the strengths of this new model will be a willingness to take reasonable risks on newer, more appropriate technology in existing asset repair and replacement. “Sometimes it’s less risky to say, ‘Let’s replace everything,’ when maybe that’s not necessary, it’s overkill. Maybe you could get more done by spot repairing, or at least finding out what else you can do, which is a more holistic approach.”

The first measure to reach such an approach is knowing the totality of what the authority must deal with. They’ve begun water and wastewater initiatives to make that possible. One concerns flow assessment. Dillon’s research showed a dearth of accurate data, so they’re currently, where necessary, installing flowmeters. This allows them to work with definitive data rather than theoretical flows, which is what they had to go on for the initial asset management plans.

“Part of this program is phase one of the inflow and infiltration studies we want to initiate, to see what we’re dealing with, and where are some of the quick wins that would allow us to tighten up our systems; lining of sewers, maybe dealing with missing manhole covers. We want to identify possible retrofits and remedies that might address I&I in the wastewater systems. Also, how much drinking water are we losing from leaks and other loss scenarios? Right now, we don’t know.”

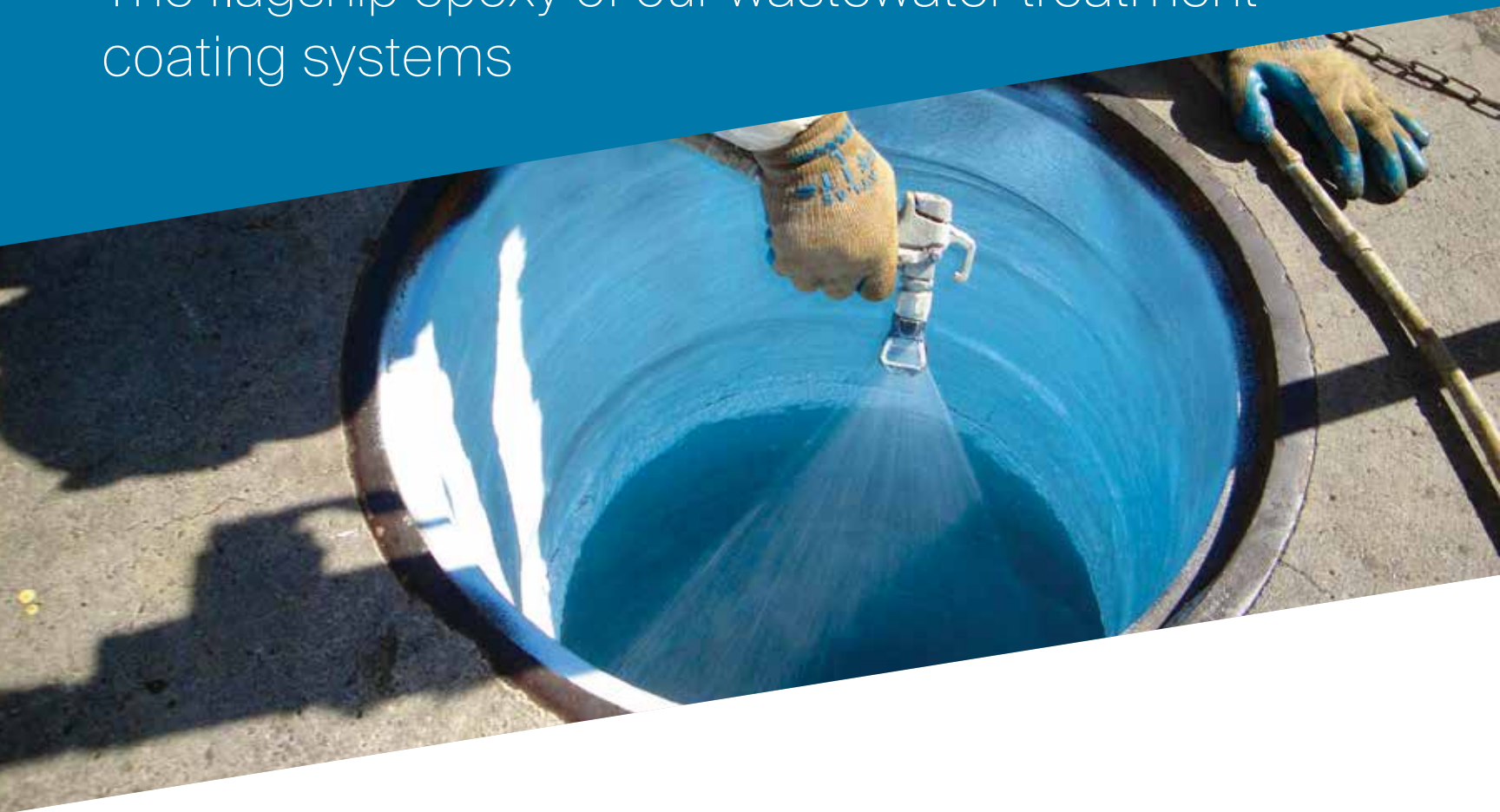
Future tech

Another initiative involves the standardization of the communities’ SCADA systems. Aligning soft-

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ware and hardware for controlling and communicating with different devices like pumps, blowers and other equipment will allow the authority to provide support from hub communities as well as headquarters, while also enabling staff to spot real-time trending within the facilities. The authority is working with Toronto's Eramosa Engineering in this effort.

One of Dillon's deliverables was preparing a roadmap for implementing accurate, comprehensive and timely asset management planning in the utility. This included how to form an oversight committee and all its necessary tasks to keep asset management planning up to date, how to do annual reviews; update the schedules and prioritize the projects, and so on. The committee will quickly be called upon to research and identify a software platform to automate and digitize the gathering, storage and sharing of historic, existing and new data on assets.

“It can't be just a snapshot in time, then it becomes old information very quickly.”

John Lam

Lam acknowledges this will be an ongoing effort. “It can't be just a snapshot in time, then it becomes old information very quickly. We need to be able to keep that information up to date. Whenever we change some equipment, there's got to be a process to have that workflow feed back into the capital planning. That information needs to be recorded, and that's part of a computerized maintenance management system.”

DiCicco says it all starts with a genuine desire to change the status quo. “It's baby steps that need to start happening, and a shift in the way you think. You need to have people championing this, and wanting it. For data reasons, start with your inventory, and make sure that's tight. Know what you're doing, and what you're operating.”

Lam agrees. “You need to have the community really want to do this, and to work with the field team. You will end up with a much better product in the end.” ♦

Process Engineer Zach Levisky collects a water sample in Paqtnekek.



ELIMINATING DATA GAPS

Before John Lam, manager of engineering for Canada's new Atlantic First Nations Water Authority, and consulting environmental engineer Julie DiCicco with Dillon Consulting could create the asset management plans Dillon was tasked with, they first had to overcome a serious lack of up-to-date information resulting from decades of poorly kept records on existing infrastructure.

“That was a big find for us, that those systems had really fallen into states of disrepair,” DiCicco says. “Another element was the interconnectedness of some issues we identified, such as an IWA station not operating. That made it so they weren't really holding chemicals, then they didn't have enough backup. There's a chain of events there.”

She feels that, as the water authority digs deeper, the challenge will be creating a higher level of oversight on all systems under its responsibility. “That seems to be lacking, based on past assessments, and repairs that were sort of piecemealed together.”

Lam clarifies: “Our observation is that the wastewater systems have fallen behind in upgrades and capital planning. We are going to adopt more of a traditional view of risk assessment, as far as environmental impacts. For wastewater treatment, our direction to Dillon is to look at what receiving waters can handle, as far as contamination. That determined the level of treatment required for various water bodies. Of course, we found that communities on sensitive receiving waters needed a better quality effluent than they're currently capable of discharging. So projects were generated by Dillon to address that.”

The authority has pushed those projects further down the road, allowing them to get their heads around available and appropriate technology. They're putting the onus on water pollution: Is it better to have high-energy and high-chemical-use technology to prevent water pollution? Or could they use a primarily low-energy, low-technology treatment system that could get nutrient removal most of the way, then finish with a small boost from the higher-tech methods to reach desired goals?

“It's a balance we're going to have to figure out,” Lam admits, “and that will take some time.” The authority must also get a sense of flow volumes, and organic levels entering the wastewater treatment systems, to properly design the upgrades and other baseline considerations for both wastewater and water systems. “Those are some projects we've built into the capital plan, which is significant, because some of them are changing treatment technologies completely.”

For all of it, says DiCicco, “Actually starting to have a system in place and having all the information together was a really good stepping stone.”

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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.

VALUE PROPOSITION

Making employees feel they matter is critical to retention, engagement and good health

By **Ken Wysocky**

Do your employees feel like they matter? In other words, do they feel valued by and connected to their managers and coworkers, and do they also feel like they advance the well-being of colleagues?

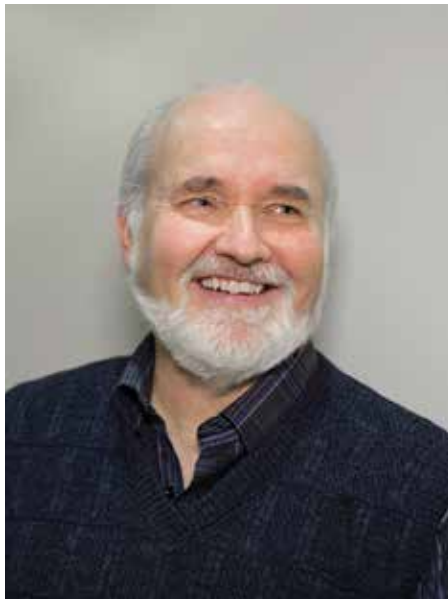
It's a tough question to answer, for sure. But the odds are that many employees feel insignificant at work, which creates a variety of problems, including high turnover, burnout, isolation and disengagement, says Gordon Flett, Ph.D., a professor in the psychology department at York University in Toronto.

"Generally speaking, there's a widespread mattering problem in the workplace," says Flett, who has studied the issue for years and is the author of *The Psychology of Mattering: Understanding the Human Need to Be Significant*.

"It's an issue that has flown under the radar of industrial psychology," he continues. "But it's an important issue because studies consistently show that feelings of not mattering are predictive of a host of issues related to self-esteem and a sense of belonging."

Organizations should be concerned about employees mattering because unhappiness and dissatisfaction in the workplace translates into employee turnover or, at the very least, so-called "quiet quitting" and diminished productivity, Flett says.

"There also are direct links to mental and physical health issues," he adds. "So there's a cost to an organization from a human resources perspective. We know from past research that if someone feels like they don't matter, they're more prone to stress, burnout and absenteeism."



Gordon Flett

More negative effects

Furthermore, dissatisfied employees also are likely to express their discontent to colleagues, which creates an ever-burgeoning negative climate. Moreover, what Flett calls "anti-mattering" is a strong predictor of anxiety, depression and substance abuse.

In addition, it can cause employees to disruptively act out to gain the attention they feel they don't receive. In some cases, employees who feel like they've been unfairly isolated and marginalized might even engage in organizational sabotage, he says.

On the flip side, employees who feel like they do matter are better at withstanding things such as workplace stressors, loneliness and adversity.

"It's a double-edged sword," Flett points out. "Mattering is very protective when you feel it and very destructive when you don't."

"A strong element of mattering is hope — a positive outlook about what employees can do and how things will turn out. Hopefulness is very critical."

Good managers are key

Managers often contribute to anti-mattering by purposely or inadvertently favoring certain employees.

"Employees are acutely aware when someone dominates the attention of someone in a leadership position," Flett says.

Furthermore, some managers mistakenly believe in motivating employees by ignoring them or being critical.

"But they don't understand how easily employees can take minor negative feedback or even neutral feedback and infer that they're not important," Flett points out. In fact, one study showed that it can take seven positive exchanges to make up for one negative interaction, he says.

Given all this, is it possible that employees nowadays are just overly sensitive

"Some employees are capable of handling criticism and others fold up at the first sign of trouble and withdraw into themselves."

Gordon Flett

and need to toughen up? While Flett says he understands how some managers might feel that way, it's generally not a constructive attitude.

"Some employees are capable of handling criticism and others fold up at the first sign of trouble and withdraw into themselves," he says. "Some need criticism and some need a pat on the back.

"But to me, toughening up is finding healthier ways to make people more resilient and adaptable. The key is having criticism come from someone who employees believe has their best interests at heart.

"If they have a good relationship with their managers and know their managers believe in them, they'll respond better — not internalize comments and automatically feel they're inadequate and incompetent."

Making it happen

So what can managers do to make sure employees feel they matter? For starters, they can use a tool called an Anti-Mattering Scale to determine just how many employees feel they're not valued.

Developed a couple of years ago by Flett and other researchers at York University, the AMS poses five questions to determine employees' level of anti-mattering feelings. Participants choose answers on a scale of one (not at all) to four (a lot).

Questions include, "How often have you been treated in a way that makes you feel like you are insignificant?" and "To what extent have you been made to feel like you are invisible?" Other such anti-mattering surveys also exist and can help employers determine if they're meeting important mattering benchmarks, such as whether employees feel their work contributes to their company's success, whether they receive public praise for their efforts, whether the quality of their work positively impacts their organization and so forth.

"They key is to make such surveys anonymous or employees might not tell the truth," Flett advises.

"Knowing they're influencing the next generation of workers can have an incredible impact."

Gordon Flett

Ask critical questions

Furthermore, managers should make a point to take their direct reports aside and ask them if they feel they matter at work and why they do or don't feel that way.

"You need to really listen so people feel they're truly being seen and heard," he says. "This could open up valuable conversations."

Managers also can strive to allow employees to provide input into decisions, which enhances their feeling of mattering; find opportunities to tell employees they matter; explain the big-picture impact of their work; and allow them to mentor other employees.

"Knowing they're influencing the next generation of workers can have an incredible impact," Flett notes.

Going even deeper, though, managers need to show

personal interest in employees that transcends talking just about work-related issues.

"It's not always easy and it takes time," he says. "And the interest has to be genuine and authentic.

"But whatever resources you commit will pay off in terms of better engagement and productivity, as well as limiting the related costs of mental and physical health issues. The bottom line is people will feel better about themselves and subsequently will make a difference in the lives of other people. Everyone wants to know they're making a positive difference." ♦



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A BREATH OF FRESH AIR

Calgary solves decades-old odor mystery with new monitoring and analysis technology

By Mary Shafer

Calgary is the largest city in the western Canadian province of Alberta, about 230 miles north of the U.S. border with Montana. Fish Creek Wastewater Treatment Plant is the smallest of three wastewater treatment plants in the metro area of about 1.4 million people.

For 40 years, citizens in surrounding neighborhoods have complained of odors they believed to be coming from the plant. City managers weren't convinced the plant was the actual source of the odor, which they believed to be caused by H₂S. For years, they had tried to discern where the undeniable miasma was coming from, with frustrating results.

They of course wished to respond to their neighbors' concerns, since these people were also their ratepayers. But it also became clear that — at just 9 mgd — the Fish Creek plant would soon need to expand to keep pace with its siblings; Bonnybrook at 91 mgd, and Pine Creek at 23 mgd. They realized there was no way popular sentiment would lean toward approving enlargement of a plant that already had an odor problem.

"There's a significant amount of public engagement required to upgrade and expand a plant like this," says Kevin Colbran, the city of Calgary's wastewater treatment plant manager.

The decades-old mystery would need to be solved, and soon.

“There’s a significant amount of public engagement required to upgrade and expand a plant like this.”

Kevin Colbran

Attempted mitigation

Fish Creek shares a catchment with Pine Creek. A structure at Fish Creek diverts most of the flow in that system to the Pine Creek plant. But Pine Creek doesn't currently have capacity to treat all that wastewater. "There's still that 35 mgd going into Fish Creek on any given day," explains Colbran, "but there are large trunks upstream of Fish Creek as well. And as the smallest plant, Fish Creek also gets the bulk of our industrial wastewater.

"There's suspicion that a lot of the industrial waste doesn't get mixed, and gets directed into the Fish Creek plant. You've got everything from animal processing, food and beverage manufacturing, industrial machine shops, you name it," on a gravity-feed system with a few lift stations.

Fish Creek uses a pure oxygen process. It does not remove ammonia, causing occasional noncompliant effluent into the Bow River. This is one of the main drivers of the upcoming plant upgrade, whose new process has yet to be identified. "Right now, it looks like aerobic granular sludge is preferred, but that's debatable," Colbran says. "We might end up with traditional BNR. We're working through technology selection."

Built in 1960, Fish Creek's primary clarifiers were initially uncovered, and the headworks discharge was not scrubbed. Development encroached, and by the mid-90s, complaints about odor led to the covering of those clarifiers. There was only about one a month, but it was consistent, especially in warm weather when many more people were enjoying the outdoors.

When it comes to odor, however, it's incredibly difficult to pinpoint a source without solid data. When an odor report comes in, someone is dispatched from the plant to investigate, but by then, the odor is typically gone.

Colbran describes the frustration: "We can tour the plant to see if there's any sort of odor issue, but most of the time without technology and data, the cause is inconclusive. There is always more than one source of odors in any particular area." One preventive measure the plant takes is dosing the line from Fish Creek to Shepherd with hydrogen peroxide, to prevent odor generation in that line itself, but Colbran believes that's probably unrelated to the issues at Fish Creek.



Technology to the rescue

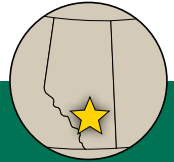
At no point were plant personnel able to satisfactorily eliminate odor for long, which is unsurprising. It's difficult to spend money on significant action without knowing the odor source and its proper mitigation. Still, due to its beautiful location just upwind of high-ticket homes on a nearby escarpment and in a provincial park frequently used for recreation, the Fish Creek plant got regular visual exposure. And with that came the not-unreasonable assumption that it was the source of the frequent unpleasant smell.

Fish Creek management issued a Request for Proposals in 2014 to get to the bottom of the problem. "I think it was for a pretty broad scope, just saying, 'This is our issue. Who's got the technology, and what can you come forward with, to help us pinpoint our issues?'"

Chris Madland, lead for the Prairies and Northern section of WSP's (then Golder Associates) Air Quality team, saw the RFP



City of Calgary Manager Kevin Colbran (left) and Operations Supervisor Mike Johnston (Photos by Jeremy Klager)



PROFILE:

City of Calgary,
Alberta, Fish Creek
WWTP

POPULATION SERVED:

1.4 million people

GEOGRAPHIC AREA:

327 Square Miles

EMPLOYEES:

400

COLLECTION SYSTEM:

Approximately 2,933 miles of
collection mains

WEBSITE:

[www.lifeincalgary.ca/
about-calgary/calgary-facts](http://www.lifeincalgary.ca/about-calgary/calgary-facts)

Operator Devon Moore uses a GIS mapping system to locate a manhole covered with ice.



and responded to the city's team members Josh Lamarre and Rino Fedato. WSP had previously worked with Airdar Inc., deploying their unique air sampling and analysis technology to detect odor sources on clients' oil and gas extraction sites. For this project, his idea was to set up an Airdar array to identify emission sources.

"They were asking for a real-time modeling solution, just to know how big of a problem their sources were causing," says Dennis Prince, CEO of Airdar. "Chris responded to that RFP with, 'We'll watch those eight places and everywhere else; we'll watch beyond the fence and identify any sources, then determine their impact in the community in real time.' That got up to Kevin, and they all were open to this innovative approach, which I think is so critical."

The equipment deployed at the end of 2014, went online in 2015, reported to the plant all year, then got renewed every year for seven years, giving them real-time alarms. It just shut down in January 2022.

Innovation is key

When the project began, it wasn't yet possible to track sources using air concentration data. Efforts

had been made by others using inverse dispersion modeling, but this approach suffers from biases that limit its capabilities. The plant's odor issues continued unresolved, because there was uncertainty about the location of the sources. An approach had yet to be found that could ascertain actual sources.

Madland believed the Airdar technology they'd used in the oil fields could be applied to this challenge. Airdar is a form of limited artificial intelligence that solves odor sourcing problems by mimicking animals' location capability. Some animals track food sources using air concentrations in the wind. For example, a polar bear can track a seal off the ice 50 kilometers away, because its brain can identify patterns in air concentra-

(continued)

NEW TECHNOLOGY TO ADDRESS OLD PROBLEMS

Airdar is a form of limited artificial intelligence that solves odor sourcing problems by mimicking animals' natural locating capabilities. Some animals track food sources using air concentrations in the wind. For example, a polar bear can take a seal off the ice 50 miles away because its brain can identify patterns in air concentrations through its nose. The company calls this a form of air detection and ranging, or "Airdar."

Airdar is similar to sonar and radar, in that all three technologies use data patterns to locate things remotely. Sonar uses patterns in sound waves, radar patterns in radio waves, and Airdar uses patterns in air concentrations traveling in the wind to locate sources of any compound including odor, smoke and particulate. It's a powerful capability that can identify plumes in data from a single observation position.

Airdar's most important breakthrough is that it can delineate plume signatures from sources in ambient air concentration data, measured at great distances from the sources. Its other innovation is the design of a system that can measure ambient air concentrations of H₂S with a 1 ppb detection limit (amply accommodating human sense of smell) at multiple locations. Both innovations allowed Airdar to remove any uncertainty regarding the true odor emission sources.

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tions through its nose. The company calls this a form of air detection and ranging, or “Airdar.”

Airdar is similar to sonar and radar in that all three technologies use data patterns to locate things remotely. Sonar uses patterns in sound waves, radar relies on patterns in radio waves, and Airdar uses patterns in air concentrations traveling in the wind to locate sources of any compound including odor, smoke and particulate. It’s a powerful capability that can identify plumes in data from a single observation position.

In this project, Airdar analyzed patterns in air concentrations from 32 observation positions deployed to the site, all tracking sources and sharing information with each other, 24/7.

Airdar’s most important breakthrough is that it can delineate plume signatures from sources in ambient air concentration data measured at great distances from the sources. Its other innovation is the design of a system that can measure ambient air concentrations of H₂S with a 1 ppb detection limit (amplify accommodating human sense of smell) at multiple locations. Both innovations allowed Airdar to remove any uncertainty regarding the true odor emission sources.

Overcoming obstacles

Obtaining these continuous measurements requires an expensive ambient air monitoring instrument that can require power, frequent calibrations and support gases. Deploying several of these instruments would be costly. An innovative way of measuring H₂S concentrations at 32 different locations was needed to reduce equipment costs.

This challenge was overcome by deploying a single instrument cabinet with access to power, in a tunnel at the site. It contained two high-end H₂S instruments, with supporting calibration gas cylinders and diluters on board. This provided calibrations daily, eliminating the need for an on-site technician.

The cabinet also housed valve manifolds and vacuum pumps, which drew samples through 32 small-diameter tubes, connected to remote sample inlets located throughout the plant and along the fence line.

This system was able to pull a sample from up to 1.2 km away, while adjusting for sample travel time. The advantage was that 32 expensive instruments were not needed; only two were used, eliminating the need for a power source at each remote sampling location.

H₂S emissions from faraway sources can have important impacts on people because we can detect it at low concentrations, and because of the plumes’ ability to travel great distances before they disperse below these concentrations. Stubbornly complex odor problems may be due to distant sources rather than those suspected locally, and this was proven by the Airdar testing’s hard data results. It identified that plant personnel were doing everything right and that the source of the odor, while remaining unidentified, was not the Fish Creek plant.

One significant suspect is the local collections system itself, but there is insufficient data and investiga-



Moore and Aman Sran vacuum debris from a manhole with a Vactor 2000 jet/vac truck.

tions to conclude anything definitively. The plant management is grateful to have been absolved of any responsibility for the odor issue, which seems to have resolved itself after some routine changes to the collections system. If it arises again, attention will immediately be focused on the collections system and outlying infrastructure that feeds into the area. ♦

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EVALUATING YOUR CULTURE

Injuries and lost days aren't always the best measure of an organization's safety record

By Ronnie Freeman

For most utilities, having zero injuries is the ultimate safety goal, but this can be very hard to attain especially when you have hazardous job tasks.

Many of utilities and even departments within them can be judged by the number of injuries that occur on an annual basis. So when a utility does have zero injuries, it's time to celebrate, right? A big pizza lunch for everyone is usually par for the course. Maybe some nice certificates or awards for managers and supervisors. Sounds perfect.

Zero injuries do not always tell the tale of a utility and its safety culture.

But does that mean you suddenly have a safe environment for your employees to work? Zero injuries do not always tell the tale of a utility and its safety culture. Some organizations dissuade employees from reporting injuries thereby creating that zero-injury report that looks very nice on paper. In some cases, they might just have been lucky that no employee got injured despite the hazards that go unnoticed and unaddressed.

I have long thought that for an organization's safety record to be judged you can't just look at the negative numbers like injuries to determine whether your track record is excellent or poor or somewhere in between. Safety numbers are often viewed in poor light because you're dealing with the number of injuries, days away from work, restricted duty days, OSHA recordables, workers compensation cases and many others all have a negative connotation. If those numbers are high, you must obviously have a poor safety culture. So, when the numbers are zeroes, it is easy to understand why you want to celebrate and in some cases you should.

To really evaluate your organization's safety culture, there are some behaviors you can look at to get a better overall picture of what's happening.

1. Do employees keep their work areas clean and free from hazards?
2. Do employees feel comfortable reporting hazards or bringing up safety concerns with managers and supervisors?
3. Do employees feel free to address safety hazards in their workplace?
4. Do employees feel free to report workplace injuries without fear of retribution?



5. Do managers and supervisors encourage employees to attend safety training?
6. Is safety training conducted regularly within your company and is it up to date with OSHA regulations?
7. Are workplace and job site safety inspections within your company a regular occurrence?
8. Are company equipment, tools and vehicles required to undergo regular maintenance and inspections?
9. Does your company have a safety committee that can address safety issues and concerns?
10. Is upper management supportive of initiatives to improve your safety culture including the costs necessary to implement changes?

Getting to zero injuries is certainly a worthwhile and attainable goal to strive for. However, the effort being put into reaching that goal is truly how an organization should be evaluated regarding its safety culture. ♦



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 ±800 cc EFI Honda Engine on DC Powered Reel

(100 GALLON TANK) **Call for Quote**

3012H Compact Skid

±12 gpm @ 3000 psi ±400' x 1/2" Jet Hose
 ±800 cc EFI Honda Engine on DC Powered Reel

(100 GALLON TANK) **Call for Quote**

NEW



NEW



RCJ4008H

±8 gpm @ 4000 psi ±200' x 3/8" Jet Hose
 ±800 cc EFI Honda Engine on Manual Reel

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NEW



LJ4008H

±8 gpm @ 4000 psi ±200' x 3/8" Jet Hose
 ±800 cc EFI Honda Engine on Manual Reel

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VM4008H

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 ±690 cc Honda Engine Hose on DC Reel

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 ±690 cc Honda Engine on DC Reel

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enz usa inc. Enz USA Inc. 1585 Beverly Ct., Unit 115, Aurora, IL 60502 630-692-7880 www.enz.com salesusa@enz.com See ad page 49	Bulldog Antblast	Anti-Toilet Blowing in Residential	8" - 24"		1,500 - 1,800	8-17 lbs.	6	6	1" and 1 1/4"
	Bulldog Nozzle	Cleaning grease, roots, deposits, etc.	8" - 24"		2,000 - 2,900	8-17 lbs.	7	6	1" and 1 1/4"
	Rotodrill	Cleaning blocked pipes, frozen pipes, heavy debris	2" - 14"		2,000 - 4,000	0.25 lbs. to 1.5 lbs.	1	6	1/2" - 1"
	360 Degree Grenade	Removal of loose debris, stone, gravel and soft deposits. All around cleaning.	6" - 24"		3,600	17-23 lbs	1	12-18	1" - 1 1/4"
	Chisel Point Nozzle	Penetrating clogs, root masses, frozen pipes	6" - 20"		3,625	10 lbs.	4	6	1"
	10.125TR Chain Scraper	Root removal, hard grease, hard deposits	5" - 12"		3,600	5.5 lbs.	2	4	1/2 - 1"
	10.300R Chain Scraper	Removal of root masses, clogs, hard deposits	8" - 20"		2,900	108lbs.	3	3	1" - 1 1/4"
	Bulldozer Nozzle	Flushing debris from large pipe	16" - 40"		2,000 - 3,600	57 lbs.	1	8	1"
	Hydro-X Nozzle	Hydroexcavation	N/A		5,000	0.57 lbs.	1		3/8", 1/2"
	eBulldog/ebomb Camera Nozzle	Streak free all around cleaning w/ high resolution video footage and integrated data management.	6" - 16"		3,600	20-27 lbs.	0	6-10	1" - 1 1/4"
14.200R Recycling Milling Cutter	Removal of concrete, mineral deposits and dropped liners	8"		2,100	96 lbs.	3	3	1" - 1 1/4"	
General Pipe Cleaners 1101 Thompson Ave., McKees Rocks, PA 15136 800-245-6200 412-771-6300 www.drainbrain.com info@drainbrain.com	Chisel Point Nozzle	Penetrating, breaking up debris	4" - 10"	12	2,500	4 oz.	4	6	1/2"
	Traction Nozzle	Sand and mud removal	4" - 10"	12	2,500	8 oz.	1	6	1/2"
	Cleaning Nozzle	Maintenance Cleaning	4" - 10"	12	2,500	12 oz.		8	1/2"
	Spring Leader Nozzle	Guiding hose around tight bends	2" - 10"	1.5 to 8	1,500 - 3,000	4 oz.		3 to 4	1/8" - 1/4" - 3/8"
	Downhead Nozzle	Dropping down T's	2" - 4"	1.5 to 4	1,500 - 3,000	2 oz.		3	1/8"
	Chain Saw Nozzle	Cutting roots	4" - 10"	4 to 12	2,500 - 3,000	2 lbs.		2 to 4	3/8" and 1/2"
	Rotary Nozzle	Scour pipe walls clean	2" - 10"	1.5 to 12	1,500 - 3,000	2 oz. to 10 oz.		2 to 4	1/8" - 1/4" - 3/8" - 1/2"
HYDRA-FLEX Hydra-Flex, Inc. 8401 Eagle Creek Pkwy., Savage, MN 55378 952-808-3640 www.hydrflexinc.com sales@hydrflexinc.com See ad page 3	Marskman	Cutting through and removing debris at distances of 20-30 ft. Could be used in location like lift stations or manholes. To be used with a gun+ Lance. Can up adapted up to a 1" inlet			2,500	1.93 lbs.	1		
	Reaper 3/8"	Cutting through and removing blockages and flushing debris in sewer lines.	3" - 6"		4,000		1	4	
	Reaper 1/2"	Cutting through and removing blockages and flushing debris in sewer lines.	4" - 8"		4,000	1.54 Lbs.	1	4	
NLB Corp. 51701 Grand River Ave., Wixom, MI 48393 800-441-5059 248-624-5555 www.nlbcorp.com nlbmtg@nlbusa.com See ad page 43	Typhoon 20 - RPN2420	Large Diameter Pipe Cleaning	6"-10"		Max. 24,000	4 lbs	5		3/4" Type M
	Typhoon 20 - RPN2420-TR	Large Diameter Pipe Cleaning	6"-10"		Max. 24,000	3.6 lbs	5		3/4" Type M
	Typhoon 60 - RPN2460	Large Diameter Pipe Cleaning	11" - 50"		Max. 24,000	8 lbs	6		3/4" MP Female
Root Rat PO Box 740, Bolivar, OH 44612 800-288-7873 330-874-4300 (f) 330-874-4448 www.rootrat.net kelly@chempure.com See ad page 50	Root Rat	Root & Encrustations	2" - 30"	4 to 150		0.5 lbs. - 5 lbs.			

MANUFACTURER	NAME OF NOZZLE	APPLICATION	PIPE DIAMETER	FLOW RATE (GPM)	MAX OPERATING PRESSURE (PSI)	WEIGHT	NUMBER OF AVAILABLE FRONT JETS	NUMBER OF AVAILABLE REAR JETS	HOSE SIZE/CONNECTING THREAD
Sewer Equipment 1590 Dutch Rd. Dixon, IL 61021 888-477-7611 (f) 815-284-0453 www.sewerequipment.com sales@sewerequipment.com See ad page 41	Mini Missile	General Cleaning	3"-12"	18 to 80	0 - 4,000	5 lbs.	1	3	1/2", 3/4", 1"
	Weisel	General Cleaning	3"-15"	18 to 80	0 - 4,000	2 lbs.		8	1/2" - 3/4" - 1"
	Dual Degree	General Cleaning	4" -18"	18 to 80	0 - 4,000	5 lbs.		8	1/2" - 3/4" - 1"
	Tri-Star	Penetrating	3" -24"	18 to 80	0 - 4,000	3 lbs.	4	6	1/2" - 3/4" - 1"
	Avanti	Penetration - Rotational	3" -24"	18 to 80	0 - 4,000	4 lbs.		6	1/2" - 3/4" - 1"
	RDS	Heavy Cleaning	3" -28"	18 to 150	0 - 4,000	4 lbs.		6	1/2" - 3/4" - 1" - 1 1/4"
	Mega 5 & 6	Flushing	12" - 120"	18 to 80	0 - 4,000	35 lbs.		11	1/2" - 3/4" - 1" - 1 1/4"
	HW	Flushing	4" -18"	18 to 55	0 - 4,000	3 lbs.		8	1/2" - 3/4" - 1"
	Combi	Cutting	4" - 24"	18 to 80	0 - 4,000	6 lbs.	3	6	1/2" - 3/4" - 1"
Patriot 1	Root & Grease Cutting	4" - 24"	40 to 80	0 - 3,000	25 lbs.		5	3/4" - 1"	
 SewerProShop LLC 3939 Royal Dr., Ste. 125, Kennesaw, GA 30144 877-864-9394 470-592-1717 (f) 770-984-2802 www.sewerproshop.com info@sewerproshop.com	Viper Chain Cutter	Roots, Grease, Scaling	10" - 48"	40 to 100	2,000 - 4,000	45 to 70 lbs.		8	1" - 1 1/4"
	Power Pull Nozzle	Mud, Sand, Silt	4" - 12"	18 to 80	2,000 - 4,000	1.5 to 9 lbs.		8	1/2" - 1 1/4"
	Spear Nozzle	Penetration of Clogs, Root Masses, Frozen Pipes	8" - 24"	50 to 80	2,000 - 4,000	6.2 lbs.	4	6	
	Emperor Nozzle	Flushing heavy debris from large lines	12" - 32"	80 to 120	2,000 - 2,500	19.8 lbs.		12	
	Penetrator Nozzle	Flushing heavy debris in lines with offsets.	6" - 16"	50 to 80	2,000 - 4,000	15.4 lbs.	1	8	
	Stealth Nozzle	Flushing heavy debris	8" - 24"	60 to 80	2,000 - 4,000	17.6 lbs.		8	
	Raptor Nozzle	Penetration of clogs, Root/Grease Masses, Frozen Pipes	4" - 24"		2,000 - 4,000	2.4 to 5.5 lbs.	3	3 (1/2") 6 (1")	
	Big Foot Nozzle	Flushing debris from the floor of large pipes	16" - 48"	40 to 120	2,000 - 3,600	33 to 56 lbs.		6-14	
	Twister Nozzle	Cleaning grease, roots, mineral deposits, etc.	4" - 24"	18 to 120	2,000 - 4,000	3 to 15.4 lbs.	5	4	
Milling Cutter	Removal of concrete, tuberculation failed liners	4" - 20"	60 to 120	2,000 - 2,500	18 to 44 lbs.	4	4	1" - 1 1/4"	
 Spartan Tool 1618 Terminal Rd., Niles, MI 49120 800-435-3866 www.spartantool.com sales@spartantool.com	Warthog	Roots, Grease	2" - 18"	12 to 35	2,000 - 4,000	1 - 5 lbs.			3/8", 1/2"
	Sandshoe	San, Dirt and Rocks	4" - 18"	12 to 18	2,000 - 4,000	7 lbs			3/8", 1/2"
	Rotating	Scrubbing Pipe Walls	2" - 12"	4 to 18	2,000 - 4,000	1 - 3 lbs			1/4", 3/16", 3/8", 1/2"
	Q Nozzle	Downstream Jetting	4" - 12"	12 to 18	2,000 - 4,000	1 - 2 lbs			3/8", 1/2"
	Rocket Nozzle	Long Distance Jetting	4" - 12"	12 to 18	2,000 - 4,000	2 lbs			3/8", 1/2"
	Closed Nozzle	Standard Jetting	2" - 12"	4 to 18	2,000 - 4,000	1 lb			3/8", 1/2"
	Open Nozzle	Standard Jetting	2" - 12"	4 to 18	2,000 - 4,000	1 lb			3/8", 1/2"
	Brass Ball	Stainless Steel Hose Jetting	2" - 8"	4 to 18	2,000 - 4,000	1 lb			3/16"
	Chain Scraper	Roots, hard grease, scale	2" - 8"	8 to 50	5,075				3/8", 1/2", 3/4"
Triton HydroTools 11210 S Choctaw Dr., Baton Rouge, LA 70815 800-633-7696 225-308-2649 www.shamrocktools.com gmartin@tritonhydrotools.com	Shamrock Ultimate Penetrator	High Performance Double Duty - Clears Blockages and Flushes	4" - 30"		1,000 - 4,000+	5 lbs - 31 lbs	0 or 1	3, 5, 8, or 10	1/2", 3/4", 1", 1-1/4", 1-1/2"
	Shamrock Super Grenade	High Performance Heavy Duty Mainline Cleaning - Fast and Easy	2" - 30"		1,000 - 6,000+	1.1 lbs - 7 lbs	0 or 1	3, 5, 6, or 8	1/2", 3/4", 1", 1-1/4"
	Shamrock TriStar Chisel	High Performance Front-Boring Penetrator for Stubborn Blockage	2" - 30"		1,000 - 3,000+	1 lb - 4 lbs	3 or 4	3, 5, or 6	1/2", 3/4", 1"
	Shamrock-et	High Performance Penetrating and Sweeping	6" - 18"		1,000 - 3,000+	12 lbs	0 or 1	3	3/4", 1", 1-1/4"
	Shamrock Boat Nozzle	Heavy Duty Flat Bottom Sweeper for Sand, Silt, Gravel, and Large/Heavy Debris	24" - 60"		1,200 - 3,000+	51 lbs	0	11	1", 1-1/4", 1-1/2"
	Shamrock Cobia	Heavy Duty Multipurpose - Efficiently Clears Sludge, Mud, and Debris	6" - 36"		1,000 - 3,000+	3 lbs - 10 lbs	0 or 1	6 or 10	1/2", 3/4", 1", 1-1/4"
	Rotating Nozzles-Blaster (Fast Rotating) and Huracan (Slow Rotating)	Removing Residue and Sidewall Buildup/Deposits	2" - 24"		1,000 - 6,000+	0.2 lbs - 10.9 lbs	0, 1, 2, or 4	3, 4, 6, or 8	1/4", 3/8", 1/2", 3/4", 1", 1-1/4"
	Shamrock Mini-Tadpole / Tadpole / Little Shamrock	Steel Skid Nozzles with Long Service Life for Sweeping Medium to Large Lines	6" - 60"		1,000 - 3,000+	9 lbs - 27 lbs	0 or 1	9 or 12	3/4", 1", 1-1/4"
	Shamrock Sand & Sludge Nozzle / Contractor Special	Aluminum Alloy - Glides Over Sand and Sludge to Quickly Sweep Lines	6" - 18"		1,000 - 3,000+	3 lbs	0 or 1	8 or 12	3/4", 1"
Shamrock Grease Nozzle	Aluminum Alloy - Smooth and Streamlined to Penetrate Grease and Ice Blockages: Great for Inclines	4" - 18"		1,000 - 3,000+	2 lbs	0 or 1	5 or 6	1/2", 3/4", 1"	
 USB-USA LLC 7565 Owl Creek Dr., Douglasville, GA 30134 844-285-5770 www.usb-usa.com usbussalcc@gmail.com See ad page 44	Primus 3D	Grease, Crusts, Light Roots	4" - 24"	18 to 120	2000 - 4,000	2.6/7.0/8.3/20.1	1	3/4/5/6	1/2 - 3/4 - 1 - 1 1/4
	Rocket 3D	Sand, Silt, Large Debris	4" - 24"	12 to 120	2,000 - 4,000	.6/2.6/4.85/11.4/44		6/8/10/12	1/2 - 3/4 - 1 - 1 1/4 - 1 1/2
	Pipe Wolf 3D	Total Blockages from Roots, Grease & other Organic Matter	4" - 24"	14 to 120	2,000 - 4,000	2.4/5.7/11.9		6	1/2" - 3/4" - 1" - 1 1/4"
	Bagger Max 3D	Sand, Silt, Solids, Sludge & other Heavy Debris	18" - 96"	50 to 120	2,000 - 3,000	33/53/66/114.5	5	6/8/10/12	3/4" - 1" - 1 1/4" - 1 1/2"
	Chisel	Total Blockages from Roots, Grease, etc.	2" - 15"	8 to 120	2,000 - 4,000	.22/.33/.66/1.54	4		1/4" - 3/8" - 1/2" - 3/4" - 1" - 1 1/4"
	FS 3D	Total Blockages from Roots, Grease & other Obstructions	2" - 15"	8 to 80	2,000 - 4,000	.22/.44/.66/1.54/3.7	4	6/5/6/8	1/4" - 3/8" - 1/2" - 3/4" - 1"
	Tri-Jet 3D	Mud, Sand, Silt - Everyday Cleaning	4" - 48"	60 to 120	2,000	4.8/12.1/17.6/23.1/44		12-15	1" - 1 1/4"
	FD 2 3D	Half-Open or Complete Open Drains - Mud, Sand, Silt	4" - 12"	14 to 120	2,000 - 4,000	2.6/4/8.3/14.3		6-8	1/2" - 3/4" - 1" - 1 1/4"
	3D Extreme	Mud, Sand, Silt	6" - 15"	40 to 120	2,000 - 3,000	9.4	1	8	3/4" - 1" - 1 1/4"
3D Cleaning	Everyday Cleaning - Sand, Mud, Silt, Grease	4" - 15"	14 to 80	2,000 - 4,000	.6/12.1/17.6/23.1	1	6/8/10/12	1/2" - 3/4" - 1" - 1 1/4"	

2023 SEWER NOZZLES DIRECTORY

DEALERS/DISTRIBUTORS

NOZZLE LINES	
<p>See ad page 50</p> <p>American Jetter 66908 Pine Grove Rd., Knoxville, TN 37914 866-944-3569 • 865-524-4647 • (f) 865-247-5101 www.americanjetter.com • andy@americanjetter.com</p>	<p>Aqua Mole, StoneAge, Warthog</p>
<p>See ad page 51</p> <p> GapVax, Inc. 575 Central Ave., Johnstown, PA 15902 888-442-7829 • 814-535-6766 • (f) 814-539-3617 www.gapvax.com • scott@gapvax.com</p>	<p>Sewer Pro Shop - Blue Star Nozzles, StoneAge - Classic, ENZ USA</p>
<p>See ad page 7</p> <p> Super Products® Super Products LLC 130 Boxhorn Dr., Mukwonago, WI 53149 800-837-9711 shop.superproducts.com</p>	<p>Storm Surge 3D, PRIMUS III, S200 Turbo Cutter, Recycling Grand Slam, USB-USA LLC</p>

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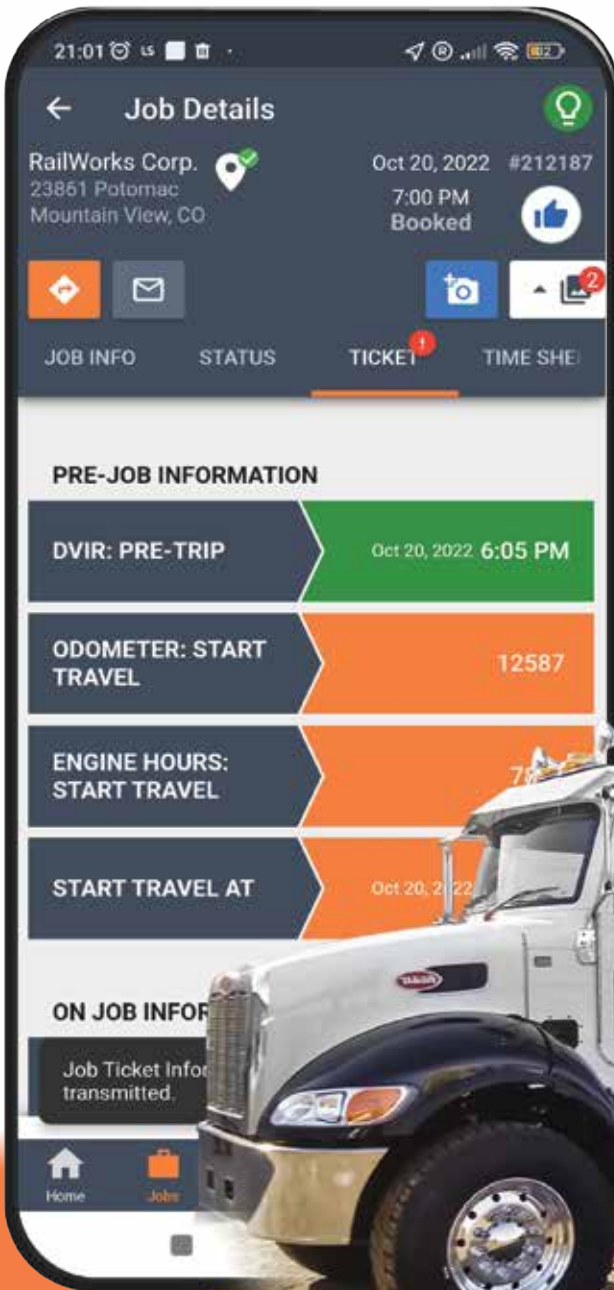
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NASSCO is located at 5285 Westview Drive, Suite #202, Frederick, MD 21703; 410-442-7473; www.nassco.org

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

A PLAN FOR THE FUTURE

NASSCO's new strategic plan addresses strengths, weaknesses, opportunities and threats

By *Sheila Joy*

This month NASSCO members gather in Hollywood, Florida, for NASSCO's 47th Annual Conference. With a full agenda of NASSCO membership meetings, educational sessions and networking events, the conference content all starts with NASSCO's strategic plan.

In 2019 NASSCO's board of directors, staff and paid consultants gathered in Washington, D.C., to set a course for NASSCO's next five to 10 years. The brainstorming session resulted in a solid strategic plan that examined and addressed NASSCO's strengths, weaknesses, opportunities and threats.

NASSCO's mission (to set industry standards for the assessment, maintenance and rehabilitation of underground infrastructure) set the foundation. NASSCO's vision (to increase the awareness of aging underground infrastructure and to provide viable solutions through education, technical resources, and industry advocacy) helped us stay the course. And NASSCO's core values of adaptability, camaraderie, efficiency, fairness, knowledge and support were the undercurrents to ensure our two-day strategic planning session was as effective as possible.

The outcome of that 2019 session boiled down to a simple future direction for NASSCO: to become the trusted underground infrastructure industry source for education, technical resources and advocacy.

That is a bold statement, but it is one that our board, staff and NASSCO's Technical Advisory Council have all agreed to and on which we stand to make sure that NASSCO serves the industry well.

In 2022, we gathered again for the purpose of re-examining our strategy and adjusting it based on a changing market, evolving technology and resources. While specific tactics have changed, our strategy to be the source for education, technical resources and advocacy remains firm. How does this work get done? Through our dynamic and productive committees, with the support of our TAC and staff:

Education: In addition to NASSCO's trusted Pipeline Assessment Certification Program and Inspector Training Certification Programs, NASSCO committees are developing additional educational programs for the safe use of grouting, the safe use of styrene used in the CIPP process, a residential inspection program for laterals in the sale of real estate, a drain cleaning certification program, a new course on jetter safety and more. With the launch of The NASSCO Training Source (nasscotrainingsource.org) these sessions will all be available online.

Technical Resources: NASSCO committees are also in the process of developing a library of trenchless technology videos designed to help individuals either new to the industry or to a particular technology. Committees are also committed to sharing their technical knowledge with a wider audience through industry-wide webinars which are all posted on NASSCO.org following the online events. Finally, NASSCO has been the trusted source for the development of NASSCO specification guidelines for decades and our library of trusted documents, which are developed and peer-reviewed by our committees, continues to grow.

Advocacy: NASSCO takes the topic of safety very seriously. When questions arose a few years back regarding the safety of styrene emissions used in the CIPP process, NASSCO formed an industry-wide workgroup and funded third-party research on the subject. This research continues today, with TTC's Phase 3 report

being recently released. Full studies and recommendations can be found at nassco.org/safety. NASSCO also advocates for our industry through its Government Relations Committee and the need to fund important underground infrastructure, and its Workforce Development Committee which is diligently working on ways to fill the skilled trade gap for the entire industry.

All of the educational opportunities, technical resources and advocacy NASSCO committees are available to all — you do not need to be a NASSCO member to download specifications, share videos, watch webinars, take a class or benefit from our advocacy initiatives. To learn more, please visit www.nassco.org. ♦

All of the educational opportunities, technical resources and advocacy NASSCO committees are so committed to are available to all.

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

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From small trailers to large truck-mounted units, Comet Pumps' ET 55 Series pump was designed for hydroexcavating and industrial jet/vac services in mind. Its high-performance features, compact design, and symmetrical crankcase allows for easy right to left shaft conversion — making installation simple and easy to accomplish. It contains high-reliability high-pressure seals with low-pressure lubrication and recirculation chambers proven to withstand corrosion. It can withstand extreme temperatures with its stainless steel suction valves and guiding pistons, nickel-plated brass and an aluminum alloy pump body. It can operate at 1,450 rpm and 3,626 psi. Its shaft support system and tapered roller bearings will enable this pump to run for extended periods of time.

800-864-1649; www.cometpump.com



Dynablast Pratissoli KT28ASPF

The Pratissoli KT28ASPF water pump package distributed by Dynablast offers 18.4 gpm at 2,900 psi at 1,450 rpm. It has a T13 female spline shaft input and SAE B 2/4 bolt flange for direct mounting to the hydraulic motor. It has a self-lubricating design, so there is no oiler kit or weekly oiling required. Its symmetrical crankcase makes it easy to reverse shaft the pump. Internal fins on an aluminum crank case provide cooling to lower oil temperature. It includes a tapered roller bearing for improved lateral loading, and two bore ceramic plungers that are thicker ceramic on the water end to prevent thermal shock.

905-867-4642; www.dynablast.ca



Enz USA Hydro X

The Hydro X nozzle from Enz USA is available in 3/8-inch NPT or 1/2-inch connecting threads, and it can function at up to 5,000 psi with flow as low as 8 gpm. It combines a powerful, oscillating water jet with a high debris removal rate. A tungsten carbide front jet ensures a longer life than ceramic jets can offer. For quick and easy maintenance, a repair kit is available.



Due to the nozzle's simplicity, repairs can be made quickly and efficiently in the field with little downtime. For the operator's safety, a plastic cover provides protection against harsh and sensitive environments. **888-369-8721; www.enz.com**

Hydra-Flex Ripsaw

The Ripsaw is Hydra-Flex's rotating hydro-excavation nozzle. Its 0-degree stream rotates at an 18-degree cone of coverage, which increases impingement to dig faster and use less water. A slower stream rotation increases digging power, improves control and reduces the nozzle's wear and tear to lengthen its life. Built with a heavy-duty coating, stainless steel housing and tungsten carbide wear surfaces, its long-lasting, premium components stand tall against frost, shale and rocky soil. Its coating is nonconductive, which provides extra safety for both users and utilities. It was designed to be repairable, and repair kits can extend the nozzle's life and have you back up and running in just 10 minutes.

952-808-3640; www.hydrflexinc.com



RNV Hydrovac2

The RNV Hydrovac2 unit can be placed on an RNV-approved 6-cubic-foot steel construction-grade wheelbarrow to create a powerful portable hydrovac. It can vacuum down vertically to 12 feet, vacuuming effluent sludge, sand and small aggregate. Combining it with a pressure washer or air spade creates a unique excavation solution. The unit weighs 42 pounds, only requires a 1120-volt AC, 15-amp power outlet and will easily run on a 2,200-watt generator or inverter for maximum portability.

607-786-2139; www.rnvac.com



SewerProShop Raven

The Raven hydroexcavation nozzle from SewerProShop has been precision engineered by Intersewer and manufactured to the highest technical standards of ISO 9001:2008 certification in Germany. The weight has the purpose to counteract the high-pressure kickback of the wand. It is constructed from high-grade stainless steel, is threaded and includes a replaceable



ceramic nozzle insert with forward water jet angled at zero degrees or a fan jet. It is rated for 18 gpm at 4,000 psi up to 80 gpm at 2,500 psi. It includes a 1/2- to 1-inch sewer hose connection. It is operator-friendly with no maintenance required.

877-864-9394; www.sewerproshop.com

Soil Surgeon hydroexcavating tool

The Soil Surgeon hydroexcavating tool fits any sewer combination truck equipped with a telescoping 6- or 8-inch boom. The tool has a 1-inch water connection. The operator controls water pressure and power through truck controls. It has a 6-foot Tuff-Tube with handles to guide the unit down for potholing or side to side for trenching. Six jets boring inward cut the soil while six boring outward bring the tube down.

949-363-1401; www.soilurgeoninc.com



Hydroexcavation Trucks/Trailers

Brandt HX120

In response to the increasing need for hydrovacacs that combine full-size capacity with maneuverability in tight urban spaces, Brandt offers the HX120. This high-pressure performer helps contractors work more efficiently with maximized legal load weights, quicker debris loading and unloading time, and the capacity to take on larger jobs without load weight concerns. The real-time measurement of water and overall truck weight enables operators to make quick, informed decisions, which reduces the risk of damage or overweight penalties. The unit has a 1,150-gallon water tank capacity and 11.6 cubic yards of debris tank capacity, as well as a 28-foot boom reach with 340-degree rotation. It also operates quietly, which is a benefit in urban settings. **866-427-2638; www.brandt.ca**



Ditch Witch HXT Line

Contractors looking for the efficiency and payload capacity of a truck-mounted vacuum excavator can turn to Ditch Witch's HXT Line of vacuum excavators. The HXT50 and HXT75 are powered by Kubota engines with 50 and 75 hp, respectively, for optimal suction power. The HXT50 has a 1,005 cfm blower and 3,000 psi water pressure. Both units are available with 500-, 800- and 1,200-gallon spoils tank configurations, allowing contractors the freedom to stay on a job site longer and avoid repeated spoils disposal and water refilling. The 500-gallon configuration is designed to be under CDL requirements, allowing contractors to transport the machine without a CDL driver on staff. The HXT75 offers 1,315 cfm and up to 5.5 gpm water pump flow. They are designed with a spoils tank door that can be controlled curbside or remotely to keep operators clean during spoils disposal. Both come with a multifunction remote control option for the boom, allowing operators to more easily control the vacuum hose.

580-336-4402; www.ditchwitch.com



GapVax VHX Series

The GapVax VHX Series hydrovac is designed to deliver optimal weight distribution, improved safety features and increased performance. The debris body is 7.5 cubic yards, offering a 15,000-pound payload. The low profile (12 feet, 2 inches) makes it suitable for all-around hydroexcavation projects. The vacuum system with single mode wet/dry filtration is quiet, reliable and simple, according to the maker. It includes a 4,000 cfm positive displacement blower, 600 hp transfer case with air-shift engagement and ultra-quiet air injection, and discharge silencers. This filtration design includes a top-loading debris tank, 14-inch stainless steel float-ball shut-off, efficient centrifugal cyclone separators and long-lasting filter bags. It is equipped with a 12 gpm, 3,000 psi water system with optional 200 cfm air compressor system. A full-tilting debris body, over 45-degree dump angle and full-opening tailgate allow for fast unloading and easy clean-out. The 8-inch telescoping VHX boom offers a 22-foot reach with 15-degree downward pivot.

888-442-7829; www.gapvax.com



Hi-Vac X-13 Hydro Excavator

The Hi-Vac X-13 Hydro Excavator maximizes productivity and return on investment and minimizes downtime by eliminating high-maintenance components. A modular design provides clean and intuitive controls and simple, planned maintenance accessibility for all critical systems. It is ideal when on-site dumping is required and for off-highway applications that require the maximum legal payload. A 13-cubic-yard debris tank, up to 24,500-pound payload capacity and 1,140-gallon freshwater capacity result in fewer costly job site trips. Power is provided by a 5,800 cfm, 27-inch Hg high-performance blower and a run-dry water pump that delivers 20 gpm at 2,500 psi. The top-mounted, 360-degree boom ensures accessibility in all directions and a heavy-duty, hydraulic vibrator facilitates fast and efficient unloading of the debris body. A severe-duty boiler safely heats water for frozen ground applications.

800-752-2400; www.hi-vac.com



HotJet USA Vac 'n Jet Series

The HotJet USA Vac 'n Jet Series of vacuum trailer jettets are rugged, compact, engineered to haul equipment and spoils loads, able to clean valve boxes and storm drains, and able to hydroexcavate and/or clean drainlines and sewer lines. They offer hot- and/or cold-water operation with a choice of engines ranging from 13 to 66 hp and gas or diesel. They are equipped with premium triplex pumps, a 500-gallon spoils tank, 200-gallon water tank, Gardner Denver vac/blowers, 4-ton hydraulic dump and CentriClean filter system. They can also be designed to meet specifications.

800-624-8186; www.hotjetusa.com



(continued)

PRODUCT FOCUS

HYDROEXCAVATION AND INDUSTRIAL JET/VAC SERVICES

Lone Star Body Systems Rig Vac

The Rig Vac vacuum-only trailer from Lone Star Body Systems is designed to be used in oil and gas upstream or downstream, sewer septic and large industrial settings. Its size allows it to get into spots trucks can't. It is available in 500, 800 and 1,000-gallon tanks with multiple pump and blower sizes, with a rear head with a 36-inch manway.



It is built on a 4-inch reward slope, and includes a Fruitland RCF 500 27-inch, 338 CFM pump. It features primary and secondary filtration, gravity flow offloading, curbside controls, with an optional winterization package, lighting, tool boxes and rack cabinets. It features a Hatz Diesel belt-drive power source.

254-237-5208; www.lsvacuumtrailers.com

RAMVAC by Sewer Equipment HX-12

The HX-12 hydroexcavator from RAMVAC by Sewer Equipment has a 12-yard debris tank and a heated, secured equipment locker that contains the entire water system, including water tanks, for cold-weather application and tool security. This machine touts a directional discharge system with the ability to off-load debris back



into the excavation site when done, without the mess of dumping the tank. This system also allows operators to blow any obstructions out of the dig hose and get back to work. It includes a long-range wireless remote, NEMA 4 electrical system, an 800,000 Btu water heater and a three-stage cyclonic filtration system. The standard 4,400 cfm blower will match the performance of larger blower machines while delivering fuel economy with the ability to go up to 5,400 cfm. The series offers debris capacities from 3 to 15 cubic yards while maintaining a short overall footprint. 888-477-7638; www.ram-vac.com

Rival Hydrovac T7 Tandem and T10

The T7 Tandem from Rival Hydrovac was designed primarily to be a unit that could be loaded with debris and drive within legislated road limits with most types of debris on board. The unit comes standard with a scale that reads real-time weights both in the cab and on the wire-



less remote to confirm weight prior to travel. The T10 is built with the same features and operating system, but with larger capacities and components. It is popular with clients who do both utility and industrial work. It is available in three chassis layouts to meet weight restrictions in a given area. An air compressor option allows for excavating with air when required, while a truck-mounted coring system allows for removal of hard surfaces prior to nondestructive excavating.

403-550-7997; www.rivalhydrovac.com

Tornado Global Hydrovacs F3 ECO-LITE

Tornado Global Hydrovacs engineered the F3 ECO-LITE to have big functionality in a mid-sized platform. It was made specifically to legally haul large payloads in urban environments with a debris capacity of 10 cubic yards and a water capacity of 1,250 gallons. A float-style indicator is positioned on the outside of the debris tank for easy monitoring of volume. It comes with a boom capa-

ble of reaching to 26 feet with 342 degrees of rotation and an 8-inch boom hose. The truck uses a 3,800 cfm Robuschi 125 blower, a Pratisoli KT28 water pump and a Dynablast 740,000 Btu burner. A hydraulic dump door measuring 48 by 52 inches is mounted on the back of the tank and sits 42 inches high for easy use over bins.

877-340-8141; www.tornadotrucks.com



TRUVAC TRXX

The TRUVAC TRXX vacuum excavation trailer is easy to learn, operate and maintain. It delivers the power and features required to perform a wide range of safe digging applications including underground utility locating, keyholing for HDD installations, slot trenching and removal of non-hazardous liquids including flood water,



drilling spoils, and catch basins. It brings safe digging to a new range of applications to benefit municipalities and landscaping and plumbing contractors, when job locations are tight on space, or less than what would require a full-size truck. Available in 500 and 800 gallons, both offer optional cyclone filtration. A standard wireless multifunction remote control activates all dig, vacuum, and dump functions, including the "Dig and Unclog" feature to streamline the operator's workflow. An optional strong arm or hydraulic boom extends the reach even further. 800-627-3171; www.truvac.com

Vac-Con Mudslinger MS800

The Mudslinger MS800 trailer-mounted hydrovac from Vac-Con is designed to provide the same power, suction and capacity of a truck hydroexcavator on a portable, pull-behind trailer. It includes the choice of Tier 4 diesel or gas engine options providing up to 1,190 cfm and 16 inches Hg with a PD blower and 325 gallons of water. It has an



845-gallon debris tank and a 9-foot boom with 24 inches of hydraulic extension providing a full range of motion. It is designed to be a standalone unit, but can also provide support to construction, HDD and public utility fleets. A variety of applications includes daylighting, potholing, culvert and manhole cleaning, and utility locating. 904-284-4200; www.vac-con.com

Vacall AllExcavate and AllExcavate2

Standard intelligent controls, easy startup and operation set Vacall AllExcavate and AllExcavate2 machines apart. Both models efficiently remove dirt around utility lines and foundations. Water pumps generate 24.5 to 120 gpm and pressures to 3,000



psi. The AE2 model adds air excavation at 185 cfm and dual psi of 110 and 150. Water system, wand, control panel, tools and worker apparel are protected in a heated compartment. An AllSmartFlow CAN bus intelligent control system features a programmable LCD display that monitors engine, water flow, air pressure and vacuum performance for precise boom and reel adjustments. Aluminum water tanks with lifetime warranty carry 1,000 to 1,300 gallons. Galvanized debris

(continued)



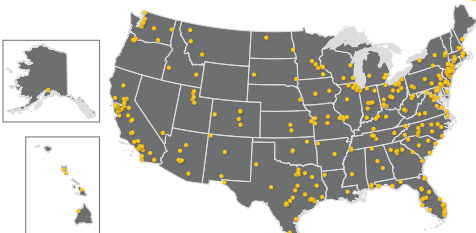
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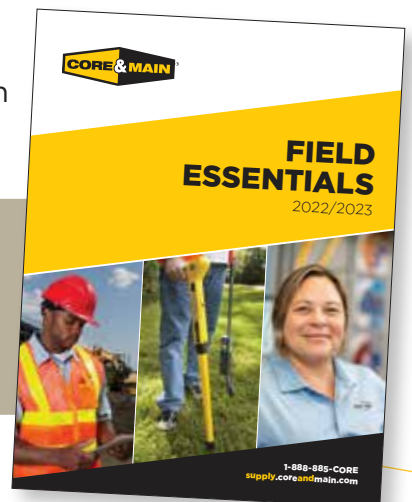
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HYDROEXCAVATION AND INDUSTRIAL JET/VAC SERVICES

tanks have a supreme finish, and are available with 8-, 10- and 13-cubic-yard capacities. They use one engine to power the chassis and excavation functions, reducing service and operation costs.

800-382-8302; www.vacall.com

Vermeer VXT300

Vermeer's VXT300 truck vac is outfitted with an 8-cubic-yard spoil tank, 6-inch dig tube and the ability to carry up to 800 gallons of water so crews can maximize productivity on the job. It is designed with a low overall height of 11.5 feet to efficiently transport spoils from the job site to the dumpsite. The vac truck is built on a Kenworth T370 truck chassis with a 350 hp diesel engine and a six-speed automatic 3,000 RDS Allison transmission. The truck's PTO drive powers its Roots 624 vacuum blower with a maximum flow of 3,500 cfm and maximum suction of 18 inches Hg. The water pump is capable of producing 10 gpm at 3,000 psi for productivity on large jobs as well as when digging at deeper depths.

800-837-6337; www.vermeer.com



Wachs Utility Products Trav-L-Vac and Hydro-Vac

Trav-L-Vac and Hydro-Vac trailers and skid-truck-mounted systems from Wachs Utility Products are safe and cost-effective tools for precise utility excavation. Popular options for basic vacuum needs, they allow utility companies and public works departments to perform small to midsize vacuum tasks without the massive investment of a large highway vac truck. The smaller gas powered Trav-L-Vac is available as either a compact trailer or a skid-mount model, suitable for valve box cleaning and excavation. When combined with a P-2 handheld valve exerciser, it's a good starting point for smaller organizations and municipalities looking to self-perform their valve maintenance activities. The larger Hydro-Vac trailer, available in either gas- or diesel-powered trailer and skid models, is suited for bigger jobs such as trenching and excavating. Customizable to fit needs and budget, its future upgrade path allows you to configure a trailer with hydraulics today, then add an ERV-750 valve exerciser later.

847-537-8800; www.turnvalves.com



Jet/Vac Combination Trucks/Trailers

Aryan Pumps combination machines

Combination sewer cleaning trucks from Aryan Pumps include a hose cassette apparatus with a combined arm to simplify hose storage. It holds continuous lengths of 65 feet of suction hose, so there is no need to couple hose extensions for deep suction. It includes easy in-and-out functionality and comfortable handling of the hose through the telescopic design of the arm. It includes a roller track for smooth operation, and the wide reach of the telescopic extension helps operators with vehicle park-



ing flexibility. The unit offers single-person suction and jetting operation from the rear side of the vehicle.

248-464-8853; www.aryanpumps.com

Bucher Municipal North America FlexLine

FlexLine C120 and C60 combination sewer cleaners from Bucher Municipal North America are used for preventive cleaning, emergency cleaning of mains, septic, collection tanks and hydroexcavation. They offer 8- and 15-cubic-yard capacities, 7.2 and 14.5 psi, a jetting hose reel with more than 492 feet of capacity, a 5-inch suction hose with 7-foot extension, a hydraulic end cover that opens upwards, minimizing obstructions on roads and sidewalks, two control panels placed for easy operation, and a 5,100 psi at 5 gpm hydroexcavation pump.

704-658-1333; www.buchermunicipal.com



Super Products Camel Max Series

Camel Max Series combination sewer cleaners from Super Products allow operators to tackle various applications with jetting, vacuuming and excavating. The product line comes in a variety of model configurations: 900 Dump, 1200 Dump, 1200 Eject and 1200 Wastewater Recycle. All 1200 models come standard with a high-dump sub-frame, eliminating the need to back up a ramp for debris removal. The 1200 Dump is capable of dumping into a 42-inch container while maintaining a low overhead height and a low center of gravity for increased stability. The 1200 Eject allows operators to have the only controlled way to dump safely into a 48-inch container without the need of additional containment products. The 1200 Wastewater Recycle enables operators to clean sewers without the use of freshwater, and is capable of cleaning nearly 3,000 feet of sewer pipe per day and saving 60,000 gallons of water per week.

800-837-9711; www.superproducts.com ♦



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Product Spotlight

Milling machine provides more power for tougher jobs

By *Craig Mandli*

Milling machines have become essential tools for fast and efficient cleaning. This includes many of the obstacles municipal sewer crews face on a daily basis, such as soft blockages, scale and calcium buildup, tree roots and concrete deposits as well as failed liners and imperfections in the pipe. One of the newest milling machines on the market — the **Maxi Power+** from **Picote Solutions** — is designed for even higher performance cleaning, lining removal and cutting/reinstallments in larger-diameter pipes.

“It provides nearly double the power of our next biggest machine — the Maxi Miller — and operates between 500 to 1,500 rpm,” says Ryan Boldan, global learning solutions director with Picote Solutions. “It has a working range of 60 feet, but that can be lengthened to a maximum range of 132 feet with extensions to the 3/4-inch shaft. It is an extremely powerful machine that excels in even the toughest situations, but is still easy and safe to operate thanks to its unique safety features.”

According to Boldan, these safety features include a protective outer shaft casing, operator presence foot control, electric safety clutch, internal GFI, and an emergency stop to help keep operators and their equipment investment protected. Due to the increased power it provides, Boldan suggests that the unit should only be run off a 400-volt, three-phase Picote generator or a comparable unit.



“I recently spoke to one of our U.S. contractors about the Maxi Power+, and he described it as a big specialty machine with serious torque that is great for laterals and mainlines over short distances,” says Boldan. “It’s affordable compared to some high-pressure water solutions for heavy duty cleaning. This allows for faster payback on the investment.”

Boldan says that, according to that particular contractor, the unit works well for concrete and liner removal, as the contractor himself removed more than 100 feet of concrete liner in 8-inch sewer pipe using it. It’s also ideal for waterlines to remove buildup, and other industrial projects.

“We believe that the Maxi Power+ is a powerful, unique solution for those projects that often don’t have other options,” he says. “Simply mount the generator on the back of a truck and you’ll always be ready when a job comes up.”

864-940-0088; www.picotegroup.com

SPECIAL REPORT

Saniflo Sanicondens Best Flat condensate pump

Saniflo offers the sleek, low-profile Sanicondens Best Flat. This powerful condensate pump has a 3 1/2-quart tank capacity with a built-in neutralizer, and is capable of handling a total of 500,000 Btu/h. The compact unit combines a condensate pump with a pH-neutralizing pellet tray into a single space-saving, eco-friendly solution for both residential and commercial ultra-high-efficiency condensing equipment, boilers, water heaters, AC and refrigeration systems, and other appliances. It neutralizes and pumps away acidic condensate to 15 feet in height and/or 150 feet away from a soil stack.

800-571-8191; www.saniflo.com



RPS Composites grooved adapter

RPS Composites’ newly engineered RPS grooved adapter is designed to be used in conjunction with RPS FRP piping systems and a Victaulic Style 296-A coupling to create a robust, reliable FRP piping joint. The FRP adapters comply with the requirements of ASME NM.2-2020. The adapters were also tested in a pipe bending test to demonstrate a factor of safety of no less than 6 in bending with a coincident pressure of 150 psi. Designed for both the corrosion resistant P-150 piping system as well as the corrosion and abrasion resistant A-150 piping system, the joint will maintain the rating of the piping systems (150 psi at 180 degrees F). The adapter is designed for mildly corrosive environments including water, seawater, wastewater and some FGD services, up to 180 degrees F and 150 psi, and is available in 2- to 12-inch diameters.

800-343-9355; www.rpscomposites.com



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PRODUCT NEWS

Tnemec Series 975 Aerolon coating

Tnemec launched its Series 975 Aerolon, a further advancement of the company's insulative coating technology. Series 975 builds on the legacy of Series 971 in the Aerolon brand by delivering multiple benefits as a fluid-applied insulation coating system. Unlike Series 971, which is based on aerogel particles, Series 975 contains an advanced porous material for low thermal conductivity. Series 975 provides long-term insulation and corrosion protection. Other features and benefits of Series 975 Aerolon include high hydrophobicity, excellent heat and mechanical stability, low VOCs, low odor and noncombustibility.

800-863-6321; www.tnemec.com



Cherne Disc Seal plugs

Cherne Industries launched a line of Disc Seal plugs designed to block flow or provide bypass flow in underground pipes with low backpressure. Used for pipe construction, rehabilitation, cleaning and testing, the plugs can be separated into two halves to fit through any manhole effortlessly.

The Disc Seals are built with two field-replaceable double bladders to ensure a leakproof seal up to 5 psi of backpressure. In addition to being built with lightweight, corrosion-resistant aluminum, the plugs come with handles for easy installation and transport. Plus, no matter the manhole size, the plug will fit by simply separating the plug into two halves. Cherne Disc Seal plugs are available sizes ranging from 24 through 96 inches.

800-843-7584; www.cherne.com ♦



SPECIAL REPORT

All new Brandt HX120 hydroexcavator

The all-new Brandt HX120 hydroexcavator is a high-output unit with a 1,150-gallon water tank and 11.6-cubic-yard debris tank. Nimble enough for urban settings, the HX120 helps contractors work more efficiently with maximized legal load weights, quicker debris loading and unloading time, and the capacity to take on larger jobs without load weight concerns. Real-time measurement of water and overall truck weight enables operators to make quick, informed decisions, which reduces the risk of damage or overweight penalties. The new unit features a 28-foot boom reach with 340-degree rotation.

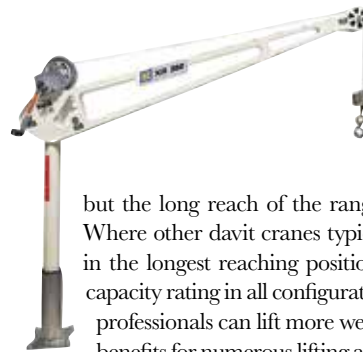


866-427-2638; www.brandt.ca

SPECIAL REPORT

Z Lifting XR Series davit cranes

OZ Lifting Products has launched its XR Series of davit cranes for wastewater and water operators. The Winona, Minnesota-based manufacturer has released the model in 500- and 1,000-pound capacities, but the long reach of the range is a standout benefit for operators. Where other davit cranes typically have reduced capacity when it is in the longest reaching position, this series maintains its maximum capacity rating in all configurations. This means wastewater and water professionals can lift more weight, further out, which presents many benefits for numerous lifting and material handling applications. The smaller crane weighs only 57 pounds and the larger crane weighs 95 pounds. Both have a maximum 62-inch reach and maximum hook height of 87 inches.



800-749-1064; www.ozliftingproducts.com

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Thompson Pump adds new central U.S. distributor

Thompson Pump and Manufacturing announced its distributor's agreement with Kirby-Smith Machinery. With this new partnership, Kirby-Smith will be selling, servicing and renting Thompson Pump's products throughout Oklahoma and North and West Texas within markets like governmental sales, oil and gas, construction, mining and industrial.

Asahi/America welcomes Steve Landry as district sales manager

Asahi/America announced the addition of Steve Landry to its outside sales team. Landry joined Asahi/America in December as district sales manager for the Texas region. He will work closely with Asahi/America's distribution network and business development team on sales efforts and engineering specifications for the company's industrial valve, actuation and piping product offerings. Landry comes to Asahi with over 20 years' experience in thermoplastics.



Steve Landry

Badger Meter acquires Syrinix

Badger Meter has acquired Syrinix, a privately held provider of intelligent water monitoring solutions, for \$18.3 million. Founded in 2010 and headquartered in the U.K., Syrinix specializes in high-frequency pressure monitoring and leak detection within water distribution and collection networks. Its remote network monitoring equipment and cloud-based software platform deliver data, customized alerts and insights that empower customers with real-time asset monitoring to reduce water loss and improve asset life.

Orange County Water District Board elects new leadership

The Orange County Water District Board of Directors elected Cathy Green to serve as its 2023-2024 board president, and Denis Bilodeau and Van Tran to serve as first and second vice president, respectively. The elections were held during the Dec. 21 board meeting.

Wesley Kingery promoted to COO at Vortex

Vortex Companies announced the promotion of Wesley Kingery to chief operating officer. In this role, Kingery will lead the development of a cross-collaboration strategy between Vortex's services and products divisions to strengthen customer relationships, increase sales and improve overall service and product quality. Kingery's former company, VacVision Environmental, was acquired by Vortex in 2017. Since then, he has served as president of the services division and played a key role in its record growth.



Wes Kingery

IRC announces company acquisitions

Infrastructure Renewal Co. acquired Insta-Pipe and IPI. Dennis Smith, the founder of both Insta-Pipe and IPI, will remain active with both organizations as a consultant and strategic partner. The official announcement was made in Phoenix in January. Jason Walborn, recently appointed CEO of Insta-Pipe, and Kent Jordan, president of IPI, will continue their roles, respectively, in addition to holding executive positions as officers within IRC.

McElroy announces new fourth Oklahoma campus

McElroy has added a fourth campus, to be housed in the recently purchased facility occupied by Baker Hughes in Broken Arrow, Oklahoma. Currently, McElroy operates approximately 300,000 square feet of plant and office facilities covering 47 acres across three McElroy campuses, all in the Tulsa area. In the last decade, numerous product evolutions, along with product expansions, meant additional facilities were needed to support manufacturing and final assembly operations. The new campus will provide an additional 193,000 square feet for McElroy operations, including a planned showcase assembly operation. The extensive office space available at the new Broken Arrow Campus will also allow McElroy to relocate all customer-facing departments while providing for future growth needs.

Epoxytec launches new website

Epoxytec launched its new and improved website, epoxytec.com. The website features a user-friendly experience in the water and wastewater coatings world where owners, engineers and contractors can research and select the best interior coatings for projects. Customers can navigate the technology behind created coatings, view all products and connect with Epoxytec's support team and coating experts for more information on how to get started.

ProPulse celebrates 25 years

Twenty-five years ago, Schieffer Co. International opened in Peosta, Iowa, with six employees in a 12,000-square-foot facility. In the two and a half decades since, the hose manufacturer has changed its name and expanded exponentially. In 2021, ProPulse added 20,000 square feet of manufacturing space to the production facility. Now known as ProPulse, a Schieffer Co., it employs 130, utilizes 130,000 square feet of space, and celebrated its silver anniversary in March. ♦



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- Inspection n Infrastructure Trucks n Rehab/Relining Manholes Flow Control
 Location/Detection Cleaning Stormwater Education/Training Safety

Other _____

Which types of sewer, storm & water repair, maintenance & inspection do you perform monthly?

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

What is approximate population of the area in which you provide service?

- 1-10,000 10,001-50,000 50,001-100,000 100,001-200,000
 200,001-500,000 500,001+

How many vehicles do you currently have in service?

- 1-5 6-10 11-15 16-20 21+

What is your annual equipment budget?

- Under \$50K \$51K-\$100K \$101K-\$200K \$201K-\$300K \$301K-\$400K
 \$401K-\$500K \$500K +

If municipal, what percentage of your sewer and/or water work is done by private contractor?

- None 1-20% 21-40% 41-60% 61-80% 80%+

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PEOPLE/AWARDS

The Florida Department of Economic Opportunity's Rural Infrastructure Fund Program awarded money to multiple communities, including the following:

- **City of Apalachicola** (\$300,000), to conduct planning and design for improvements to the city's stormwater conveyance system
- **City of Belle Glade** (\$291,732), to conduct planning and design for stormwater improvements throughout the city's downtown area

The **town of Norwood** (Massachusetts) received a \$50,000 grant from the Metropolitan Area Planning Council's Accelerating Climate Resiliency Grant Program. It will be used for advancing green stormwater retrofits at Norwood's Cleveland School and Savage Center. The project aims to clean stormwater, reduce flood risk to the buildings and provide community education and exemplars of green stormwater infrastructure.

Dr. Mahbubur Meenar received an Outstanding Community Engagement and Education Award from the New Jersey Chapter of the American Planning Association. He is an associate professor in the department of Geography, Planning and Sustainability within Rowan University's School of Earth & Environment. The honor recognizes Meenar's work for a multi-year project, "Greening Waterfront South," that he led to address flooding and stormwater runoff in the city of Camden's Waterfront South neighborhood.

The **township of Hillsborough** received a \$246,000 grant from the New Jersey Department of Environmental Protection to upgrade and restore Fox Chase Pond. Hillsborough will use the money to reduce pollutant loads to Fox Chase Pond, stabilize the pond's eroding shoreline, restore a vegetative buffer and educate the public about the importance of stormwater management and green infrastructure.



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CALENDAR

April 16-19

American Public Works Association North American Snow Conference, CHI Health Center, Omaha, Nebraska. Visit www.snow.apwa.net.

April 16-19

American Water Works Association Sustainable Water Management Conference, Hyatt Regency, Minneapolis. Visit www.awwa.org.

April 24-27

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

May 1-3

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

May 7-11

Association of State Floodplain Managers Annual Conference, Raleigh Convention Center, Raleigh, North Carolina. Visit www.floods.org.

May 10-12

Ohio Stormwater Association Conference, Kalahari Conference Center, Sandusky, Ohio. Visit www.ohioswa.com.

June 11-14

American Water Works Association ACE23, Enercare Center, Toronto, Ontario, Canada. Visit www.awwa.org.

June 27-29

Water Environment Federation Stormwater Summit, Kansas City Convention Center, Kansas City, Missouri. Visit wef.org.

July 17-19

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

August 29-31

StormCon 2023, Sheraton Dallas Hotel, Dallas. Visit www.stormcon.com.

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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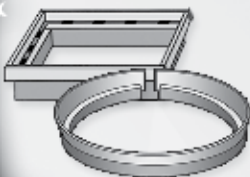
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