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DENVER WATER
JEN GELMINI

Jen Gelmini
Process Area Engineer
Denver, Colorado

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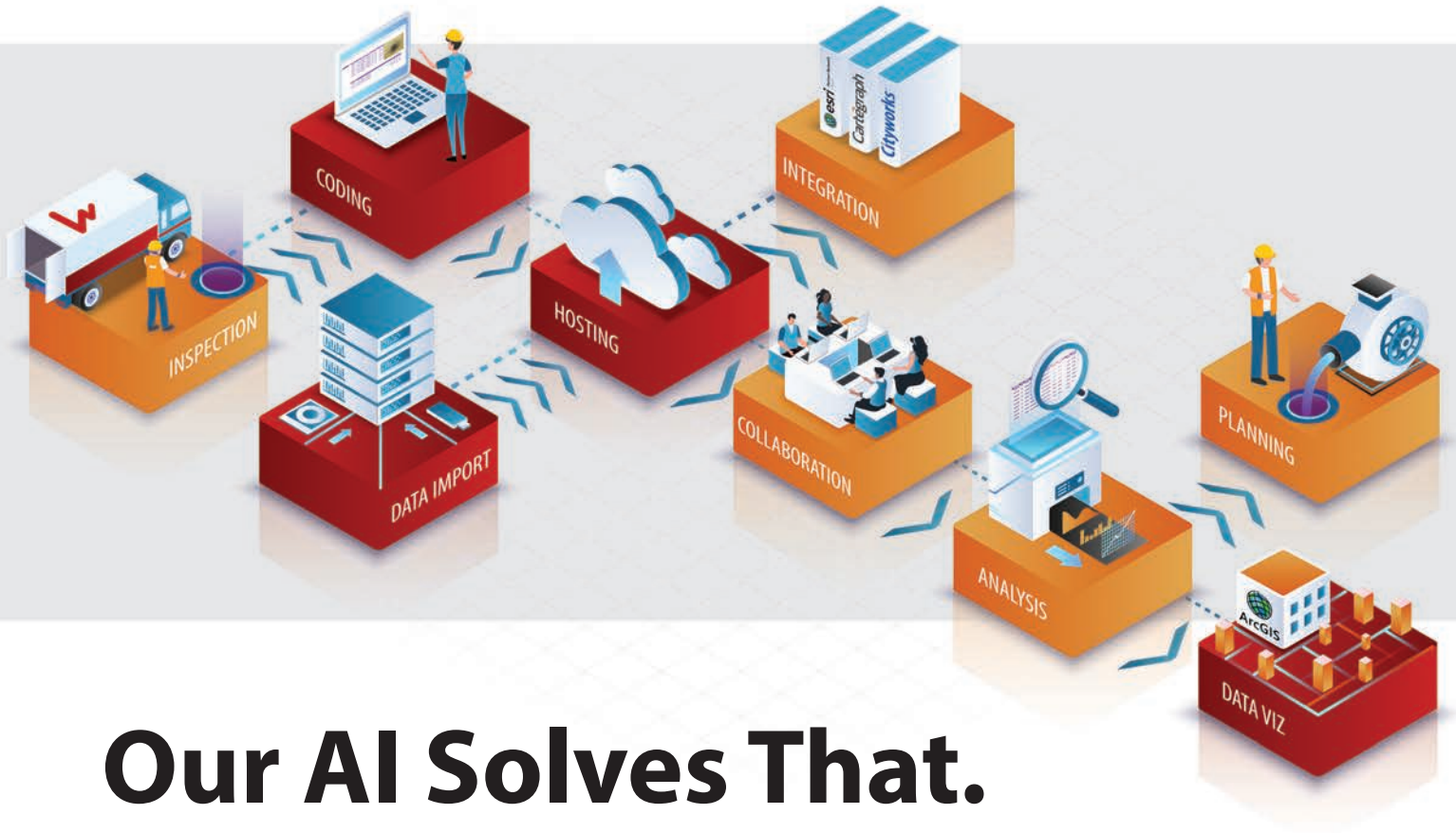


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ON THE COVER: Denver Water process area engineer Jen Gelmini on the construction site of the new Northwater Treatment Plant in Denver, Colorado. (Photography by Carl Scofield)



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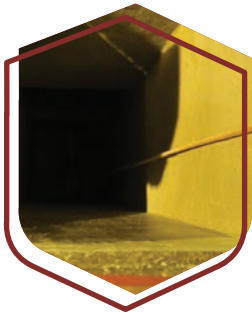
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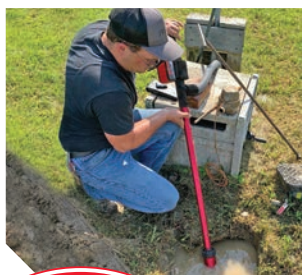
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Luke Laggis

CHANGING A MINDSET

Outreach and education are critical elements of conservation efforts

Conservation is un-American.

We are a society that, as a whole, believes we deserve as much as we want of everything.

The average customer who complains about their lawn going brown because of water restrictions probably wouldn't have a hard time with the concept of conservation if they were stranded in the desert with a limited amount of drinking water. In that situation, you'd have no choice but to ration water to survive as long as possible. But at home, where you're paying the mortgage and the taxes, it's your God-given right to let the water flow, right?

Both of the profiles in last month's Municipal Sewer & Water — Clear Lake City Water Authority and KC Water — highlighted an environmen-

**Water, to borrow a phrase, is life.
No one has more right to it than any other.**

tally conscious approach to infrastructure and operations. This month's profile on Denver Water looks at the utility's focus on sustainability and the ecocentric mindset that informs almost every aspect of the utility's operations.

"Our goal is to sustain the community forever, so we need to do our part to be sure we don't impact the environment any more than we have to," says Brian Good, chief administrative officer.

The utility runs the largest water-recycling system in Colorado. It treats and returns up to 21 million gallons of water per day to industrial and commercial customers during peak operations. In 2021, the utility recycled slightly more than 2.5 billion gallons of water.

The focus on sustainable operating practices isn't unusual for the 104-year-old utility, which started educating the public back in the 1930s by putting signs on streetcars urging residents to conserve water.

Denver got a head start on many utilities with its conservation efforts, which is part of its success. It's not something new. It isn't a new set of regulations that takes anything away. It's a mindset, an approach, an ethos, and at its root there's a plan to ensure future generations have the same access to clean water that Denver's current residents enjoy today.

It seems to me that the biggest challenge with conservation, of any kind and in any form, is helping the broader population see that it isn't about taking things away from them. It isn't about limiting what they have. It isn't socialist or communist. It's about preserving what we have and protecting it so we will always have it.

Water, to borrow a phrase, is life. No one has more right to it than any other. Water ties the whole world together and protecting our water resources is a global imperative. The need for outreach and education has never been greater. That's a big challenge for public utilities, but embracing that challenge can make a real difference in the long term. Help people see beyond their own faucets. Or hoses.

I hope the stories in this magazine give you some insight on different approaches to meeting that objective.

Enjoy this month's issue. ♦

Comments on this column or about any article in this publication may be directed to editor Luke Laggis, 800-257-7222; editor@mswmag.com.

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“Ensuring high-quality, safe water from the treatment plant throughout the distribution system and through our customers’ taps is very challenging.”

— **Louisville Water Recognized with National Award for Highest Quality Water**
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I&I MITIGATION

Persuading the Private Side

The City of Victoria, British Columbia, has a longstanding asset renewal program to address sewer issues on the public side, including I&I, and in recent years has implemented additional grant-funded projects. But increasing public awareness about I&I and assisting residents with lateral repairs marks a new territory for officials.

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GREEN STORMWATER INFRASTRUCTURE

Helping Rain Stay Put

Thorsten Knappenberger, a professor at Auburn University, recently conducted a study on how to make green stormwater structures better. The study focused on two ways to try and improve bioretention cells. One was to ensure water soaks into the soil at an optimum rate to treat pollutants, and the other was to increase how many pollutants the cell can trap. mswmag.com/featured



EXCAVATION AND TRENCH SAFETY

Learn the Fundamentals

Safety should be a pillar of your utility’s identity. While there are ways to improve on your safety practices, without the fundamentals you’ll find yourself struggling to maintain consistent quality and productivity. This online article offers an overview for a safe approach to excavation and trenching. mswmag.com/featured



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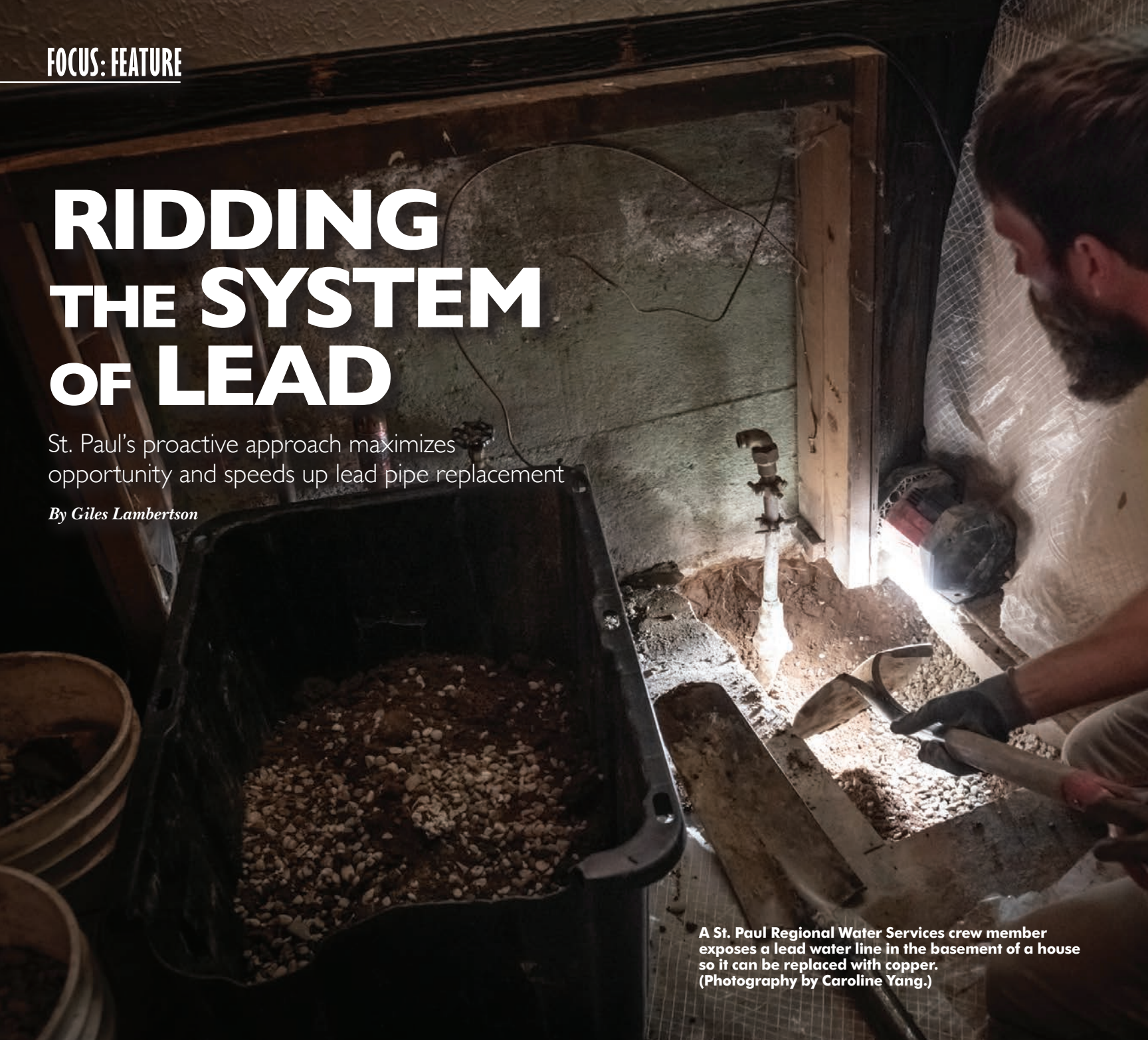
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RIDDING THE SYSTEM OF LEAD

St. Paul's proactive approach maximizes opportunity and speeds up lead pipe replacement

By Giles Lambertson



A St. Paul Regional Water Services crew member exposes a lead water line in the basement of a house so it can be replaced with copper. (Photography by Caroline Yang.)

“**G**et the lead out” is an idiomatic expression meaning to hurry or speed up the pace of work. The expression applies doubly to St. Paul Regional Water Services, which is quickening the pace of its efforts to rid the system of lead pipes.

“When I joined this organization,” says Patrick Shea, general manager of the drinking water utility, “I was looking at the plan we had for ridding the system of lead pipe. It would have taken until 2054 to complete. The St. Paul Board of Water Commissioners, my staff and I believed that was not aggressive enough.”

The consequence of this professional impatience is a 10-year plan to be fully implemented in 2023 that will eliminate all lead water service lines

in the utility’s service area at no cost to property owners. A pilot program will be offered later this year to customers living in areas where water main construction and other improvement projects are occurring.

This is an ambitious project because the regional water utility is not a small one. It serves 446,000 customers in more than a dozen communities, with 1,100 miles of water mains connected to 95,000 service lines. And, yes, some of those lines are lead — 26,000 of them, to be exact.

It’s not as though the utility has ignored the problem. Over the last 25 years, Shea says, it has “quite diligently” worked to replace lead piping located on public property, spending \$2 million to \$3 million per year to do so. As awareness of the health hazards associated with lead



PROFILE:

St. Paul Regional Water Services

SERVICE AREA:

St. Paul and 13 other adjacent cities and towns

EMPLOYEES:

250

CUSTOMERS:

446,000

CONNECTIONS:

95,000 service lines

MILES OF WATER MAIN:

1,100 miles

HYDRANTS:

10,000

AVERAGE DEMAND:

39 mgd

TREATMENT PLANT CAPACITY:

121 mgd

WEBSITE:

www.stpaul.gov/departments/saint-paul-regional-water-services

“We want our own staff to have experience doing this work and are creating a jobs plan to employ St. Paul residents.”

Patrick Shea

water pipes increased, the efforts to eradicate the threat continued.

Since the late 1990s, the city has treated all its water in a way that helps prevent the lead from contaminating water flowing through pipes. Addition of lime, sodium hydroxide and chlorine inhibits pipe corrosion, which helps keep the lead from leaching into the water.

Water commissioners decided now was the time to go “above and beyond” what the utility needed to do to be compliant with the federal Safe Drinking Water standards. To that end, it took advantage of the \$240 billion American Rescue Plan that Congress funded in response to the pandemic, which included \$130 billion for local governments for such expenditures as water infrastructure.

The city of St. Paul, which is the utility’s largest retail customer, qualified for \$167 million in American Rescue Plan funds and committed \$14.5 million of it for replacing lead pipes on private property. That is important because the utility is precluded from spending revenue collected from utility customers on private property.

Those funds will be augmented by money from a second federal source, the Infrastructure Investment and Jobs Act, for which Congress allocated \$550 billion. From that, Minnesota state agencies will receive \$43 million a year for the next five years, much of it coming as grants.

Combined with revenue generated by the utility from its customers, the regional organization will tackle the lead pipe issue to the tune of \$25 million a year for the next 10 years, two-thirds of the funds targeting pipe on private property. The mix of monies is necessary because the system’s connections vary. Of the 26,000 lead connections, some 17,000 run

from the house to the property line, the other 9,000 running all the way to the water main.

Plan of attack

St. Paul Regional Water Services is not a department of the city of St. Paul but works closely with it. While the utility is self-supporting, drawing no funds from tax revenue, city council appoints the utility’s board members and otherwise ensures that the utility is working in the city’s interests. Some utility staff — legal, financial, human resources — work independent of the general manager.

But the bulk of the utility’s 250 employees answer to the board and general manager. About 100 are maintenance and construction personnel and Shea says they are extremely busy with the steady upgrade and

Don Raway and Roy Bougie (foreground) excavate the lead water pipe outside a home in St. Paul. The utility is replacing old lead service lines with new copper pipe.



CONNECTING WITH CUSTOMERS

Like any other service provider, St. Paul Regional Water Services must please its customers. Drinking water that flows from the tap is subconsciously evaluated every gulp. The worth of the service is weighed every time a water bill arrives in the mail.

The Minnesota utility comprehensively surveys its customers every three years. Beginning early in 2023, customers will have even more interaction with the utility. Some of the extra contact will come from the utility's program to eliminate all the lead pipe in its system.

"We are looking at ways to increase our outreach," says Patrick Shea, the utility's general manager. "We have a lot of reasons to want to do so."

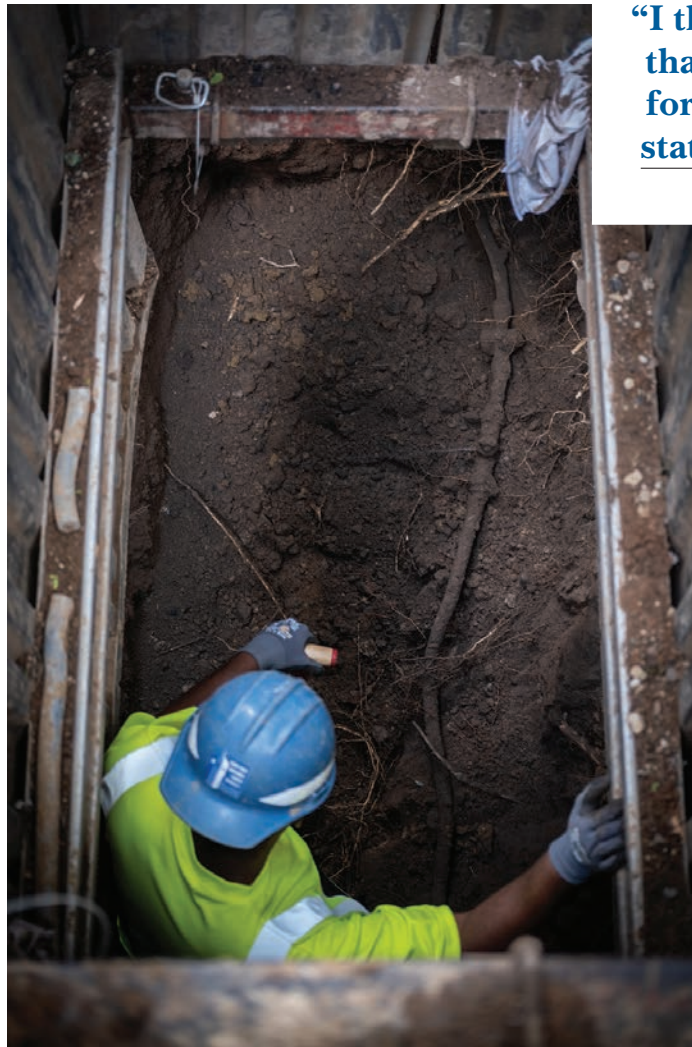
For one, St. Paul is a minority-majority city with a heavy concentration of Spanish-speaking people and Hmong residents. "We want to get more Spanish and Hmong language people on our leadership team."

The program to eradicate lead pipes will see the utility's maintenance employees working in the basements of customers' homes, flushing lines after new pipe is in place and providing lead-filter devices as a short-term backup. "It will be a unique opportunity for customers to get to know the people who produce their drinking water."

Even efforts to remove a health hazard from drinking water might draw customer complaints if it causes water rates to skyrocket. But the arrival of the monthly bill will not produce sticker shock, Shea says. "The rates are about at a midpoint in the scale of the cost of water, about \$30 a month for an average water user. Our \$250 million lead-free project combined with our water treatment plant upgrade will increase a customer's bill about \$8 a month over the next 10 years.

"Keeping rates in an affordable range is a huge issue. It's a constant challenge to hold rates as steady as possible."

So far, St. Paul Regional Water Services has been able to accomplish it.



A crew member with St. Paul Regional Water Services exposes lead water pipe 8 feet below ground level so it can be replaced with new copper pipe.

repair of infrastructure. Some \$20 million to \$25 million a year is invested in rebuilding and revamping the water distribution system.

When the lead pipe replacement program is fully in effect, some of those 100 employees will be shifted to it, with an additional 10 people expected to be hired. "We're looking at about a 50-50 split between water staff and contracted help doing the work," says Shea. The split is by design. "We want our own staff to have experience doing this work and are creating a jobs plan to employ St. Paul residents. That way, we will have some cost control and gain knowledge as well."

An interactive map on the utility's website lets customers see if their water arrives through lead pipe. Most of the targeted pipe is 5/8-inch up to 1 inch in diameter. It will be replaced by 1-inch pipe. The map shows some neighborhoods rife with lead pipe, others lead pipe-free. The utility is still working out how to proceed from neighborhood to neighborhood.

"I think the big lesson is that we are not waiting for an EPA decree or a state-agency mandate."

Patrick Shea

"A very, very high percentage of the lead pipe is in St. Paul itself, and that is really spread out all over the city," Shea says. "It really is hard to identify a section or quadrant of the city where there is a concentration of the pipe. Some of the suburbs have a little more lead pipe than do others."

If a property owner can't wait for the work to reach his or her piece of property, the person can opt to personally contract the work. "Our program is voluntary and free within designated project areas," Shea says. "If someone out of the project area wants to get the work done using a private contractor, that's an option. By early 2023, we hope to have created a draft project zones map and schedule, and property owners can look at that and make their judgment."

Due to Minnesota winters, the work will be seasonal, with crews working from April through late November, the general manager says. "Once snow is on the ground or frost in the ground, it is hard working outside and you can do a lot more damage digging. It just isn't cost-effective and controlling cost is a key component of the program."

Strong supply

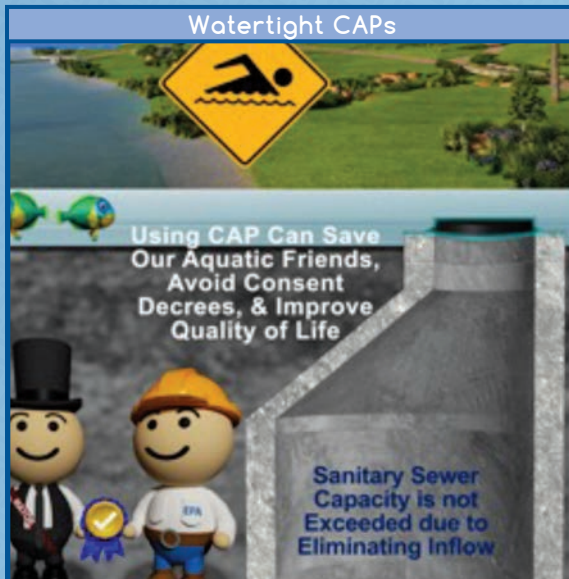
St. Paul is rich in water resources. Its primary water source is the Mississippi River. The utility draws from the river upstream from the Twin Cities with the diverted water flowing into and through a string of lakes. The sourced water that finally reaches the utility's water treatment plant is two-thirds river water and one-third watershed from the lakes. The water is treated and oxygenated while in the lakes.

"The supply side here is amazing," Shea says. In emergencies, the utility can also draw up to 50 mgd from its deep backup wells. The last significant draw was about 40 years ago when the area was in the midst of a drought.

(continued)



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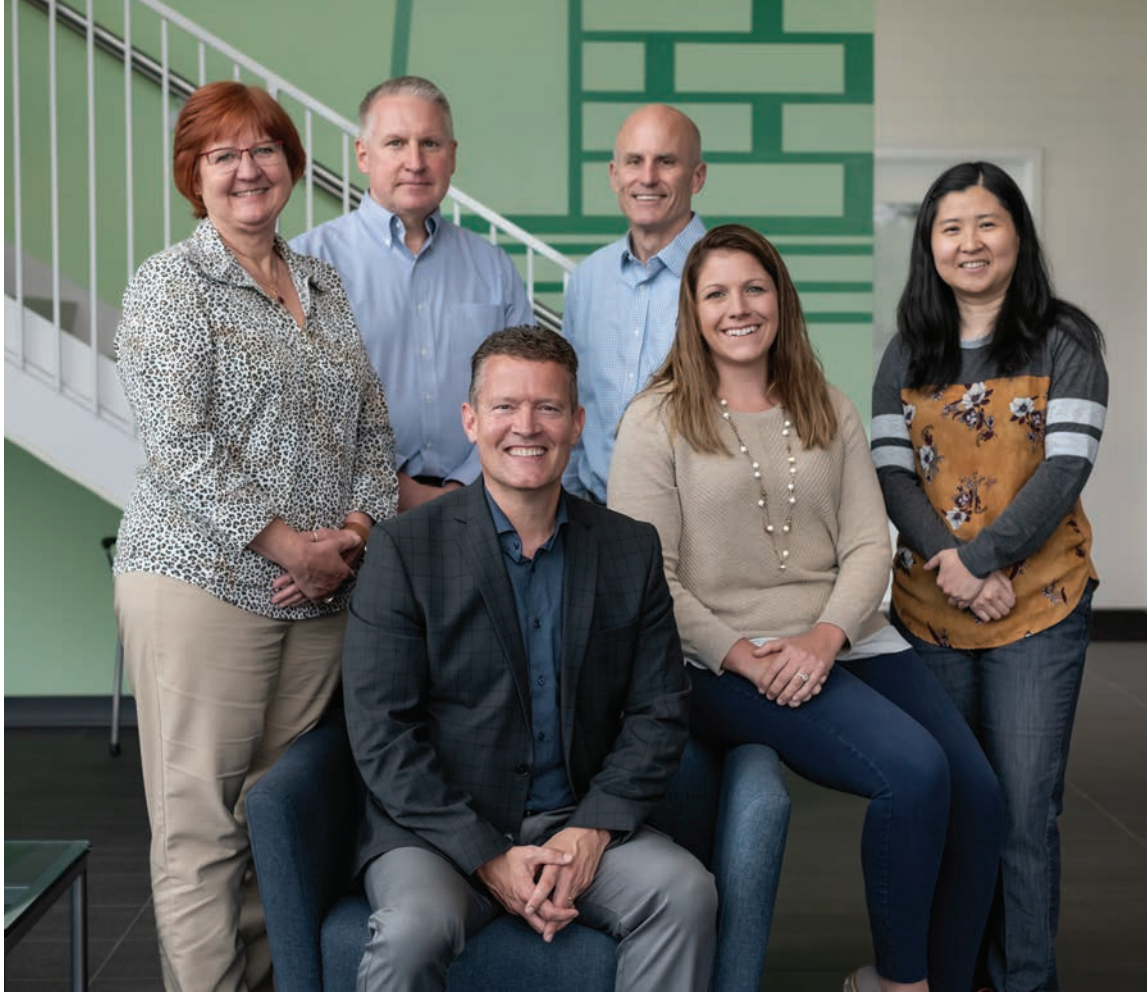
Lead pipe is not the only infrastructure challenge St. Paul Regional Water Services is addressing. The 140-year-old utility has water mains and service lines that are 80 years old on average, which is young compared to its water treatment plant: It dates clear back to 1920.

Help is on the way for the 102-year-old McCarrons Water Treatment Plant, says General Manager Patrick Shea. “In early May, we held a groundbreaking ceremony at the plant. It will replace two-thirds of the facility over the next five years.” The cost: \$250 million.

It’s not that the plant has failed. In fact, it’s still winning awards. The utility earned the 2022 Best in Glass award in the Minnesota-wide taste-test competition conducted by the American Water Works Association.

Still, the new construction will upgrade lime softening, recarbonation and ozonation, as well as other processes. “The advanced oxidation capability is really a nice tool to have in our toolbox. It will help us do what we already understand we need to be doing and address future concerns.”

It simply is time to modernize the plant, Shea says. “Some parts of the plant haven’t failed in a hundred years, but it will help a utility person like me sleep better knowing the issue is being addressed.”

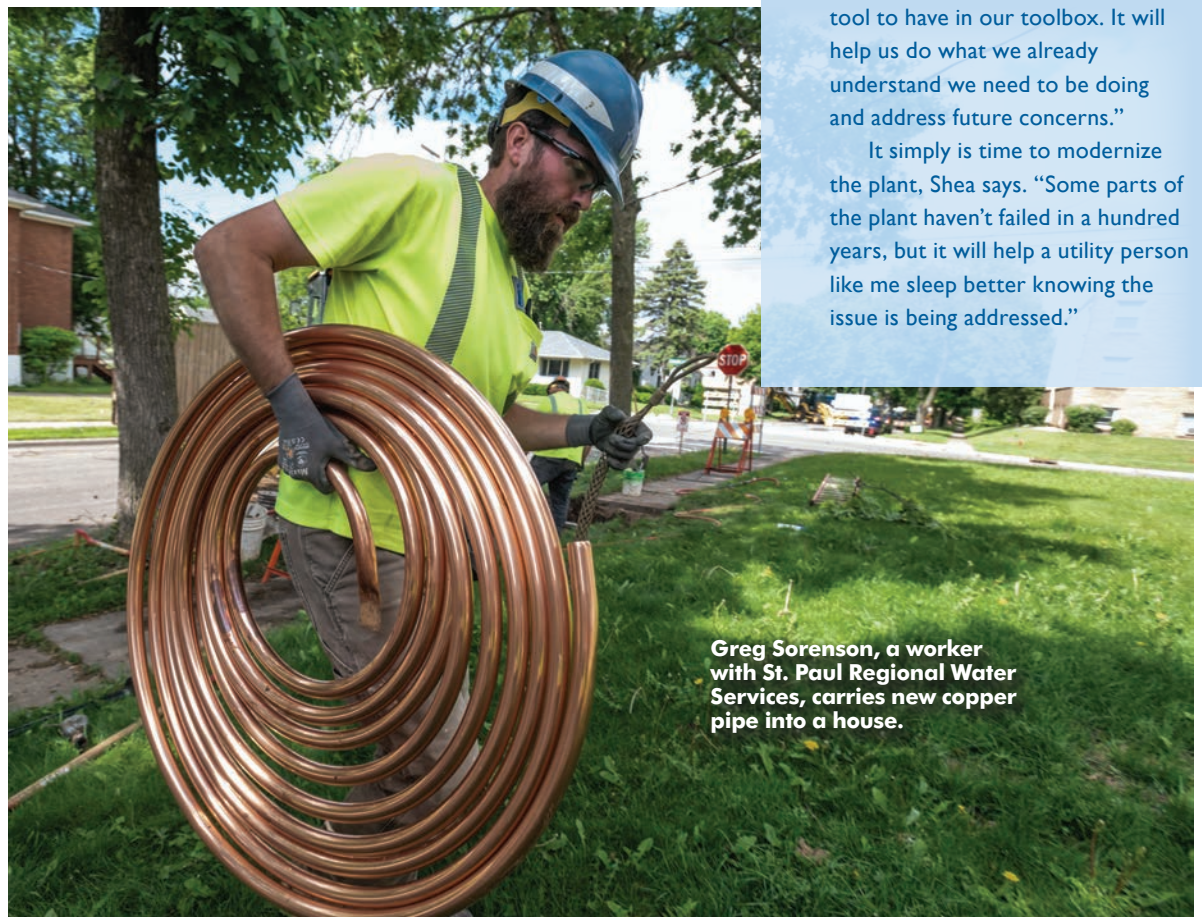


Business Division Manager Dolly Ludden, Distribution Division Manager Todd Blomstrom, General Manager Patrick Shea, Engineering Division Manager Dave Wagner, Assistant General Manager Racquel Vaske and Production Division Manager Che Fei Chen (from left) pose for a group portrait at the St. Paul Regional Water Services office.

The 51-year-old general manager has been in his position for three years after 25 years doing similar work in St. Cloud, Minnesota. The utility recently has experienced some retirements, so in the next few months, Shea will have five new executive team members working with him. “We’re all working together to get up to speed.”

The organization is operating smoothly, in any event, juggling some major capital projects at the same time the lead-free program is about to be launched. Shea says there may be a lesson in the lead pipe initiative for other water systems.

“I think the big lesson is that we are not waiting for an EPA decree or a state-agency mandate. We’re being proactive. I am amazed at the capacity of teams to work together and get the work done. That’s the thing: You need a champion and a willingness to think outside the box. We found that champion in the board of water commissioners.” ♦



Greg Sorenson, a worker with St. Paul Regional Water Services, carries new copper pipe into a house.

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Before

After



Before

After

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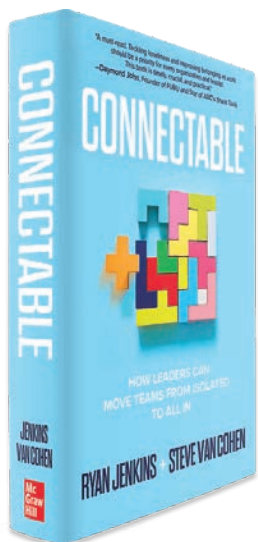
Personal connections are the cure for the growing problem of employee isolation

By Ken Wysocky



“We have to recognize it’s not employee burnout. ... We need to ring the bell.”

Ryan Jenkins



The workplace is facing another epidemic. And this time around, there’s no vaccine available. And masks won’t help, either.

The disease is loneliness and it’s adversely impacting employee productivity and engagement while promoting worker turnover and illness. And it could get worse as greater numbers of employees work remotely, says Ryan Jenkins, a speaker who focuses on the future of work and other workplace issues.

At first blush, loneliness at work may sound improbable. How does an employee feel lonely when surrounded by people? Yet 72% of 2,000 workers surveyed as part of Jenkins’ research on the topic say they periodically feel lonely.

Maybe they’re the only member of a team with young children, or have no children while all their colleagues do. Perhaps their political views differ greatly from those colleagues hold. Or maybe they’re much younger than then the rest of their team members.

No matter what the circumstances, the workplace offers many opportunities to experience alienation, he says.

“Almost everyone feels some level of isolation or loneliness,” says Jenkins, the co-founder of www.lesslonely.com and co-author of *Connectable: How Leaders Can Move Teams from Isolated to All In*. (His co-founder and co-author is Steve VanCohen, a leadership consultant and executive coach.)

Adverse impacts

Jenkins started doing research about workplace loneliness after studying generational differences at organizations — work that led him to write a book, *The Generation Z Guide: The Complete Manual to Understand, Recruit and Lead the Next Generation*. (People born after 1998 are considered part of the Generation Z cohort.)

“I discovered that Generation Z is the loneliest generation, with 73% of them experiencing it frequently,” he says. “It’s the first time there’s been an emerging generation experiencing more isolation and loneliness than the generations before them. I found that troubling — and that was before the pandemic.

“So I talked to corporate clients and found they really wanted to lean into this issue, ... understand how loneliness and isolation is actually a thing in the workforce and how it’s impacting organizations.”

The numbers are troubling. Jenkins’ research revealed that lonely workers are seven times less likely to be engaged at work, five times more likely to miss work because of illness or stress and think about quitting their jobs twice as often as nonlonely employees.

Lonely employees are also more inclined to think their work is low-quality, even if it isn’t. That, in turn, reflects a lack of confidence that manifests itself in less collaboration and productivity.

Connection deficiencies

So how can people be lonely when they work with other people?

“It’s not the absence of people that causes loneliness, it’s the absence of a connection,” Jenkins explains.

If someone works in a crowded office but doesn’t have a strong connection with the people around them, they can feel lonely. In fact, this sense of loneliness only gets accentuated because people think they shouldn’t feel that way, but they do, which makes it even more alienating, he says.

Conversely, remote workers with a strong connection to their work, the meaning and purpose of their organization and team members and managers are less likely to feel lonely than office workers surrounded by people.

The conveniences provided by an ever-broadening array of technologies can increase workers’ isolation, personally and professionally. As these technologies — including social media — make life more convenient, they also decrease personal interactions with other people. For example, why talk to someone when it’s easier to just text them?

“We invariably choose convenience over connection — it’s just human nature,” Jenkins says. “We take the paths of least resistance; there’s no need for small talk anymore.

“But the ultimate cost is fewer connections. We intuitively know relationships matter, but we don’t appreciate that human connection is vital for our physical and emotional health. This concept of individualization is fraying our social fabric.

“By leaning into efficiency and convenience, what’s left hanging in the wind are those personal connections that we’d normally create in a workplace environment. That’s not to say that connections can’t be cultivated virtually — it just takes a lot more intentional effort.”

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.

A growing dilemma

The trend toward remote work puts organizations between the proverbial rock and a hard place. Surveys show many Generation Z employees won't work if they're forced to go into an office, so organizations have to cater to this trend or risk losing out on top talent. Yet remote work can create even more loneliness, Jenkins notes.

"Relationships become very transactional when people work remotely. There are less interpersonal connections being made, like the small talk that occurs before a meeting begins."

The big first step to combatting this problem is determining and/or admitting there's a problem.

"There's a famous line in the field of psychology that says if you can name it, you can tame it," he says. "So the first step is destigmatizing loneliness. We have to recognize it's not employee burnout. ... We need to ring the bell."

To determine if loneliness is an issue, managers can use an empirically evaluated team connection assessment tool Jenkins developed in conjunction with researchers at Harvard University, the University of Alabama and the University of Canterbury in New Zealand. It's available at www.lesslonely.com.

Taking action

If loneliness is an issue, organizations can adopt strategies to minimize it.

"Organizational leaders need to determine the points where they can put a stake in the ground and say human connections are essential," he says. "If we're left to our own devices, we'll drift away, so developing connections has to be prioritized."

As an example, Jenkins cites a company he worked with where employees have always worked remotely. To develop better personal connections, the company brings all employees together once a year for strategy and culture-building exercises.

Another company started a program called "The Inside Scoop." Before weekly "all-hands" meetings, held either via video or in-person, one person is picked to share something personal and nonwork related, he explains.

"In one instance, a person who was known for being a very detail-oriented researcher told colleagues she was a marathon runner and had even qualified for the U.S. Olympic team. No one had any idea she was this extraordinary athlete. It created a triangulation point — a little space to see the human behind the job."

Employee anniversaries also offer an opportunity for connections. And one company instituted a communal coffee break for all call-center employees, as opposed to everyone taking breaks at different times, he says.

"That yielded \$15 million in productivity gains and a 10% increase in employee satisfaction. You can make subtle tweaks that prioritize connections."

Optimistic outlook

While loneliness at work is a burgeoning issue, there's a bright side, too.

"If loneliness is growing, that means it's malleable, so it also can decrease," Jenkins says. "I think the silver lining to the pandemic is that it pulled the cur-

"That yielded \$15 million in productivity gains and a 10% increase in employee satisfaction."

Ryan Jenkins

tain back on loneliness. It's long overdue and we need to address it in order to develop strong teams, organizations and communities.

"Loneliness is a signal that we belong together. It's not a problem to solve, but a tension to manage. We have to consistently cultivate new personal connections and nurture existing ones — utilize their restorative and rejuvenating powers." ♦

raising the bar **UNDERGROUND**



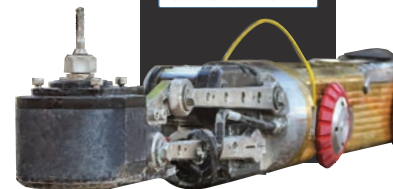
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CLAY HAS A NEW STANDARD

The ASTM International published a new standard practice for cleaning vitrified clay pipelines

By Jeff Boschert



“That practice has saved the city tens of millions of dollars over the past several years.”

Kent Carlson

Until now, there was not a governing standard applicable to a collections system after it was placed in service. Early sewers depended upon infiltration and other forms of flushing to dilute sewage. This infiltration was originally seen as a benefit and was the primary method of “cleaning” the sewer.

Factory-manufactured joints to eliminate infiltration weren’t a requested feature of clay pipe until the 1960s. Common practice was to clean pipe only when a backup made it necessary. Cleaning methods most commonly used through the mid-20th century were either mechanical tools (some form of rodding or bucket machines) or a rudimentary flushing procedure (including go-devils).

In December 2021, ASTM International published the first international standard ever to specify accepted practices for cleaning vitrified clay pipe in accordance with OSHA, DOT, CDC and EPA standards (including CMOM specifications). This industry-first standard establishes a requirement to return a cleaned pipe to at least 95% of its original design capacity.

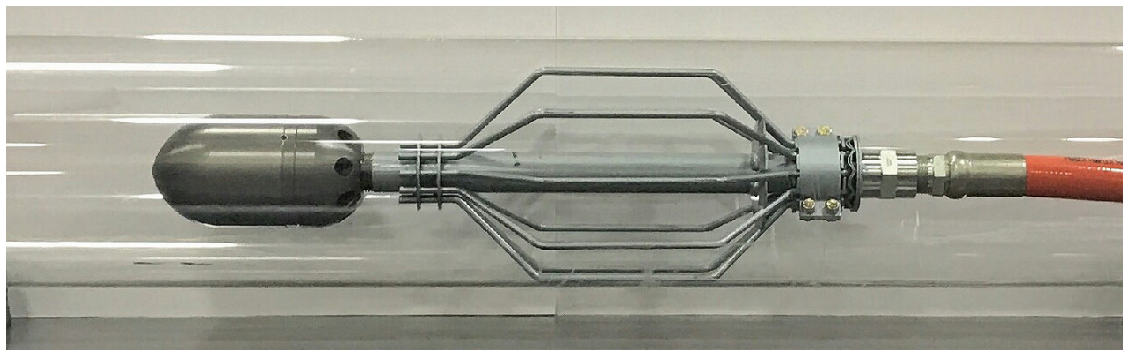
ASTM C1920-21 *Standard Practice for Cleaning of Vitrified Clay Sanitary Sewer Pipelines* was developed and approved in accordance with ASTM’s consensus balloting procedures, including requiring 90% approval from the members of C04 Committee on Vitrified Clay Pipe, which consists of contractors, owners, engineers and pipe manufacturers.

In the first 118 years of ASTM standards for VCP, many technical standards were developed that covered all aspects of manufacturing, quality control, testing, installation, jointing, bearing strength, chemical resistance and field acceptance testing. Many of these standards were industry firsts and are still in use today.

Some pipe cleaners today, both municipal employees and contractors, consider a pipe clean once a hydro-jet nozzle has successfully traveled through the length of the pipe run. Cleaning by length traveled, without a set level of cleanliness, can result in significant levels of deposits, debris and FOG remaining within the pipe. In any pipe, the continuous presence of these materials can build up on the inside of pipe walls, solidify and coagulate with similar particles. The end result can be a partial or complete blockage of a pipeline that could lead to a sanitary sewer overflow.

A governing standard was needed in part to establish a benchmark defining a clean pipe, and in part because of evolving EPA directives. The introduction of many newer and more powerful cleaning tools also made the development of a standard necessary. To address these concerns, Section 7.1 of the new standard plainly states, “The standard operational procedure of high-velocity cleaning a vitrified clay pipe is to safely remove all obstructions and deposits from the pipeline and restore the pipe to a minimum of 95% of operational design capacity.”

“Returning pipe to this level of performance is the primary method for ensuring that an installed pipeline will perform as designed for the dura-



tion of its service life,” according to Kent Carlson of the National Clay Pipe Institute. “We demonstrated that a return to 95% of operational capacity significantly reduced overflows while I was with the city of Los Angeles. That practice has saved the city tens of millions of dollars over the past several years.”

The standard also clearly defines the differences between several types of nozzles:

- Static
- Cleaning
- Flushing
- Dredging
- Stoppage
- Rotational
- Governed rotational
- Free spinning rotational

Mechanical and hydromechanical tools are also specifically permitted under this standard, including the following:

- Hydraulic cutters
- Tap cutters
- Chain/cable flails
- Rodders
- Power rodders
- Bucket cleaning machines

The nature of the tools and the environment in which wastewater professionals operate make safety a necessary part of the new standard. Worker safety is a focus, including defining the activities required to mitigate hazards during the sewer cleaning process. Safety standards from OSHA, CDC, DOT and U.S. EPA are an important part of the procedures established in C1920. The standard reinforces the personal responsibility of each employee and employer on any job site.

“While the procedures and the 95% minimum can be applied to any pipe material, some of the tools are not appropriate for flexible pipe materials,” Carlson says.

Because of the different material properties of pipe, the specific jetting pressures and mechanical tools in this standard can only be used for VCP. While the basic procedures are sound for any pipe cleaning operation, other pipe materials require greater care. They have lower jetting limits and do not permit mechanical cleaning methods. For example, the term “high-pressure waterjetting” in the VCP standard specifically refers to pressures of 2,000 psi and above. This is beyond the recommended pressure for other pipe materials. Check with your pipe manufacturer to determine the appropriate limitations for other pipe materials.

While the standard was still in review by the committee, some municipalities began to adopt this new standard as the benchmark for their cleaning contracts. The new standard creates a reasonable, uniform and consistent specification for any cleaning plan.

Scheduled cleaning reduces SSOs and increases the service life of any sewer while ensuring that design capacity is maintained. With the accep-

tance of this new standard, VCP became the only pipe material that has specific ASTM guidelines for cleaning pipe as part of the plan for long-term operation and maintenance of pipelines.

The new standard (ASTM C1920-21) is available from ASTM International.



Jeff Boschert is the president of the National Clay Pipe Institute, a nonprofit organization dedicated to research, education and leadership in the vitrified clay pipe sanitary sewer industry. For more information, visit ncpi.org.

ALLOWABLE CLEANING METHODS For Vitrified Clay Pipelines ^{1,2}	
Hydro-Jetting Parameters	
Safe Hydro Pressure (psi)	5,000
Jet Angle Range (degrees)	6 – 90
Max. Nozzle Weight	125 lbs.
Min. Jet Standoff from Pipe Wall	1/4 in.
Jet Stationary Position	5 min.
Mechanical Cleaning Methods	
Mechanical/Power Rodders	Yes
Bucket Machines	Yes
Brushes	Yes
Chain Flails	Yes
Cable Flails	Yes
Grinders	Yes
Root Saws	Yes
Tap/Can Cutters	Yes
Hydraulic Root Saws	Yes

¹ ASTM International Standard C1920-21, *Standard Practice for Cleaning of Vitrified Clay Sanitary Sewer Pipelines*.
² National Clay Pipe Institute (2020), *Vitrified Clay Pipe Operations & Maintenance Handbook*, Elkhorn, WI



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SUSTAINABLE STEWARDSHIP

Denver Water's strong ecocentric focus permeates all aspects of its operations

By Ken Wysocky


Sustainability is as central to Denver Water's operations as the Rocky Mountains' snowmelt is to its water supply.

An ecocentric mindset informs almost every aspect of the utility's operations, as evidenced by its net zero energy usage, water reuse programs, LEED-certified buildings (Leadership in Energy and Environmental Design), watershed restoration projects and an emphasis on reducing greenhouse gas emissions.

The Association of Metropolitan Water Agencies recognized the utility's efforts with a Sustainable Water Utility Management Award in 2021, one of four awarded nationwide; the utility also won the award in 2018.

Moreover, in 2020, the Colorado Department of Public Health and Environment awarded the utility a gold certification in its Environmental Leadership Program. And in 2019, The Climate Registry, a national nonprofit organization, elevated the utility to gold status for its 10-year efforts to quantify its carbon emissions.

A driving force behind the utility's commitment to sustainability is its reliance on snowmelt from the Rocky Mountains to supply water for its roughly 1.5 million customers in Denver and surrounding suburbs. In short, what's good for the environment is good for the water supply



Denver Water process area engineer Jen Gelmini leads a small project tour of the Northwater Treatment Plant site. (Photography by Carl Scofield)

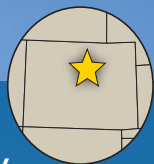
and for metropolitan Denver residents, says Brian Good, chief administrative officer.

"In our 100-year history, Denver Water always has been tied closely to the environment," he says. "Our natural resources and the product we deliver are inextricably linked. So caring for our resources allows us to provide better service.

"But it goes beyond just water conservation. Our goal is to sustain the community forever, so we need to do our part to be sure we don't impact the environment any more than we have to."

The commitment to sustainability is reflected in its 2021-2025 Sustainability Guide, which builds on an earlier guide developed in 2018. Goals set in the current guide include a 50% reduction in greenhouse gas emissions from a 2015 baseline; increasing the utility's capacity to generate renewable electricity by 1 megawatt; and reducing landfill and electronic waste by 25% from a 2020 baseline, says Kate Taft, hired in 2016 as a sustainability manager.

"Sustainability is an organizational priority and this guide reflects that," she says.



PROFILE: Denver Water, Denver, Colorado

SERVICE AREA:
About 335 square miles

CUSTOMERS SERVED:
About 1.5 million in metro
Denver area

WATER INFRASTRUCTURE:
More than 3,000 miles of
water main

TAP CONNECTIONS:
Roughly 312,000

PRIMARY WATER SOURCE:
Snowmelt from Rocky
Mountains

TREATMENT PLANT CAPACITY:
715 mgd

AVERAGE DAILY TREATMENT:
About 250 mgd

EMPLOYEES:
Around 1,100

WEBSITE:
www.denverwater.org



Solar panels on the administration building are helping the utility toward its net-zero energy usage goal.

Net-zero energy status

In 2020, the utility reached a landmark goal: net-zero energy usage, which essentially means Denver Water produces more electricity/energy — via "green" sources that don't generate carbon emissions — than it uses. Excess electricity is sold back to a local electric utility, Taft says.

But Denver Water officials note that net-zero energy usage isn't achievable every year because large maintenance projects occasionally take hydroelectric facilities offline for periods of time, which decreases electricity production. This occurred in 2021.

"Energy efficiency is a big deal for us," Taft notes. "We've brought on board an energy management specialist that works with our operations to implement efficiency improvements and upgrades. This covers everything from small projects to major renovations and construction projects."

The utility gets a strong energy assist from Mother Nature, courtesy of the mountainous terrain and fast-running rivers in the utility's primary, high-elevation watersheds, located south and west of Denver. The utility has built small hydroelectric plants in seven strategically located dams; these turbines collectively produce about 65 million emission-free kilowatt hours of electricity per year, which saves its ratepayers about \$4 million annually, Good says.

"We're able to generate electricity by using elevation and gravity," he explains. "Before water reaches our treatment plants, it flows through hydroelectric turbines that generate electricity."

The hydroelectric plants are responsible for most of the utility's ability to achieve net-zero energy usage, Taft says.

In addition, the utility is building a new water treatment plant that will be energy self-sufficient. The Northwater Treatment Plant is under construction at the Ralston Reservoir, about 15 miles northwest of downtown Denver. It will run on hydropower and will actually generate more electricity than it uses annually, Good says.

When the plant goes online in 2024, it will be capable of treating up to 75 million gallons of water per day. The \$520 million price tag includes upgrades to the aging Moffat Water Treatment Plant in Lakewood, which was built in 1937 and will eventually become a water distribution facility.

Like other new facilities at Denver Water, the Northwater plant's operations building will be LEED-certified, which means it meets a stringent set of energy conservation criteria developed by the U.S. Green Energy Council. The plant recently earned an Envision Gold Award from the Institute for Sustainable Infrastructure.

Eco-friendly facilities

A new Denver Water administration building also strongly reflects the utility's emphasis on sustainability. The six-story-tall, 186,000-square-foot facility is the crown jewel of a \$195 million modernization of the utility's

**"Our natural
resources and
the product
we deliver are
inextricably linked."**

Brian Good



A construction crew works at the water intake and hydro-electric generator room in the filters building.



A worker carries a length of pipe into the rapid mix, flocculation sediment building, at the North-water treatment site.

“Energy efficiency is a big deal for us.”

Kate Taft

35-acre operations complex, completed in 2021.

The project included demolition of 15 obsolete buildings, renovation of two existing buildings and the construction of six new buildings. Seven of the buildings achieved either Silver or Gold LEED certifications and the administration building earned a Platinum ranking, the highest level of certification.

During demolition of the aging buildings — one was 180 years old — 81% of construction debris was diverted from landfills via recycling. That means nearly 30 tons out of almost 37 tons of total debris were recycled, according to utility statistics.

The administrative building achieved net-zero energy status, thanks to 1,126 rooftop solar panels, plus another 1,260 atop a parking garage. The panels are expected to produce about 1,350 megawatt-hours of clean electric power per year, which offsets greenhouse-gas emissions roughly equivalent to burning 1 million pounds of coal, officials say.

In addition, the building features more than 70 miles of heating and cooling tubes in its concrete-floor slabs, part of a unique radiant heating system that works similar to geothermal heat-pump systems. Hot water is

pipled through the system in winter and cool water in the summer; it makes the building 30% to 50% more energy efficient than conventionally built buildings because it largely eliminates the need for burning natural gas or using electricity for heating and cooling.

“Using energy efficiently, as we’re doing to heat and cool our headquarters, is another example of our commitment to environmental stewardship,” Taft says.

Other eco-friendly elements include high-efficiency insulation; efficient LED lights (which are used throughout the campus); triple-pane glass windows that help regulate penetration of heat and cold; window blinds that respond to changing sunlight conditions; larger windows and skylights for maximum “daylighting;” controlled electrical outlets in non-operations buildings that automatically turn off computer monitors and other equipment in unoccupied spaces; and a comprehensive recycling and composting program.

The building also is designed to capture, treat and reuse rainwater for campus irrigation. It also includes an on-site wastewater treatment facility that recycles wastewater from the building for toilet flushing and irrigation.

“This is the first system of its kind in Colorado,” Good points out. “The system has a capacity of 7,000 gallons per day and will treat water using aerobic and anaerobic processes, wetlands treatment, filtration, ultraviolet light and chlorination.

“We hope that this system demonstrates the future of wise urban water use in Colorado and paves the way for others to install similar systems.”

DENVER GETS THE LEAD OUT

At Denver Water, providing clean, safe water for customers also falls under the auspices of environmental stewardship. To that end, the utility is replacing 65,000 to 84,000 lead-pipe service lines by 2035 — at no direct charge to customers.

The roughly \$500 million cost is funded by ratepayers; spreading the program’s expenses over 15 years helps to keep it affordable, says Brian Good, the utility’s chief administrative officer.

“We decided that the right thing to do is take all the lead service lines out and pay for it, too, because it’s something that a lot of our customers can’t afford to do,” he says. “Our utility has decided that there’s no good amount of lead in water, so removing these lead lines is the best thing for the overall health and safety of our community.”

Since 2020, the utility has replaced more than 10,000 lead service lines. Most homes built before 1951 have lead lines, he says.

To avoid widespread community disruption, the lines are being replaced on a neighborhood-by-neighborhood basis. The utility has been developing a comprehensive inventory of known and suspected lead services lines, using a combination of property records, water-quality tests and visual inspections of service lines, Good says.

Areas with low-income and underserved residents, as well as with higher populations of children, will get lines replaced first.

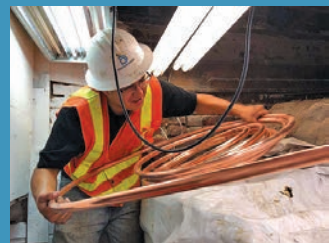
If the utility encounters lead service lines while working on water mains,

those lines will be replaced immediately. And if people don’t want to wait until their turn comes along, they can hire a contractor to do the work, Good says.

Customers that apply and get approved for a partial reimbursement through the utility’s Lead Service Line Replacement Reimbursement Program receive a \$3,800 payment from the utility to defray some of the cost. Payment only occurs after the line is replaced.

The bulk of the work will be done by contractors, who will replace the lead lines with copper lines, typically 3/4 to 1 inch in diameter.

The utility also has a water-main replacement program with an estimated cost of \$130 million from 2017 through 2027. The overall goal: Replace 106,000 feet of pipe a year. Pipes are replaced if they’re corroding or on the verge of breaking, creating water-quality issues, decreasing fire hydrant flow or contributing to water-delivery issues, Good says.





A crew works in the filters building at the Northwater Treatment Plant construction site.

Forest-fire mitigation

Other sustainability efforts occur far away from Denver in the utility's roughly 4,000-square-mile water collection system, which includes 17 reservoirs (plus storage rights in another one owned by the U.S. Army Corps of Engineers) and four water treatment plants. The collection system is divided into two systems, north and south, with the south supplying about 80% of the utility's water.

A good example of outlying sustainability initiatives is the Forest to Faucets watershed management program, a joint effort with the Rocky Mountain Region of the U.S. Forest Service and the Colorado State Forest Service. The initiative was spurred by two devastating wildfires in 1996 and 2002 that forced the utility to spend nearly \$28 million for water treatment and sediment/debris removal.

The goal is to maintain healthy forests that can mitigate the potential for forest fires, Good says.

"Disastrous wildfires can wreak havoc on the places where our water comes from. The impact of wildfires and the cost of recovering from them is very significant."

For example, after forest fires, sediment runs into rivers and creeks because there's no vegetation left to hold the soil in place; this also reduces natural filtration of water provided by vegetation. The sediment can clog creeks and reservoirs, Good notes.

Furthermore, the sediment can change the water chemistry — and as a result, its quality. The more sediment present in the water, the more likely that troublesome minerals such as manganese and iron will build up and make treatment more difficult.

As such, the utility has contributed roughly \$32 million to the Forest to Faucets program. That includes funding to plant more than a million trees since 2010 and tree- and brush-thinning in areas identified as priorities by federal and state forest service officials.

"An ounce of prevention is worth a pound of cure," Good says.

Carbon-footprint reductions

Denver Water also strives to lower its carbon

emissions. Since 2008, it has partnered with The Climate Registry, a nonprofit group that sets standards to calculate and verify greenhouse gas emissions and then publicly report them to a central clearinghouse.

In 2019, the TCR gave Denver Water "gold" status, its highest ranking, for its efforts to reduce the utility's carbon footprint. To provide accurate intel to the registry, a sustainability team tracks everything from electricity usage and vehicle emissions down to energy used for refrigeration and welding.

From 2008 to 2019 (the latest year for which data is available), the utility reduced its carbon emissions by nearly 36%, from just under the equivalent of 70,000 metric tons of carbon dioxide to 45,000 metric tons.

"We're also looking at our vehicle fleet in an effort to reduce fuel usage," Taft notes. The utility ordered 15 hybrid-electric vehicles last year, but only received six because of supply-chain issues. The utility also has ordered 10 fully electric-powered pickup trucks.

"As the automotive industry starts to produce larger vehicles and heavy equipment that are fueled renewably, we'll bring those into our fleet as well," she says. "We're excited to see what auto manufacturers can do in the future."

More in store

Denver Water's commitment to sustainability includes many more programs and goals, such as plans to reduce fleet-vehicle idling, using software that monitors idling for all vehicles; develop more drought-tolerant landscaping on utility proper-

"We hope that this system demonstrates the future of wise urban water use in Colorado and paves the way for others to install similar systems."

Brian Good

ties; and decrease paper usage 50% by 2025, using 2019 as a baseline.

The utility also runs the largest water-recycling system in Colorado. It treats and returns up to 21 million gallons of water per day to industrial and commercial operations during peak operations; some of it also is used for irrigation. In 2021, the utility recycled slightly more than 2.5 billion gallons of water, Good says.

The recycled water, which travels to customers through a separate system of pipes, would otherwise be treated and discharged into the South Platte River.

This laser-like eco-focus on sustainable operating practices isn't unusual for the 104-year-old utility, which started focusing on water conservation back in the 1930s by putting signs on streetcars urging residents to conserve water. But maintaining momentum will not be easy; it will require constantly rethinking and redefining what sustainability means to the utility, given climate change, regulatory uncertainties and economic and social changes, to name a few factors, officials note.

"Sustainability for the next 100 years will require continued reinvention, resilience and adaptability in everything we do," says Jim Loch-head, the utility's chief executive officer. "But it's at the heart of everything Denver Water does." ♦

PROTECTING MUNICIPAL INFRASTRUCTURE

Raven Lining Systems' proven performance is helping utilities extend asset life

By Luke Laggis

Water and wastewater infrastructure rehabilitation has evolved significantly over the past few decades, with new liners, coatings and processes aimed at getting more life out of municipal assets with less disruption. Raven Lining Systems is one of the companies that has led the charge.

Kathy Romans joined Raven eight years ago as the Texas regional sales manager and became water and wastewater segment sales manager when Raven merged with VersaFlex in 2018. She has served as water and wastewater segment manager since PPG acquired the VersaFlex Cos. in 2021. She has also been active in industry organizations, serving as president of NASSCO as well as a board member.

Municipal Sewer & Water recently had the opportunity to speak with Romans about Raven's history and role in the industry, as well as the issues and opportunities municipal utilities are facing.

MSW: Tell us a little about the history of Raven Lining Systems and its position in the wastewater industry.

Romans: Raven Lining Systems was founded in 1988. The first manhole rehabilitation application was completed that same year with the epoxy

that would (a short time later) be named Raven 405 — the flagship coating of Raven Lining Systems. Since its inception, Raven has been a leader in providing specialized and innovative product solutions for the water, wastewater and manhole rehabilitation industry.

MSW: What's the most common problem you see your municipal customers facing and what mistakes do you see them making?

Romans: Corrosion of concrete surfaces is the single most common problem our municipal customers face, caused by H₂S (hydrogen sulfide) and sulfuric acid that forms on the walls of manholes, wet wells and other concrete wastewater structures. A lack of routine inspection of structures that is most often caused by stretched or limited staffing is a major problem that leads to mistakes along the way. Additionally, elevated wastewater temperatures and new varieties of customer/constituents are contributing to the rising costs of rehabilitation of structures and treatment of the wastewater.

MSW: What kinds of solutions and capabilities does Raven provide?

Romans: The Raven product line includes the flagship Raven 405 series. In addition, our patented tri-hybrid AquataFlex products combine a unique formula of a novolac epoxy for chemical resistance and bond, a polyurea for flexibility, and a polyurethane for speed of curing. AquataFlex is both SWAT- (severe wastewater accelerated testing) and ANSI 61/NSF 600-certified, making it capable of withstanding the harsh environment of the wastewater system and safe for potable water applications.

MSW: How do you see the sewer and water infrastructure rehabilitation evolving?

Romans: Years of focus on reducing inflow and infiltration and reduced water consumption has created an unintended consequence in the collection system — reducing the flow to the point where it causes corrosion to increase and structures to deteriorate at a faster pace. I recently heard a representative from a state regulatory agency refer to this phenomenon as a lack of "push water" which increases the need for protecting the infrastructure with coatings to prevent premature deterioration. More and more municipalities are protecting the concrete structures when they are installed new, and I think this will become not just a luxury but a necessity to get the

THE SUPPLY SIDE

NAME:

Kathy Romans

JOB TITLE:

Water and Wastewater
Segment Sales Manager

YEARS IN BUSINESS:

34

YEARS WITH COMPANY:

8



Raven Lining Systems and VersaFlex are now part of the PPG Protective and Marine Coatings group, providing sealing and coating solutions for every area of the wastewater environment.

intended service life from our valuable assets.

MSW: VersaFlex, the parent company of Raven, was recently purchased by PPG. What added value does that family of companies bring to the municipal water and wastewater customer?

Romans: The truly exciting thing about joining PPG in the Protective and Marine Coatings group is that we now have a complete and full line of products to protect not just concrete — which Raven and VersaFlex were known for — but we have products for every area of the wastewater environment: steel both in immersion and atmospheric settings, proven coating systems for chemical containment areas, flooring, piping, laboratories, roofing and so much more. We recently introduced a wastewater systems guide designed to assist our municipal and engineering customers with product selection. The approach we took was specific to environments and substrates; for example, a coating that is suited to a concrete substrate that is in a severely corrosive immersion service. We will be introducing our combined Potable Water Guide in the next couple months that will focus on our full line of ANSI 61/NSF 600 coatings providing solutions beginning with the purification process and including storage and delivery.

MSW: Do you envision a larger suite of products for the water and wastewater industry in the future?

Romans: PPG and Raven are always innovating. We have products in the R&D pipeline to introduce to our customers that will add to our already robust portfolio in exciting new ways.

MSW: What differentiates your products from the competition?

Romans: I think the one thing that differentiates both the Raven product line and the PPG product line is the proven performance. Raven 405 has been in service protecting municipal infrastructure since 1988. The 50-year design life of this product is performing as per the intended life cycle. A few years ago we revisited several structures that were coated when Raven first came to market in 1988 and in the early 1990s. These structures are serving the communities as designed and the Raven 405 is protecting them today. Additionally, PPG's products have years of proven experience in protecting steel infrastructure with the Novaguard and Amerlock family of products.

MSW: Can you provide some insight on the company's product development process?

Romans: PPG and Raven go through an extensive process when developing a new product. It starts with an idea and a set of parameters, the wish



Raven 405 has been in service protecting municipal infrastructure since 1988.

list of what we want from this product. Along the way we look at where the product will fit in the marketplace and we ask a lot of questions: Will this product solve a problem? Will it be better than what we have? Can it offer a unique solution? There is product development with our R&D chemists and technicians, testing throughout the process to determine if we are answering the questions and checking off the wish list. Once there is a product, field trials are performed, and we involve a few of our contractors/applicators. Not all products make it through the process, which is the way it should be, to ensure that only

the very best make it into the marketplace.

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

Romans: In 1992 Raven started the Certified Applicator Network as a way to factory/manufacture train our contractors with both the product and the equipment. Today in 2022 — 30 years later — Raven has a network of about 70 certified applicators throughout the U.S., Canada and the U.K. Our applicators go through an extensive training before receiving their certification, and annual refresher training and periodic field audits. Raven 405 is sold and applied only through our network of certified applicators, ensuring the municipal owner that their rehabilitation or new construction project will provide a long service life. Many of our other products are available for direct purchase and or through our distributors.

MSW: Could the average municipal utility install your products with an in-house crew, and what sort of training do you offer?

Romans: We have some products in our portfolio that are ideal for municipal utility crews to install. Our Raven 581 Chimney Seal is a terrific product for municipalities to install. We have a great training video to get them started along with robust technical support along the way. Additionally, many of our municipal customers purchase AquataPoxy to make repairs to water tanks.

MSW: Is there anything else you'd like people to know?

Romans: Raven Certified Applicators are some of the most qualified contractors in the field today. Most of our CAs have at least five years applying Raven 405 and we have many CAs with more than 25 years. PPG and Raven also have what I believe is the best field technical service team in the industry. This group has years of experience — not only with our products but also with the specialized equipment used to apply our materials. ♦

CONNECTING WITH LAWMAKERS

NASSCO's D.C. Fly-In results in senator's on-site field visit

By Sheila Joy

Each December, NASSCO members come together via the NASSCO D.C. Fly-In to share information about our aging underground infrastructure and convey to government leaders the need to include funding for water and wastewater systems in infrastructure budgets.

During last year's Fly-In, NASSCO members from 15 different states conducted a total of 29 meetings with state senators, members of congress and staff. One of those meetings was with U.S. Sen. Mike Braun (R-Indiana) whose staff followed-up to coordinate a field visit so Braun could learn firsthand more about the important work NASSCO members do and how the federal government can support underground water infrastructure.

On February 18, 2022, Braun visited the installation of more than 300 feet of 12-inch cured-in-place pipe by Granite Inliner (now Inliner Solutions) on a project funded by the city of Jasper, Indiana, as part of the city's yearly sewer collections system rehabilitation budget.

Jasper is Braun's hometown, so as a ratepayer and beneficiary of the system repairs, he received a firsthand tutorial on cured-in-place pipe and how it saves communities money, time, protects the environment and proactively prevents collections system failures. Braun also is a member of the Senate Appropriations Committee, which later this year will be passing the bill that funds the U.S. EPA's Fiscal Year 2023 annual budget.

The Infrastructure Investment and Jobs Act included more than \$32

billion over the next five years in new federal grant and loan programs that will help communities repair their aging wastewater and stormwater infrastructure. This includes several grant programs that will directly benefit NASSCO members, such as the Connection to POTWs grants and the Sewer Overflow & Stormwater Reuse municipal grant program, both of which NASSCO lobbied to create.

As a member of the Senate Appropriations Committee, Braun will be instrumental in passing the appropriations bill that will fund much of that \$32 billion. Having him see firsthand how those funds will be spent is a huge benefit for the underground water infrastructure sector. A special thanks to the Inliner Solutions team for hosting Braun, particularly Tyson Crandall (district manager), Eric Haenlein, (director of engineering), Mike Green (business development), Brad Andry, (operations manager) and Wayne Alexander (superintendent).

You too can help make sure members of congress support this increased funding for wastewater and stormwater collections infrastructure. Text the word "PIPE" to 25994 to receive a link to NASSCO's Sewer System Heroes website where you can send letters to your U.S. senators and representatives urging them to fully fund federal grant and loan programs that support local water infrastructure investments. It's easy, quick and will make a huge difference for the underground water infrastructure sector. ♦



NASSCO

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

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

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Aug. 8, 8 am EST

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Trainer: Michael Lukas

Aug. 8, 8:30 am MST

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Trainer: Sammy Maestas

Aug. 9, 8 am MST

Virtual

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Trainer: Jerry Weimer

Aug. 11, 8 am MST

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Aug. 16, 8 am EST

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Aug. 17, 8 am EST

Virtual

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Trainer: Brandon Conley

Aug. 22, 8:30 am MST

Virtual

Includes: PACP/LACP/MACP
Trainer: Sammy Maestas

Aug. 23, 8 am EST

Virtual

Includes: PACP/LACP/MACP
Trainer: Paul Booth

Aug. 24, 8 am CST

Virtual

Includes: PACP/LACP/MACP
Trainer: Brandon Conley

Aug. 30, 8 am EST

Virtual

Includes: PACP/LACP/MACP
Trainer: Jerry Weimer

Aug. 30, 8 am PST

Sacramento, CA

Includes: PACP/LACP/MACP
Trainer: Michael Lukas

Sept. 5, 8:30 am MST

Virtual

Includes: PACP/LACP/MACP
Trainer: Sammy Maestas

Sept. 6, 11 am EST

Virtual

Includes: PACP/LACP/MACP
Trainer: Michael Lukas

Sept. 8, 8 am MST

Virtual

Includes: PACP
Trainer: Brandon Conley

ITCP TRAINING

Aug. 10, 8 am EST

Virtual

Includes: ITCP-CIPP
Trainer: Michael Lukas

Aug. 23, 8 am EST

Miami, FL

Includes: ITCP-Manhole Rehab
Trainer: Tim Back

Aug. 23, 8 am MST

Virtual

Includes: ITCP-CIPP
Trainer: Lou Krch

Sept. 7, 8 am CST

Virtual

Includes: ITCP-CIPP
Trainer: Lou Krch

Sept. 13, 8 am EST

Virtual

Includes: ITCP-CIPP
Trainer: Gerry Muenchmeyer

Sept. 27, 8 am EST

Virtual

Includes: ITCP-CIPP
Trainer: Lou Krch

Sept. 21, 8 am EST

Virtual

Includes: ITCP-Manhole Rehab
Trainer: Tim Back

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OTHER CLASSES FORMING

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

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COMING
NEXT MONTH

MUNICIPAL
SEWER
&
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BUYER'S GUIDE

A Directory of Municipal Sewer & Water Manufacturers and Suppliers



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Just Add A Tank!

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Honda Engine

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3012H Compact Skid

»12 gpm @ 3000 psi
»800 cc EFI
Honda Engine

(100 GALLON TANK)

»400' x 1/2" Jet Hose
on DC Powered Reel

Call for Quote

4008H Compact Skid

»8 gpm @ 4000 psi
»800 cc EFI
Honda Engine

(100 GALLON TANK)

»400' x 3/8" Jet Hose
on DC Powered Reel

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NEW



VM4008H

»8 gpm @ 4000 psi
»690 cc
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»50' x 3/8" Washdown
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»800 cc EFI
Honda Engine

»400' x 1/2" Jet Hose on
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PIPELINE INSPECTION, SURVEYING AND MAPPING

By Craig Mandli



GENERAL PIPE CLEANERS GEN-EAR LE



ARIES INDUSTRIES MOBILE PATHFINDER SYSTEM



CUES STEERABLE PIPE RANGER II



ENVIRO SIGHT ROVER X



MEDIT TROGLOTREK

ACOUSTIC INSPECTION

General Pipe Cleaners Gen-Ear LE

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

CRAWLER CAMERAS

Aries Industries Mobile Pathfinder System

The Mobile Pathfinder System from Aries Industries is a lightweight, portable system for accurately inspecting mainlines that are 6 inches or larger. It includes a powerful transporter, camera and lightweight reel; these components are operated by an all-in-one remote control. The transporter comes in a variety of wheel sizes and is equipped with a rear-viewing camera and an adjustable electric lift to keep the camera centered in a range of pipe sizes. It features a WiperCam pan-and-tilt camera with an in-the-pipe cleaning system and field-replaceable wipers. The camera has a 300-degree viewing angle and LED lighting system to capture pipe details and ensure accurate assessments. The lightweight reel has 1,000 feet of low-friction, multiconductor cable, making the system fully portable. **800-234-7205; www.ariesindustries.com**

CUES Steerable Pipe Ranger II

The CUES Steerable Pipe Ranger II is a rugged and versatile robotic camera transporter designed to traverse silt, mud and debris commonly found in storm and sanitary sewers. It is designed with single-point wheel

removal to facilitate speedy configuration changes for various pipe diameters and conditions. The unique built-in two-speed transmission doubles the torque of the unit to produce maximum pulling power in large-diameter pipe when the 10.5-inch-diameter tires are installed. **800-327-7791; www.cues.com**

Envirosight ROVER X

The ROVER X from Envirosight is the pipe inspection system that lets an operator do everything, including run inspections, view and record video, log observations, generate reports, and link directly to asset management software. The Flexspecation sewer video capture platform adds even more capabilities to this versatile system. Three video resolution options (SD and HD) allow operators to change file size and resolution depending on the needs of each inspection. Twelve wheel options enable ROVER X to inspect lines from 4 to 96 inches. Its six-wheel drive with proportional steering navigates past obstacles, and overlapping wheels climb offsets with ease. Powerful motors and a geared drivetrain maximize travel range. Not only can you add side-scanning, laser profiling and lateral launch, you can view data from onboard sensors and assess defects on-screen. The system's firmware updates automatically to the latest features. **866-838-3763; www.envirosight.com**

Medit TROGLOTREK

The TROGLOTREK municipal-grade pipe crawler from Medit is a robotic inspection camera for everyday tough jobs that can inspect pipes from 4 inches and up and requires no additional equipment such as a dedicated truck or generator. This system is fully contained and only has two pieces: a 984-foot cable reel with an integrated control post and a tractor. The tractor offers front and rear cameras and interchangeable rechargeable batteries as the primary power source, making the vehicle zero-emission. In addition, the tractor comes with different diameter wheels, and an extension kit can be added for larger pipes. The whole system can be carried and operated by one person, and this portability allows the crawler to be deployed in minutes in places a vehicle-based system can't access. **877-613-2210; www.fiberscope.net**



**RAPIDVIEW IBAK NORTH AMERICA
3D GEOSENSE**



MINICAM PROTEUS LAT150



ELECTRIC EEL eCAM PRO 2



**EPL SOLUTIONS
GVISION V7**



HATHORN WI-FI DURASCOPE



MYTANA PGR400

GIS GPS

RapidView IBAK North America 3D GeoSense

Included in all IKAS Evolution bundles is a revolutionary system that gives you the power to map mainline and lateral pipelines with accuracy and speed. Starting from the mainline sewer, the 3D GeoSense sensor from RapidView IBAK North America tracks the movement of the camera as it travels through the lateral, capturing distance, position and depth in three-dimensional space. The XYZ coordinates can be determined when the camera is moving both forward and backward, immediately providing the operator a real-life site plan with the width, length and elevation data of the lateral being inspected. This data can then be exported directly into all common sewer data formats and is compatible with other sewer software. The NANO, ORION, POLARIS and ORPHEUS 2.0 cameras all have the option of having the sensor installed. This powerful tool opens up options for acquiring and using positional data for underground utilities. **800-656-4225; www.rapidview.com**

MAINLINE TV CAMERA SYSTEMS

Electric Eel eCAM Pro 2

The eCAM Pro 2 from Electric Eel has a built-in battery cradle that accepts a Milwaukee M18 battery. This allows for operation in remote locations or anywhere electricity is not available. This feature is now standard on all eCAM units. Features include a 1.68-inch self-leveling color camera with sapphire lens and housed in rugged stainless steel, a 20 LED light ring with an impact-resistant polycarbonate light ring cover and a high-resolution element. A flexible camera spring navigates 3-inch elbows. The unit comes standard with 200 feet of premium 1/2-inch-diameter pushrod (reel capacity available up to 400 feet), industry-standard 512 Hz sonde, 10.4-inch daylight-readable monitor with click-touch controls, and one-touch recording directly to a USB flash drive, voice-over recording, an 8X zoom function, 8-inch wheels for easy maneuverability and a secure-locking reel brake. **800-833-1212; www.electriceel.com**

EPL Solutions Gvision V7

The Gvision V7 from EPL Solutions is a ruggedized, elite camera system that can be purchased as a mainline with 200, 300 or 400 feet of stiff yet flexible pushrod, or a 150-foot mini-camera. Instantly capture video recordings and snapshots with the press of a button and access them anytime within the internal storage. The tech will never have to wonder where a video was taken as geolocation information is automatically attached and displayed on recordings. Add text overlay using the camera reel or a USB keyboard. Copy recordings and snapshots on two USB flash drives at once, or share them using the Gvision app. The app allows the user to remotely control, preview and download video inspections for easy sharing. Users can capture every detail with the color camera head clearly displayed on a

10.4-inch TruView LCD screen. Add an internal battery for up to six hours of runtime. **714-453-9760; www.epls-usa.com**

Hathorn Wi-Fi DuraSCOPE

Hathorn's Wi-Fi DuraSCOPE inspection cameras offer the convenience of streaming video inspections to an Apple or Android mobile device using the free PipeSTREAM app. It can be used to take screenshots, overlay voice commentary and share videos with up to four devices. It has the choice of DuraCAM self-leveling or straight-view camera heads in multiples sizes and an on-screen footage counter. Municipal-grade camera reels are built tough, with butt-welded steel-frame construction, stainless steel camera heads and a choice of HDPE premium pushrod size. It has 512 Hz sonde control and external 18-volt Milwaukee battery compatibility for quick swap-outs and longer time in the field. **866-428-4676; www.hathorncorp.com**

Minicam Proteus LAT150

The Proteus LAT150 from Minicam can inspect lateral pipes up to 150 feet and has an overall tractor crawl distance up to 1,150 feet. The launch mechanism can be adjusted and serviced on site, minimizing downtime and reducing running costs. The unit has 8x8 wheel drive, keeping inspections moving through potential obstructions in the pipe. A hinged midsection on the tractor allows for easy access into 12-inch manholes and runs in mainlines from 6 inches and up. The pan-and-rotate camera is less than 2 inches and includes twin lasers, providing accurate pipe diameter, defect and object measurements every time. **734-744-5557; www.minicam.us**

MyTana PGR400

MyTana's PGR400 push camera has the range and rigidity to inspect long laterals and small mains, with the choice of a 400- or 325-foot pushrod for use in lines 4 to 12 inches in diameter. The reel has a brake with adjustable drag to help manage the pushrod as you work. A self-leveling camera head with adjustable LED illumination delivers crisp video footage and includes a built-in 512 Hz sonde. The control box mounts securely on a full swivel bracket so you can position the 12-inch daylight-readable monitor for best viewing. All-digital recording lets you save footage to internal storage or USB flash drive. Operators can also stream video wirelessly to multiple devices. The rugged frame has balanced weight and anti-skid feet for easy maneuvering. A skid and camera guides for the camera head help jump offsets and navigate bends. **800-328-8170; www.mytana.com**

RIDGID SeeSnake microReel APX

The RIDGID SeeSnake microReel APX is designed to optimize inspections and engineered with a lightweight, compact profile for easy portability. It has bright LED lights with high color accuracy and auto-flip imagery delivering crisp, detailed images and ensuring upright viewing angles in a variety of pipe conditions. Paired with TruSense technology, this tool deliv-

(continued)



RIDGID SEESNAKE MICROREEL APX



**SUBSITE ELECTRONICS
PRIVATE EYE II**



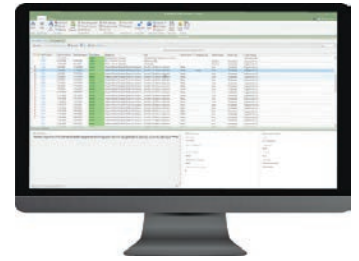
**VIVAX-METROTECH VMMap
UTILITY MAPPING APP**



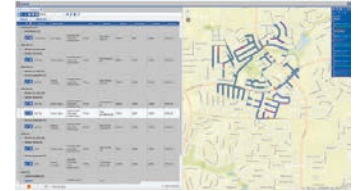
SPARTAN TOOL EXPLORER



**WINCAN WEB ENTERPRISE-TIER
FEATURES**



ALLMAX SOFTWARE ANTERO



ITPIPES ESRI SOLUTION

ers an in-pipe image with superior clarity, detail and fewer blown-out areas and sections of the pipe that are too dark to see. TiltSense measures the camera's angle and, when connected to a SeeSnake series monitor, the camera can convey the camera's degree of tilt on the monitor. This gives professionals a useful indicator of the pitch of the camera in-pipe. It also comes with a built-in kickstand for in-field versatility with multiple configurations for optimal operation. **800-474-3443; www.ridgid.com**

Spartan Tool Explorer

The Explorer modular camera system from Spartan Tool has a control box that is compatible with five different pushrods up to 400 feet in length, letting the user quickly adapt to any environment. Included WinCan software allows the user to map full plumbing systems for future reference, and files can be saved to a WinCan account, the cloud, external USB drives and the system's internal storage. The stainless steel camera head provides a crisp color picture to the superbright, sunlight-readable LCD. Change out reels to create a system that provides the ability to tackle any size job. **800-435-3866; www.spartantool.com**

Subsite Electronics Private Eye II

The Private Eye II inspection system from Subsite Electronics is a suitable solution for easements, off-road manholes or any hard-to-get-to location. It is also well suited for smaller municipalities or contractors desiring the power and capabilities of a full mainline inspection system in an affordable, all-inclusive mobile package. It is compatible with all the company's mainline cameras and tractors. When combined with the Compact Portable Reel with single-conductor cable, it can inspect 4- to 200-inch-diameter pipelines up to 1,000 feet in length. **800-767-1974; www.subsite.com**

MAPPING

Vivax-Metrotech VMMap Utility Mapping App

The VMMap Utility Mapping App from Vivax-Metrotech records data from the field, which is instantly available online via the VMMap Cloud web portal, or can be shared using the email function in the app. Location data is obtained from the mobile phone, or an external GPS device of your choice. Depth readings, GPS coordinates, the distance between locates and more are captured as data logs and can be saved as .xls, .txt, .shp and .kml extension files. The image capture feature allows the user to attach a JPEG format image to the surveys. This is useful to add points of interest or a snapshot of the completed survey. The app generates maps in real-time, giving confidence to the field technician that the data being collected is accurate. **800-446-3392; www.vxmt.com**

SOFTWARE

AllMax Software Antero

Tracking equipment and assets is a core part of Antero from AllMax Software. The equipment section creates comprehensive records on equipment with as much detail as needed, including description, location, original value and vendor information. Enter consequence of failure and probability of failure numbers to calculate asset criticality. Review work order templates and procedures that have been created for a piece of equipment, open work orders and maintenance history. Keep track of equipment with the mapping feature. It sets up reporting success with numerous built-in stock reports, including usage and cost reports, vendor and ordering information, and employee labor. Custom reports are also available as a service through the technical support department. **800-670-1867; www.allmaxsoftware.com**

ITpipes Esri Solution

ITpipes provides CCTV pipe inspection planning, prioritizing, field collection and data management tools in the fully integrated Esri Solution. This integration allows agencies to turn pipe inspections into mapped, actionable intelligence. Streamlined data management and powerful reporting with dynamic mapping help agencies to take their infrastructure maintenance program from proactive to predictive. Consuming its feature services, maps are automatically updated within ITpipes Web. With ITpipes Sync, the maps are automatically updated on ITpipes Mobile on the field inspection vehicle every night, assuring that all team members are working from the same GIS map. With asset management system integrations, agencies can increase efficiencies thanks to seamless bidirectional automated integrations. It transfers, reassigns and organizes work orders, tracks planned and unplanned completed work, and gives inspection access to all AMS users. **877-487-4737; www.itpipes.com**

WinCan Web Enterprise-Tier Features

WinCan Web's tier of enterprise features enable fast and simple work order management with a detailed inspection manager, built-in dashboards and enterprise mapping capabilities. The dashboards offer an array of inspection metrics that give users the ability to drill down into individual wastewater assessment results and crew progress. A series of enterprise maps also give leadership a sky-high view of a city's sewer system and where inspections are taking place throughout the day. It helps wastewater and sewer managers track maintenance and inspection work orders and determine the progress of each. This not only increases productivity for office teams creating and monitoring work orders, but allows tracking the progress of individual crews throughout the day, providing an enhanced layer of accountability and team management. **877-626-8386; www.wincan.com** ♦

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Product Spotlight

Hydroexcavation trailers highlight user input

By Tim Dobbins

The focus was on a compact unit that could serve a broad range of applications when TRUVAC began engineering the TRXX hydroexcavation trailer.

"We identified a need to expand our excavation offering to a compact trailer design best suited to municipal, commercial and residential tasks," says Cory Schueller, product manager at TRUVAC. "The TRXX trailer delivers productivity and versatility across this broad range of applications while providing effective damage prevention and protecting buried infrastructure during excavation activities."

Buyers can choose the TRXX 500 or 800, with the difference primarily being the debris capacity. The TRXX 500 features a 500-gallon debris tank and a 200-gallon water capacity, while the TRXX 800 can hold 800 gallons of debris and 400 gallons of water. Each model has a Kubota diesel engine powering up to 64 hp and an air blower producing 600-1,000 cfm. A 5 gpm pump is also mounted on the trailer and capable of pressures up to 3,000 psi, with a vacuum rated for 15 inches Hg.

The team at TRUVAC arrived at the final build thanks in part to the input from professionals in the field. "We listened to our customers and gathered voice-of-the-customer feedback through interviews and field trials with those who regularly operate competitive equipment," Schueller says. "We visited multiple utility contractors, telecommunication companies



and utility companies to construct the value propositions of this new trailer."

After the research was done and it was time to build, Schueller says they kept three main things in mind. It had to be easy to learn, easy to operate and easy to maintain. "The bilingual control panel design is clearly labeled with three operation buttons," he says. "All functions can be controlled from a handheld wireless remote featuring an auto 'Dig and Unclog' button."

Users will also find an engine shroud that provides easy access to all maintenance items to streamline repairs and perform routine maintenance. The trailers measure 243 to 269 inches in length depending on model, 98 inches wide and stand 103 inches tall.

The TRXX line was recently released, and TRUVAC is encouraged by the immediate reaction. "The best and most immediate feedback we received was selling the unit off the tradeshow floor at the WWETT Show earlier this year when we launched," Schueller says. "The comments we hear most are that we really considered all the issues of the end user." **800-627-3171; www.truvac.com**

Flomatic Model 408S5 stainless steel ball check valve



Flomatic Valves' Model 408S6 ball check valve is now available in a full 316 stainless steel 8-inch design. The Model 408S6 ball check valves are AIS compliant and designed according to AWWA C508 standard lay lengths. The ball check valves are anti-ropeing and self-cleaning with no sharp edges or snag points which helps to prevent clogging from nonflushable wipes and other nondegradable sanitary products.

The design is virtually maintenance free with features that include a clean-out cover that provides easy access to the inside of the valve without removal of the valve from the pipeline. The Model 408S6 valves also include heavy duty bosses to accommodate NPT tappings for additional optional components. **800-833-2040; www.flomatic.com**

Franklin Electric Pioneer Pump ElectricPAK

Franklin Electric brand Pioneer Pump launched the ElectricPAK, a modular offering of electric-driven pump packages that helps users get a pump and motor configuration on site more quickly and efficiently than custom-



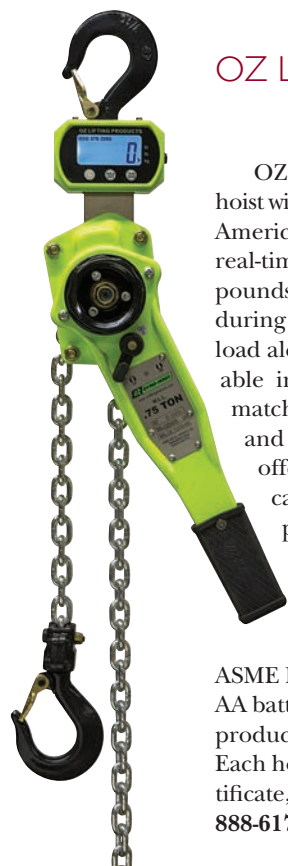
built units. Each configured assembly includes a high-performance pump and electric motor that provides better flow, higher head and greater efficiency. The robust design also features a rigid motor stool that keeps the pump and motor permanently aligned. This unique feature eliminates the need for time-consuming

alignment work or special tools upon delivery or when the unit is moved. The modular system can also be disassembled quickly and simply, for reduced service and maintenance hours. **866-271-2859; www.franklinengineered.com**

WinCan Web cloud-based platform

Recent enhancements to WinCan's cloud-based platform, WinCan Web, have focused on supporting teams with collaborative workflows. Now WinCan Web has introduced a tier of enterprise features that enable fast and simple work order management with detailed, built-in dashboards and mapping options. The dashboards feature an array of inspection metrics that give users a bird's-eye view of wastewater inspection results, crew progress and city-wide infrastructure health. WinCan Web users can now quickly

SPECIAL REPORT



OZ Lifting Dyno-Hoist lever hoist

OZ Lifting Products introduces the first lever hoist with an integrated dynamometer to the North American market, the Dyno-Hoist. It gives users a real-time reading of the load — in kilograms or pounds — they are applying to the hoist, whether during a lifting or pulling application. An overload alert is triggered at 126%. The hoist is available in 0.75-, 1.5-, 3-, 6- and 9-ton capacities, matching the ranges of the company's industrial and premium (overload protected) lever hoist offerings. Dyno-Hoist's dynamometer fitting can also retrofit to either of the industrial or premium lever hoists. Other features include all-steel construction; steel handle with rubber grip; zinc-plated load chain; forged alloy steel hooks; and fully enclosed gearing. Dyno-Hoist meets or exceeds CE, ASME B30.21 and AS 1418.2 standards. Standard AA batteries offer a runtime of 150 hours, but the product can be plugged into a 115/1/60 outlet. Each hoist is load-tested and arrives with a test certificate, one-year warranty and a free set of latches. **888-617-3579; www.ozliftingproducts.com**

SPECIAL REPORT



Patterson Manufacturing Davit Cranes

Give your operations a lift with Patterson Davit Cranes, available in ½-ton and 1-ton capacities. The low maintenance, easy-to-assemble design offers adequate reach to accommodate lifting large loads within tight spaces, and a boom that can be adjusted to nearly 45 degrees to allow for clearance over obstructions such as handrails. Built for durability, it comes standard with a hot-dipped galvanized finish and stainless steel hardware to prevent rust and corrosion in wet work environments. Following Patterson's tradition of safety-focused innovation, the davit features a reliable brake to keep loads in position without creeping. For over 160 years Patterson has been a trusted supplier of winches, rigging, fittings and custom products for lifting applications. Patterson Davit Cranes are made in the USA and deliver on the company's promise of helping businesses run safer, easier and faster. Find out how Patterson can improve employee safety and positively impact your bottom line. **800-322-2018 www.pattersonmfg.com/davit-cranes**



review observation grades and section ratings, as well as a breakdown of each into structural and operational categorizations. When deeper analysis is required, all raw data and media from individual inspections is available at the click of a button. In addition, WinCan Web's enterprise features also introduce an inspection manager, helping water and sewer managers track maintenance and inspection work orders and determine which are completed, in progress or still need to be started. **877-626-8386; www.wincan.com**

REHAU MUNICIPEX reclaim pipe



REHAU's MUNICIPEX reclaim pipe is intended to facilitate water conservation through transporting non-potable reclaimed water from the graywater treatment plant to point-of-use applications. Graywater reuse provides a drought-proof water source that eases water scarcity concerns and lightens the demands placed on alternative water sources.

MUNICIPEX reclaim is meant for use across various markets aiming to participate in graywater reuse, such as irrigation and recreation, industrial applications, fire protection service, residential homes and commercial buildings. **800-247-9445; www.rehau.com** ♦

SPECIAL REPORT



Superior 5-E Electric Smoke Blower Finds Faults, Odors, Leaks and Inflow

When testing laterals, building plumbing or pumping or inspecting septic tanks, smoke testing is a quick and effective way to find plumbing faults that lead to odors, leaks and inflow. Superior Signal Company's Superior 5-E Electric Smoke Blower easily connects to any clean-out, port or vent to smoke test the entire system in just a few minutes. The Superior 5-E Electric smoker gently pushes smoke throughout a system to find cracks or leaks and quickly identify problems. Made in the U.S., the durable Superior 5-E Electric smoker is competitively priced and comes complete with 8 feet of industrial-grade hose. Used with Superior Smoke Candles, this cost-effective solution is ideal for hard-to-find odors, leaks and other faults in commercial, residential and municipal facilities. **732-251-0800; www.superiorsignal.com/MS5**

Justin Pecoroni joins Franklin Electric

Franklin Electric welcomed Justin Pecoroni to its industrial and engineered systems business unit. In his new role as senior business unit manager, he will lead all of the commercial activities within the company's OEM business segment. Pecoroni brings more than 10 years' experience serving industrial clients to the role. In his previous position as global account manager for Wesco-Anixter, he worked closely with clients in the renewable energy space, developing and managing teams in direct support of critical infrastructure projects. He also worked on supply chain integration projects to address complex customer needs.



Justin Pecoroni

InfoSense hires new market manager

InfoSense hired Chris Callahan as its central east market manager. Based outside of Indianapolis, he brings over 18 years' experience in the water and wastewater industries. Callahan has held numerous sales and business development roles providing collection and distribution system maintenance solutions to leading utilities. The central east market includes Indiana, Kentucky, Michigan New York, Ohio, Pennsylvania and West Virginia.



Chris Callahan

NAPCO Pipe & Fittings changes name to Westlake Pipe & Fittings

NAPCO Pipe & Fittings announced its new name, Westlake Pipe & Fittings. The name change is meant to reflect the value its customers receive from its product portfolio backed by the brand equity of Westlake Corp., a Fortune 500 company. Additionally, the recent acquisition of LASCO Fittings has allowed the company to provide a wider array of injection-molded fittings to current market segments and expand into new market segments including pool and spa, aquarium and waterpark, and golf irrigation.

APWA announces 2022 Top Ten Public Works leaders

The American Public Works Association announced its 2022 Top Ten Public Works Leaders of the Year. In its 63rd year, this award is one of APWA's highest honors and is based on a lifetime of professional contributions. APWA's 2022 Top Ten Public Works Leaders are Kealy Dedman, commissioner of public works, regional municipality of Peel; Jennifer Perry, public works director, town of Exeter; Beverly "Bev" Farraher, public works operations manager, city of St. Paul; Toby Rickman, deputy director, Pierce

County Public Works; Anthony "Tony" Hofmann, director of public works, city of Overland Park; Teresa Smith, Georgia alternative delivery practice leader, Volkert; Jeff May, public works director, city of Clive; Scott Smith, senior civil engineer/project manager, Hampton Public Works Engineering; Michael Millette, director of public works, village of South Elgin; Jennifer Willer, city engineer, city of Eugene.

McElroy names new quality director

McElroy hired Barry Johnson as the company's new quality director. He will replace Steve Burgess, who has announced his retirement after 35 years of service. Johnson will lead McElroy's quality team, identifying opportunities to improve the company's overall customer experience. Prior to arriving at McElroy, Johnson held positions at several companies including Ford Motor Co., Brunswick and TriMas. Most recently, he served as senior director of quality and continuous improvement at NORDAM, an aerospace manufacturing and repair firm.



Barry Johnson

ADS acquires Cultec

Advanced Drainage Systems announced it has acquired Cultec, family-owned plastic stormwater and septic chamber company headquartered in Brookfield, Connecticut. Cultec's worldwide presence includes chamber installations throughout the United States, Canada, Europe, South America and the Caribbean.

Leonard Valve welcomes two new regional sales managers

Leonard Valve announced it has hired two new regional sales managers. With over 30 years' experience in the plumbing industry, George Anderson, Northeast region, has held many leadership positions in sales in the northeast U.S. and Canada. Nick Jett, Midwest region, joins Leonard Valve after developing his reputation in the field of commercial plumbing throughout the Central U.S. and Canada over the past 12 years.



Nick Jett



George Anderson

EnBiorganic expands dealer network

EnBiorganic Technologies welcomed Spadefoot Water Treatment Services, a division of Spadefoot Design and Construction, to its licensed network of EBS-Di Installers and service providers. Spadefoot will implement and deliver EnBiorganic's Treatment As A Service solution to wastewater utilities and surface water management entities throughout Long Island, New York.

Flottweg adding new warehouse facility in Kentucky

Flottweg Separation Technology plans to invest \$1.75 million and create 12 jobs with a new warehouse facility in Boone County, Kentucky. The Northern Kentucky operation, which assembles and repairs machinery for the company's existing customer base, is the company's fourth since 2011 and will accommodate increased parts manufacturing. The investment will support construction of a new 15,000-square-foot warehouse facility on Flottweg's existing campus and is expected to be completed by the first quarter of 2023. ♦

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PEOPLE/AWARDS

The **city of Bloomington** received the 2022 Education and Outreach Award from the Indiana Association of Floodplain and Stormwater Management for its Residential Stormwater Grants Program.

Mandy Chu, a senior at Troy Athens High School, won the Oakland County (Michigan) Water Resources Commission's Preserve MI Waters: Stormwater Manhole Cover Art Contest. Her artwork will be cast onto 50 manhole covers across the county. She also received a \$1,000 scholarship from the commission and Pure Oakland Water.

Tributaries LLC received a Conservation Stewardship Award for Stormwater Management from the Sussex Conservation District (Delaware).

Trees Inc. (Pennsylvania) received a Governor's Award for Environmental Excellence for its "Local Actions with Global Benefits: Planting Street Trees in Pottstown" project. The honor notes that trees planted in Pottstown over the years are estimated to reduce stormwater runoff into the public infrastructure systems and pollution in the Schuylkill River watershed by about 3 million gallons each year. ♦

CALENDAR

Aug. 28-31

American Public Works Association Public Works Expo 2022, Charlotte Convention Center, Charlotte, North Carolina. Visit pwx.apwa.net.

Aug. 29-31

Smart Water Summit, Hyatt Regency Hill Country Resort & Spa, San Antonio. Visit www.smartwatersummit.com.

Sept. 11-14

American Water Works Association Water Infrastructure Conference, (hotel TBA), Portland, Oregon. Visit www.awwa.org.

Sept. 26-28

StormCon and National Rural Water Association WaterPro Conference, Gaylor National Resort and Conference Center, National Harbor, Maryland. These events are being held as parallel conferences. Visit www.nrwa.org or www.stormcon.com.

Oct. 19-20

Wisconsin Association for Floodplain, Stormwater and Coastal Management Annual Conference, Kalahari Resort, Wisconsin Dells. Visit www.wafscm.org.

Oct. 24-26

California Stormwater Quality Association Annual Conference, Palm Springs Convention Center, Palm Springs, California. Visit www.casqa.org.

Nov. 7-9

American Water Resources Association Annual Conference, Hyatt Regency Lake Washington, Seattle. Visit www.awra.org.

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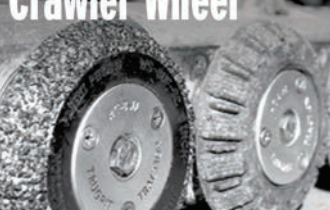


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