MUNICIPAL
SEWER & WATER™
FOR SANITARY, STORM AND WATER SYSTEM MAINTENANCE PROFESSIO
August 2023
www.mswma

Nick Borns
Principal Water Engineer
City of Sioux Falls, South Dakota

ENGINEERING A BETTER SYSTEM

Growing Midwestern community lays the groundwork for water infrastructure expansion and improvement

PAGE 12

PRODUCT FOCUS:
PIPELINE INSPECTION, SURVEYING AND MAPPING

HIGH QUALITY EQUIPMENT, HIGH QUALITY INSPECTIONS.
UPGRADE YOUR SYSTEM TO HIGH DEFINITION!

SCAN THE QR CODE BELOW TO SEE OUR HD CAMERAS IN ACTION!

ORION 3 HD CAMERA

ARGUS 6 HD CAMERA

RapidView®

IBAK North America

Sourcewell
Awarded Contract
Contract # 120721-RVL

Push | High Def | Mainline | Lateral Launch | 3D Mapping | PANO 4K Scanner | Rehabilitation | Software

(800)-656-4225 | www.rapidview.com | Quality Makes the Difference

IBAK Inspection Equipment Manufacturing is Certified ISO 9001:2015 and ISO 14001:2015

PENTAIR

SAVE UP TO $2,500 ON SELECT OEM PARTS

Get your Pentair® Aurora® or Pentair® Fairbanks Nijhuis® pumps back online with high-quality genuine OEM parts. Let us help if you've lost contact with your Pentair Authorized Distributor.

For a limited time, save up to $2,500 on your Aurora or Fairbanks Nijhuis OEM Parts order through an Authorized Distributor.

Connect with our robust Authorized Distributor network today at **pentair.com/5** to secure your discount.*

*Terms and conditions apply. Please see pentair.com/5 for full details.

800 Airport Road
North Aurora, IL 60542

3601 Fairbanks Ave.
Kansas City, KS 66106

pentair.com/5

P14635 (06-14-23)

CONTENTS

PIPELINE INSPECTION, SURVEYING AND MAPPING

ON THE COVER:
Nick Borns, principal engineer for water at the City of Sioux Falls, South Dakota, stands with a work crew behind him on a job site in Sioux Falls. The city's downtown revitalization has gained momentum in recent years and the utility is making sure the underground infrastructure matches the aboveground improvements. (Photography by Jay Pickthorn)

COMING IN SEPTEMBER 2023

Annual Buyer's Guide

- WATER: North Dakota is tapping the Missouri River
- TECH TALK: Preparing for PFAS regulations
- STAYING SAFE: Eliminating unsafe work conditions

FEATURES

COLUMNS

AUGUST 2023

MUNICIPAL SEWER & WATER

LET MACHINES HELP YOU PROCESS AND DETERMINE CRITICAL INFRASTRUCTURE

GraniteNet Software is the turn-key Cloud-based platform for public works condition assessment and proactive decision making!

CUES CLOUD

GIS

ESRI Technology
AUTHORIZED BUSINESS PARTNER

ASSET MANAGEMENT

Cityworks Partner Network
IBM maximo
infor

Sync data through the Internet to the Cloud

MANAGE OFFICE TASKS & EDIT INSPECTIONS

PERFORM & VIEW INSPECTIONS / REVIEW TASKS

FIELD INSPECTIONS

MOBILE INSPECTIONS

CUES Cloud....fusing AI and Cloud Computing for superior Asset Management!

CUES powered by aws

AI & DEFECT CODING AS-A-SERVICE

All of your inspection data is available at your fingertips

Get Prescriptive suggestions about what to fix and which method to use

800.327.7791 | salesinfo@cuesinc.com | www.cuesinc.com

Ask for a demo! http://gnet.us.com

ADVERTISER INDEX

MUNICIPAL SEWER & WATER

FOR SANITARY, STORM AND WATER SYSTEM MAINTENANCE PROFESSIONALS

Published monthly by:

COLE publishing

PO Box 220
Three Lakes, WI 54562

www.mswmag.com

In U.S. or Canada call toll free 800-257-7222
Email: info@mswmag.com / Fax: 715-350-8456

Office hours Mon.-Fri., 7:30 a.m.-5 p.m. CST

SUBSCRIPTIONS: A one year (12 issue) subscription to *Municipal Sewer & Water*™ in the United States, Canada and Mexico is free to qualified subscribers. A qualified subscriber is any individual or company in the United States, Canada and Mexico that maintains, manages, designs or installs municipal or commercial sewer, water and storm infrastructures. To qualify, visit www.mswmag.com or call 800-257-7222.

Non-qualified subscriptions are available at a cost of $60 per year in the United States and Canada/Mexico. Subscriptions to all other foreign countries cost $150 per year. To subscribe, visit www.mswmag.com or send company name, mailing address, phone number and check or money order (U.S. funds payable to COLE Publishing Inc.) to the address above. MasterCard, VISA, American Express and Discover are also accepted. Include credit card information with your order.

Our subscriber list is occasionally made available to carefully selected companies whose products or services may be of interest to you. Your privacy is important to us. If you prefer not to be a part of these lists, please contact Holly at holly.gensler@colepublishing.com.

CLASSIFIED ADVERTISING: Submit classified ads online at www.mswmag.com/classifieds. Minimum rate of $25 for 20 words; $1 per each additional word. All classified advertising must be paid in advance. DEADLINE: Classified ads must be received by the first of the month for insertion in the next month's edition. PHONE-IN ADS ARE NOT ACCEPTED. **Fax** to 715-350-8456 only if charging to MasterCard, VISA, Discover or AmEx. Include all credit card information and your phone number (with area code). **Mail** with check payable to COLE Publishing Inc. to the address above. CLASSIFIED ADVERTISING APPEARS NATIONWIDE AND ON THE INTERNET. Not responsible for errors beyond first insertion.

DISPLAY ADVERTISING: Contact Jim Koshuta or Kayla Bisnette at 800-994-7990. Publisher reserves the right to reject advertising which in its opinion is misleading, unfair or incompatible with the character of the publication.


Jim Koshuta


Kayla Bisnette

EDITORIAL CORRESPONDENCE:
Send to Editor, *Municipal Sewer & Water*, P.O. Box 220, Three Lakes, WI, 54562 or email editor@mswmag.com.

REPRINTS AND BACK ISSUES: Visit www.mswmag.com for options and pricing. To order back issues, call Holly Gensler at 800-257-7222 or email holly.gensler@colepublishing.com. To order reprints, call Jeff Lane at 800-257-7222 or email jeff.lane@colepublishing.com.

CONTROLLED CIRCULATION: 30,000 copies per month (U.S. and international distribution).

www.facebook.com/MSWmag
www.twitter.com/MSWmagazine
www.youtube.com/MunicipalSewerWater
www.linkedin.com/company/municipal-sewer-&-water-magazine

SEWER JETTING

REAPER

REVOLUTION BY REAPER

Looking for the most powerful jetting nozzle?

YOUR SEARCH IS OVER

the most powerful

the most powerful **rotating sewer jetting nozzles**
the most powerful **root, FOG, and blockage remover**
the most powerful **jetting nozzles that improve efficiency**
the most powerful **360-degree cleaning and de-scaling nozzle**

LEARN MORE

1/4" 2-4" Pipes
1/2" 4-8" Pipes
REVOLUTION 6-36" Pipes
1" 6-18" Pipes
3/8" 3-6" Pipes

AVAILABLE IN SIZES FOR: RESIDENTIAL • COMMERCIAL • MUNICIPAL SEWER CLEANING

CONTACT US TO LEARN MORE
www.hydraflexinc.com • hello@hydraflexinc.com • 952-808-3640

HYDRA-FLEX FLUID INNOVATION

Luke Laggis

Luke Laggis

LEARNING FROM EACH OTHER

Joint projects and shared successes help lift the whole industry

I got a call from one of my writers, Ken Wysocky, the other day. He wanted to check in and update me on a story he's writing about the Red River Valley Water Supply Project in North Dakota for our next issue. This isn't the story of a standard municipal utility serving its local residents, so he wanted to make sure he was on the right track.

You all have your own challenges, but each has something to learn from the other.

The Dakota Water Resources Act of 2000 authorized the Red River Valley Water Supply Project in order to provide a reliable supply of quality drinking water for the Red River Valley. The project will bring water from the Missouri River near Washburn, North Dakota, to the Sheyenne River, closely running along the Highway 200 corridor in central North Dakota. Using the river conveyance will enhance return flow capture allowing reuse of the RRVWSP water. This route also provides benefits to the aquatic environment of fish, mussels and the riparian habitat. There are minimal impacts on the Missouri River using this supported route, and it's reliable. This route utilizes Lake Ashtabula as a storage reservoir and state-of-the-art water treatment plants that are already in operation. While originally targeted at serving only the Red River Valley, the project has evolved to benefit users throughout central North Dakota.

Anyway, the conversation with Ken shifted into how starkly different our water resources are here in Wisconsin versus the Red River Valley and much of the West. Ken lives a few blocks away from Lake Michigan. I have a crystal clear 455-acre lake out my back door. After a record-setting snowfall total this past winter and our share of spring rains, the past couples weeks of warm, dry weather felt like a drought. Unless you live somewhere where drought and water scarcity are real. Here it's a welcomed — if not fully effective — brake applied to the prolific mosquito hatch. Where you live it might mean aquifer depletion.

The conversation led to our admiration for the technology and ingenuity present in the water and wastewater industry, for all the different challenges your utilities face and all the different ways you approach and overcome them.

One state away from the Red River Valley Water Supply Project, the Sioux Falls (South Dakota) Water Department — featured in this issue — is part of its own collective. The Lewis & Clark Regional Water System is a 20-member organization that supplies water to communities in South Dakota, Iowa and Minnesota. More than half of the Sioux Falls' water supply flows in from two connections to the regional supplier.

But Sioux Falls is also laying the groundwork for its own water infrastructure expansion, necessitated by a booming population. Without reliable water flow or source data, the city took on a master planning process that centered around a six-month water model calibration in search of accurate data. The project gave the city hard information upon which decisions could be made about proper sizing of infrastructure and how to effectively troubleshoot future flow problems, along with other management issues.

It's always interesting to learn about how you're improving your systems, operations and communities. You all have your own challenges, but each has something to learn from the other.

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.

CORE&MAIN®

Count on us for products to keep your operations **running smoothly.**

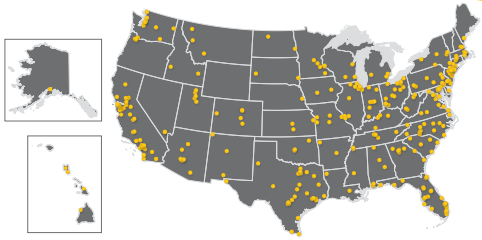
NATIONAL REACH. LOCAL EXPERTISE.

We are a leading specialized distributor of water, wastewater, storm drainage and fire protection products, and related services. With 300+ branches nationwide, and 24/7 access to **lab**, **plant** and **field products**, keep your municipal operations running smoothly with products from Core & Main.

Find it fast, fix it fast! Looking for locating and leak detection products, pumps, traffic control or safety equipment? We have what you need.

Contact us to place an order, request a catalog or ask a question.

1-888-885-2673
support.supply@coreandmain.com
supply.coreandmain.com



Local Knowledge
Local Experience
Local Service, Nationwide®

@mswmag.com

Visit the site daily for new, exclusive content. Read our blogs, find resources and get the most out of *Municipal Sewer & Water* magazine.

ESSAY CONTEST

Students Express Thoughts on Water

Last year, the Metropolitan North Georgia Water Planning District held its 21st annual middle school essay contest. The theme was the unique nature of the region's water resources and the critical role water infrastructure and water professionals play in society. **mswmag.com/featured**

JUNIOR WATER PRIZE

Winner Announced

Naomi Park of Greenwich, Connecticut, has been named the national winner of the 2023 U.S. Stockholm Junior Water Prize. Park's research explored collecting styrofoam debris in the ocean and then using that collected material as a filter to reduce ocean carbon levels. **mswmag.com/featured**

OVERHEARD ONLINE

> "The water issues of today and tomorrow won't be solved by simply doing things the same way they've always been done."

—Young Innovators From 78 Countries Develop New Solutions to World's Water Challenges
mswmag.com/featured

COLLECTION SYSTEM OF THE YEAR

A District's Transformation

After being profiled two short years ago by Municipal Sewer & Water magazine, the Ross Valley Sanitary District is now being recognized for its excellent operations and commitment to innovation. The utility recently was named Wastewater Collection System of the Year by the California Water Environment Association. **mswmag.com/featured**

Join the Discussion

Find us at:
facebook.com/MSWmag
twitter.com/MSWmagazine

Emails & Alerts

Visit **MSWmag.com** and sign up for newsletters and alerts. You'll get exclusive content delivered right to your inbox, and you'll stay in the loop on topics important to you.

WWW.JUSTCAPTHAT.COM

CAP ALERT™

MOBILE-PINPOINT INFLOW
LIGHT WEIGHT
SELF-CONTAINED
PRE-ASSEMBLED

- ✓ SMART COMMUNICATION
- ✓ NO ANTENNA SHIELDS
- ✓ NO DRILLED ANTENNA HOLES

Patent Pending

REIGN® RMC

- ✓ POWERED BY REIGN RMC
- ✓ CORROSION RESISTANT
- ✓ TRAFFIC RATED
- ✓ SENSORS & TRANSMITTERS PROTECTED

(844) 344-CAP1 (2271)

COMPOSITE ACCESS PRODUCTS, L.P.
5216 N. 26TH STREET
MCALLEN, TX 78504

SMART MANHOLE TECHNOLOGY

* SENSES, RECORDS, AND TRANSMITS
* EARLY WARNING ALARMS - PREVENT SSOs
* DATA AND PREDICTIVE ANALYTICS
* NO HANGING DEVICES

CAP Composite Access Products

MADE IN THE USA

COMPOSITE MANHOLE COVERS

ENGINEERING A BETTER SYSTEM

Growing Midwestern community lays the groundwork for water infrastructure expansion and improvement

By Giles Lambertson

Sioux Falls sits in the southeast corner of South Dakota. The Big Sioux River flows through the city, giving the city its name and giving residents a picturesque park setting where the water cascades down a series of rocky outcrops on its way south to a rendezvous with the Missouri River.

The water Nick Borns works with every day doesn't have the eye appeal of the city's waterfalls but as long as the water flows through the city's water mains without undue leakage and arrives at faucets on demand, Borns is satisfied. The utility of water can be beautiful, too.

Borns is Sioux Falls' principal engineer for water. As such, he is responsible for developing and executing the capital program for the city's water treatment plant and distribution system. He and his team have been busy during the eight years since he moved from consulting with the city water department to helping lead it.

"When I was on the consulting side, I worked on several water main replacement projects," he says. "That piqued my interest, and I made the move to the city." The pipe replacement work continues to be a "pet project" of Borns, but his interests range way beyond laying new line. "My team is doing a really good job of looking for new technology and being creative in ways that we can better our utility."

There is plenty of evidence to support that assertion.

Local sources

Sioux Falls is the largest city in the state and it continues to grow. In 2010, the census showed a population of 154,000 but since then the population has swelled by more than 50,000 and the growth is expected to continue. Some financial and health institutions have a large presence in the economy, augmenting a traditional manufacturing base.

Several college and technical school campuses are situated around the city. The arts culture is burgeoning, with a blues festival, Native American arts market, an arts and science pavilion, and the mayor's office handing out annual literary and music awards. Plus free public concerts and programs showcase music and art on the banks of the Big Sioux River.

For all of these reasons, the city needs a dependable water supply and distribution system. The water department and city leaders are in step with that mission. "It is no secret to the mayor and city council that our infrastructure needs are extremely important because of the growth we are experiencing," Borns says.

Forty-five wells pull water for the city from a pair of aquifers underlying the region, one of which is the delightfully named Skunk Creek Aquifer. The wells account for about 40% of water distributed across the system, with the river directly contributing just 3%. The river is key to recharging the aquifers, however, so it is an overall critical component.

Obviously, both ground and surface water are dependent upon precipitation, and Sioux Falls on average receives some 45 inches of snow and 27 inches of rain annually.

"My team is doing a really good job of looking for new technology and being creative in ways that we can better our utility."

Nick Borns

PROFILE: Sioux Falls (South Dakota) Water Department

CUSTOMERS:
62,176 accounts, 202,600 residents

SERVICE AREA:
80 square miles

WATER SYSTEM VOLUME:
45 mgd peak demand, 62 mgd available supply

INFRASTRUCTURE:
975 miles of 4-inch and larger mains, 127 miles of 16-inch and larger mains

EMPLOYEES:
55

WEBSITE:
www.siouxfalls.org

TWO SIDES OF THE STORY

To learn more about Sioux City's infrastructure improvement efforts from one of the contractors involved in the work, turn to *Saving Municipal Infrastructure* on page 22.

Nick Borns, principal engineer for water at the City of Sioux Falls, South Dakota, stands with a work crew behind him on a job site in Sioux Falls. (Photography by Jay Pickthorn)

About half of South Dakota, however, is currently experiencing severe or extreme drought conditions, according to a national drought tracking agency. That tends to focus the minds of those responsible for water supplies.

Under such conditions, Sioux Falls is in good shape only because it connected a decade ago to the Lewis & Clark Regional Water System, a 20-member organization that supplies water to communities in South Dakota, Iowa and Minnesota. More than half of the city's water supply flows in from two connections to the regional supplier. "We are fortunate we have the local water sources and also the Lewis & Clark Water System," says Borns, perhaps understating the matter.

Data acquisition

When Borns, a South Dakota native, began work in the city, he quickly understood that the existing system of tracking water flow was not reliable. The engineer was loath to rely on existing data to determine where new distribution lines would be installed, especially since the city was about to undertake an expansive master plan.

So, his team launched a six-month water model calibration in search of accurate data. It entailed a hundred hydrant flow tests, pressure monitors and analysis of the water leaving the water plant. "We found some areas in which tests didn't follow the modeling. We found closed valves that we didn't realize were closed," Borns says of the investigation.

The completed calibration gave the city hard information upon which decisions could be made about proper sizing of infrastructure, how to most effectively troubleshoot future flow problems and other management issues. "It was a long project, but a very critical one to appropriately master plan."

Analysis of water sourcing also was extensive — that is, gauging the depths of city-serving aquifers, and determining how quickly water travels in the underground pools from one area to another area. "The aquifer research, field testing and modeling were critical to obtaining reliable source water data. Completing those tasks allowed us to jump into the city's master plan."

After 16 months, that master planning process is nearing an end. The document will incorporate future water use projections, conservation measures, construction issues (pressure zones, capital priorities, etc.), water rights and on and on. "It has been exciting times for us in water as we gathered critical water planning information," Borns says.

Thomas Greene (left) and Izzy Salas use a vacuum excavator to expose utility lines.

TAKING A TRENCHLESS APPROACH

Thanks to winter weather, South Dakota is a prime candidate for trenchless pipe repair work.

The average low temperature in January in Sioux Falls is nine degrees. The months on either side have average low temperatures only slightly higher—12 and 13 degrees. Indeed, annual graphs of water main breaks show January and February to be the most dangerous freeze times.

Consequently, because water pipes are subject to freezing during extended cold, water mains and distribution lines in Sioux Falls are buried a minimum of 6 feet below the surface. That depth, plus a blanket of snow, can create a comfort zone for a water pipe.

"Last year was a good winter," says Nick Borns, Sioux Falls' principal engineer for water. "We had quite a lot of snow cover, so frost damage was less. It was a cold winter but not a lot of deep frost. But we do have winters where low-flow mains can freeze or service lines freeze."

The system's pipes being well underground, Borns' team of engineers has in the last years begun to employ trenchless repair methods rather than excavating the infrastructure. The city bid out a half-mile of pipe bursting of a 16-inch line and another half-mile of a 20-inch line. "It worked out great for us."

While they haven't used cured-in-place lining yet, in 2018 the city coated another stretch of pipe with a spray-in-place structural lining. "The SIPP lining project allowed us to avoid open water main replacement on a transmission line that crossed an arterial street, two rail lines and ran adjacent to an electrical substation. There are some advantages to it," Borns acknowledges.

In-ground work of any kind is limited by the weather, of course. "It depends on the type of work," he says. "If it's along a street, doing it after Thanksgiving is really difficult. Substantial completion dates are usually the beginning of November."

Pipe protection

All of that was groundwork for some big projects. One of the more significant projects is the replacement of the city's Minnesota Avenue transmission main, a 2-mile-long 36-inch prestressed concrete line laid in 1967 that connects with three of the city's four reservoirs. Reconstructing the street and replacing the line is a four-year project. The second phase of construction is scheduled for 2024.

The concrete main — which used to be a primary artery for the system before the Lewis & Clark source was tapped — is being upgraded to a 42-inch ductile iron line. Because he was concerned about the main being out of service for extended periods, Borns engineered a 20-inch transmission interconnection. The interconnector ties together four transmission mains, which allows water to back-feed and reduces dependence on each of the mains.

Because Minnesota Avenue is a gateway to downtown Sioux Falls and connects the city to the airport, the underground work is being undertaken at the same time the corridor's streetscape is being revitalized with new paving, landscaping, lighting, safety medians, parking and sidewalks.

The city is maximizing efforts to mitigate corrosion of the new water main. It is zinc-coated and V-Bio poly-wrapped, and fittings are epoxy-coated. In addition, the waterline is being cathodically protected, a technology Borns and his team embraced in 2021 on a retrofit pilot project on 26th Street.

"We've learned that our ductile iron pipe is not agreeing with the soils here. We have some areas of highly corrosive soils. Those ductile iron mains — installed from the early 1970s to the late 1990s — are the ones we're targeting for protection," Borns says. "The life in those pipes is worth extending. We should be able to do so for 20 or 30 years, at which point we can replace them in conjunction with street reconstruction work."

> **"The life in those pipes is worth extending."**
>
> **Nick Borns**

About 40% of water mains in Sioux Falls are ductile iron — twice as much as the cast iron component of the system — and accounts for roughly the same number of pipe failures as the cast iron pipe. The difference is the age of the pipe: the cast iron pipe is 70 years old on average, the ductile iron less than half that. (PVC pipe constitutes the rest of the system.)

Consequently, when the older cast iron experiences failure, it usually is just replaced. It's reached the end of its service life. However, the newer generation ductile iron should be able to function for many more years — if it is protected from further corrosion. That's what Borns is attempting to do.

"Typically for us, the first indication we have of corrosion is we see some water valves leaking. Then we see breaks in nearby 6- and 8-inch distribution lines and, finally, breaks on the main transmission pipe." The engineer tries to time his corrosion-prevention work on a pipe when the street above it is scheduled for an overlay of pavement. Hence, one street due to be repaired this summer will have the pipe running under it cathodically protected.

Izzy Salas (left) and Thomas Greene expose a water line for the cathodic protection retrofit project in Sioux Falls.

SPRAYSHIELD GREEN:
TESTED. TRUSTED. PROVEN.

FOR APPLICATION ON A VARIETY OF SURFACES INCLUDING:

WETWELLS, MANHOLES, CLARIFIERS, LIFT STATIONS, TUNNELS, DIGESTERS, BASINS, AND MORE.

RENEWABLY SOURCED. ENVIRONMENTALLY FRIENDLY.

SCAN ME

SEE THE PROCESS FOR YOURSELF

Download the case study to learn more about SprayShield Green!

SPRAYROQ

P: 205.957.0020
E: info@sprayroq.com
W: sprayroq.com

Contractors Justin Gorter (left) and Johnny Gorter tighten retainer gland bolts on a water line connected to the Sixth Street Project.

An inspector from Infrastructure Design Group takes measurements at the job site with a Trimble R8.

A contractor installs cathodic protection on a new ductile iron water main.

In the 26th Street pilot project, Borns retrofitted 20-inch-diameter pipe with corrosion-fighting anodes. Specifically, 307 18-inch-in-diameter cores were drilled through asphalt or concrete pavement at 20-foot spacings. Through the pavement cuts, a shaft was hydrovacuumed through the soil to within 6 inches of the water main.

Into this shaft, a cotton bag was dropped. It contained either a magnesium or zinc rod — metals to which surrounding corrosive soils aggressively react. This "sacrificial" material in the bag is connected to the pipe by a lead wire that is Cadweld-ed in place. In this way, the bagged metal becomes a satellite of the pipe and attracts corrosive forces in the soil, sparing the pipe the destruction.

Healthy system

The cathodic-protection project mostly was bid out, as is the bulk of major maintenance for the water system. The in-house crew has its hands full with preventive maintenance and emergency repairs, leaving significant overhauls to area contractors.

"Overall, the condition of our system is healthy," says Borns. He adds that the city's water plant, which periodically has been added to and updated, is in the same condition. "Our city leaders have done a nice job of staying ahead of repair needs."

Besides the major undertakings heretofore described, more typical repair projects occur as needed. "We adjusted the water main replacement volume this year to accommodate planned capital projects," Borns says. "As all cities can relate to, cost escalations have required us to evaluate budget priorities."

Still, some things just can't be put off, such as cathodic-protection projects. Corrosion waits for no one. ✦

SHARING SUCCESS

Being innovative is self-rewarding. Knowing that you have done a good job and shown some imagination in accomplishing it perhaps is reward enough. Yet sharing the triumph is a good feeling, too.

In Sioux Falls, South Dakota the engineering staff of the city's water system has leveraged technology and expertise to upgrade infrastructure. Nick Borns wants the successful work of his team to be recognized. Therefore, the city's principal engineer for water takes opportunities to inform the public of the work that goes on to keep that water flowing.

"We get some good opportunities to share what we are working on," he says. "We provide information about our capital improvements program. We've presented to some local organizations like Kiwanis."

He also has let peer engineers know of the work, not only for recognition but also to share methods and technologies that worked in Sioux Falls and might also work in their communities.

These presentations by Borns and engineering colleagues have included spring and fall conferences of the South Dakota section of the American Water Works Association, and a spring conference of the South Dakota Engineering Society. Then there was the conference of the Area Water Works Group, which is comprised of water professionals from municipalities and regional water systems across the Midwest.

"It is nice to be able to share some of the successes we've had," Borns says.

"Our city leaders have done a nice job of staying ahead of repair needs."

Nick Borns

DON'T IGNORE THE SIGNS

A safety culture is difficult to quantify, but its effectiveness can still be measured

By Ronnie Freeman

There are some key indicators in determining a workplace's safety standing, and there are also some important warning signs that your workplace isn't so safe even if those other areas are showing good signs of compliance.

Your organization can review many policies and procedures to determine the effectiveness of your overall safety culture. From workers compensation costs to OSHA recordable injuries, days away from work due to injury, safety inspection results and corrective actions taken, evaluating these metrics can help bring your overall safety picture into focus.

There could be some clear warning signs that your safety culture isn't what you think it is.

Employee behavior and attitudes towards safety can also be very revealing. There could be some clear warning signs that your safety culture isn't what you think it is. The following are just a few examples of warning signs that your safety program may need a closer review.

Warning Signs

1. Safety inspections are not taken seriously if they are done at all. Is there any accountability involved in conducting safety inspections? Who is conducting the inspections? Are they pencil-whipping them? Also, are corrections assigned and once completed reported up the chain of command?
2. Are supervisors looking the other way when it comes to employees working safely? Do they regularly ignore safety regulations and policies to get the job done? If they are not setting the example and enforcing safety, it is just a matter of time before a major injury happens.
3. If the "smaller" safety rules are not being followed, then what about the more critical safety rules? Once certain rules become unimportant it is only a matter of time before the more serious regulations become unimportant too.

4. How is the housekeeping? Areas that are cluttered, dirty and are always in disrepair or out of order are sure signs that safety is not important. If your workplace is constantly a housekeeping nightmare, then you truly do not have a safe workplace.
5. Employees fear speaking up when there is a hazard. Too often employees are shushed when it comes to speaking up about a hazard. The cost and time incurred on repairs and corrections can be high, but how much higher are the costs with a major injury? Employee should feel empowered to speak up, and if they are not, the workplace is not as safe as you might think.
6. Complacency with safety can lead to safety issues. When employees are used to doing things a certain way day in day out and have not been injured it can lead to complacency despite the hazards that they are working around.
7. Personal protective equipment is seen as optional. Employees picking and choosing when they wear the necessary PPE for the hazards they're facing clearly shows a lax attitude toward safety on the part of the employees and the supervisor who should be enforcing the use of necessary safety equipment. Also, what's the condition of the PPE? Are there inspections with regards to proper PPE and its condition?
8. Is adequate safety training taking place? In our industry there are some dangerous job responsibilities and if employees are not prepared to deal with hazards through proper training, it can lead to a real problem. It's also an OSHA violation not to train employees when it comes to dangerous work and hazards encountered at the workplace.

The attitudes and behaviors of employees and supervisors are often key indicators of your level of workplace safety. This can even involve management. A strong safety culture can only be achieved when there is complete buy-in from all employees, top to bottom. If your workplace has any of these warning signs, it's time to address them before they become major problems. ✦

Everything you need **ALL IN ONE PLACE**

- **Video Pipeline Inspection Equipment & Vehicles**
- **Manhole Inspection Equipment**
- **Condition Assessment & Asset Inspection Software**
- **Grouting Equipment & Vehicles**

CUES takes pride in offering comprehensive CCTV pipeline inspection solutions that encompass industry expertise, state-of-the-art equipment, and exceptional customer service. With a commitment to excellence, CUES delivers top-notch equipment and provides a seamless, all-in-one platform for pipeline inspection, rehabilitation, software, and pipe profiling requirements.

CALL TODAY OR SCAN THE QR CODE TO REQUEST A FREE DEMO!

CUES

800.327.7791 | salesinfo@cuesinc.com

www.cuesinc.com

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.

MITIGATING BRAIN DRAIN

Facing a wave of retiring boomers, utilities must preserve invaluable institutional knowledge

By Ken Wysocky

It's likely that every utility has a handful of long-time employees who together form a kind of collective brain trust, filled with invaluable institutional knowledge — both formal and informal — gained from decades and decades of fruitful work. They know what's worked or hasn't worked in the past, have an intimate knowledge of processes and protocols and have cracked the code for cutting through the bureaucratic red tape to efficiently get things done.

There's just one problem these irreplaceable employees pose for utilities: They're going to need to be replaced. And probably soon.

Statistics show that 10,000 baby boomers hit retirement age every day. Worse yet, that number of people over age 65 is expected to top 88 million — and represent more than 20% of the population — by 2050.

The writing clearly is on the wall: Utilities that don't prioritize the transfer of knowledge held by these high-value employees run the risk of big productivity and efficiency losses as they continually reinvent the wheel for new employees, not to mention lose the collective intuition to create effective operational strategies.

And retaining this so-called "institutional knowledge" — those hard skills (technical knowledge) and soft skills (relationships with customers and colleagues) honed by years of experience — becomes even more important in light of how often younger employees now change jobs.

In fact, one recent study revealed dismaying news in that regard: On average, millennials stay at jobs for just a scant 2.75 years. And more than 21% of millennials reported changing jobs in 2022 — more than three times the rate of other generations.

Even worse, a 2021 survey of retired boomers, conducted by staffing company Express Employment Professionals, revealed that only 54% of millennial workers possessed either all or most the knowledge needed to do their jobs, compared to their baby boomer counterparts. And an earlier study showed that 21% didn't share any knowledge at all.

A good start would center on a demographic profile of their workforces to see where retirements are likely.

Bridging the knowledge gap

So where do utilities start in this seemingly daunting process of collecting institutional knowledge? They can start by taking an objective look at just how prepared they are for stopping brain drain — assessing where they are in succession planning. A good start would center on a demographic profile of their workforces to see where retirements are likely, as well as identifying turnover trends department by department to help them proactively shore up gaps in institutional knowledge.

To fill this gap, utilities should ask veteran employees to add notes to policies and procedures that would help retain efficiency and productivity.

And while formal policies and procedures describe how things should get done, they don't always communicate how things really get done. To fill this gap, utilities should ask veteran employees to add notes to policies and procedures that would help retain efficiency and productivity.

Furthermore, work roles typically change quite a bit as years pass, to the point that job descriptions typically don't reflect actual day-to-day tasks, duties and responsibilities. So utilities should ask retiring boomers to review and update their job descriptions, as well as point out key tasks and responsibilities, relationships and other job requirements.

Utilities could even create a corporate wiki or intranet portal that would serve as a long-term source for this kind of critical information. Some corporate intranets even provide a search function so younger employees can more easily access critical information.

As one software company's blog put it, "In today's cloud-based workplace, there's no reason why valuable institutional knowledge should vanish when there's a changing of the guard due to retirement or attrition. Working with retiring boomers before they leave to move their knowledge into a digital format and sharing it on the searchable cloud will keep your institutional data alive and foster business continuity."

Mentoring is key

Mentoring represents another critical approach. Of course, utilities must first identify which veterans are repositories of the most valuable and important knowledge and which ones are the best qualified to most effectively pass it along. Not every employee makes for a great mentor.

It also makes sense to only mentor high-potential employees. Yes, it's almost

a given that some young employees will use whatever knowledge is gained as a springboard to another job. But since investing in professional development is highly prized by millennials as a key to long-term retention, mentoring them is well worth the risk.

Along with mentoring, utilities could entice employees nearing retirement to stay on as part-time advisers/consultants. Even if they stay on just a year or so beyond retirement, they can accomplish much in terms of passing along institutional knowledge and providing younger employees with sounder footing going forward.

This approach may also provide a surprising benefit by fulfilling a retiree's desire to remain engaged with a career they loved while still enjoying the perks and freedom of partial retirement. Other similar flexible transitions to retirement also can be fruitful, such as on-call or job-sharing arrangements that give retirees the best of both worlds: more freedom combined with the personal gratification of passing on knowledge and making a difference in young peoples' careers.

Utility officials just might be surprised at how receptive near-retirees are to such proposals. Another poll from Express Employment Professionals, conducted in late 2021, shows that a majority of employees would likely opt for semi-retirement, either by having a flexible work schedule (79%), transitioning to a consulting role (66%) or working reduced hours with reduced benefits (59%).

Yet only around one in five employees said their employer offers semi-retirement arrangements, according to the survey.

Simplify processes

On the more technical side of operations, simplifying and/or automating certain processes to eliminate redundant practices also can mitigate some brain drain. For example, if it takes members of two different teams at a utility to update GIS and asset management systems, automation may be a cost-effective solution, according to a blog published by Geonexus Technologies.

"Replacing complex, redundant processes frees up time for your existing staff to focus on more pressing issues and eases new staff into the workflow," the blog says.

The bottom line: Impending retirements are a numbers game for employers these days. Sooner than later, one of those 10,000 boomers that turn 65 every day will likely be announcing plans to retire from a job.

Whether that results in brain drain or brain gain will depend on how well organizations have implemented thoughtful and intentional programs and strategies that fully leverage the institutional knowledge veteran employees have accrued. ✦

SAVING MUNICIPAL INFRASTRUCTURE

Siteworks tackles difficult cast and ductile iron pipe bursting projects for Sioux City

By Jim Schill

Across the United States, cities are fighting the battle against deteriorating infrastructure. While the power grid often steals the headlines, the infrastructure carrying one of the most precious resources, potable water, is also in need of serious attention.

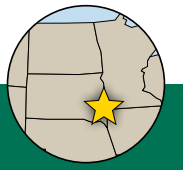
The city of Sioux Falls, South Dakota, experienced firsthand the issues with aging infrastructure when corrosion forced the replacement of an important segment of water transmission line. The city contracted with Siteworks Construction in Sioux Falls to provide a solution through trenchless pipe bursting.

"They've had a couple of water transmission main failures due to corrosion near a tower. Two corrosion-related breaks over a five-year period. And it led them to believe that there were bigger problems with them," says Jason Wilson, Siteworks president. "We have pockets of acidic, corrosive soils here. Some parts of town don't have a problem, but in other parts of town, it's a big problem. One of the mains was ductile iron, the other cast iron. The cast iron was from the early '60s and very brittle. Some of the issue is purely an age thing with the mains being 60-plus years old.

"The mains ran under 41st Street in southwestern Sioux Falls, which is all concrete pavement, 9-10 inches thick. It would be extremely expensive to dig up and replace. The city had no intention of replacing that. And that's why they chose a trenchless method, pipe bursting, for the project. It's a low-impact approach. An opencut job would have had a higher public impact."

The project included bursting 2,000 feet of 16-inch cast iron main and 2,200 feet of 20-inch ductile iron main and replacing them with 16- and 20-inch fusible PVC from (Underground Solutions) respectively. Siteworks used a 1900G Grundoburst static pipe bursting system from TT Technologies to complete the work.

> **"An opencut job would have had a higher public impact."**
>
> **Jason Wilson**



PROJECT:
Waterline replacement in Sioux Falls, South Dakota

CONTRACTOR:
Siteworks Construction
(Sioux Falls, South Dakota)

RESULTS:
Success in bursting 2,000 feet of 16-inch cast iron main and 2,200 feet of 20-inch ductile iron main and replacing them with 16- and 20-inch fusible PVC.

According to TT Technologies pipe bursting specialist Mark Dorn, the project was significant considering some of the host pipe material.

"Ductile iron is a difficult host pipe to work with. And this was some of the largest ductile iron pipe bursting in terms of pipe diameter and total feet that's been done," Dorn says. "It was definitely a challenging project, but Siteworks and specifically Jason had the experience to make it happen."

That level of experience would prove invaluable for the project in Sioux Falls.

Bursting cast iron

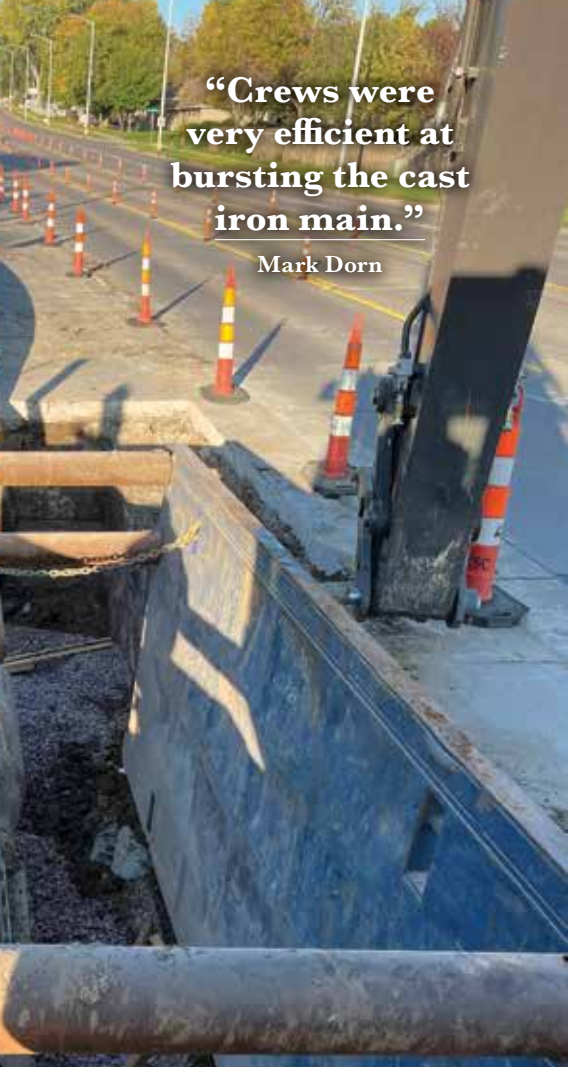
The Siteworks crew started with the 16-inch cast iron main at the east end of the project and worked west. Before any bursting could begin, temporary water service needed to be established for several businesses and residential areas.

"We had to do temporary water services for a couple of strip malls, restaurants, a gas station and an apartment complex," Wilson says. "So, there were 6-inch and 2-inch temporary services feeding all those buildings. We came off fire hydrants from a block away with a 6-inch Yellowmine pipe. We crossed one driveway and did a temporary asphalt patch across the driveway at an apartment complex."

Dividing up the bursting runs and establishing entry and exit pits was, in large part, dictated by side streets or mainline valves and fire hydrants along the length of the 16-inch main.

"The bursting pit locations depended on the street layout and where your major tie-in points were," Wilson says. "For the machine pit we used two 16-foot trench boxes. You need to make the new pipe entry pit long enough to accommodate

The project in Sioux Falls included pipe bursting 2,000 feet of 16-inch cast iron main and 2,200 feet of 20-inch ductile iron main. Crews used a 1900G Grundoburst static pipe bursting system. (Photography by TT Technologies)



The Siteworks crew replaced the existing mains with 16- and 20-inch fusible PVC.

The project included some of the largest ductile iron pipe bursting in terms of pipe diameter and total feet that has been completed to date. Specialized bursting heads from TT Technologies helped facilitate the project.

the bend of the pipe to reach the depth of the existing pipe. We needed that length, 34 to 36 feet.”

Despite being limited by side streets and tie-in areas, the Siteworks crew completed the bursting runs. The city rerouted the flow of water in a few areas allowing for longer runs over 500 feet.

“Crews were very efficient at bursting the cast iron main,” Dorn says.

The Siteworks crew was able to complete the 16-inch portion of the project in the fall. The 20-inch fusible PVC pipe was delivered in winter but since temporary water services can’t be laid out in cold climates, bursting began in late spring after school was out of session.

Bursting ductile iron

The entire project, almost a mile in length, took place along a five-lane road. Siteworks blocked off two lanes, creating a narrow work area. The city landfill was located just to the west of bursting operations, adding to the already high-traffic area.

Bursting the 20-inch ductile iron main required a similar approach, layout and configuration as the 16-inch cast iron main. But in order to reach the depth of the existing ductile water main with the 20-inch-diameter fusible PVC pipe, pits needed to be between 50 and 60 feet in length. The extra pit length was needed to accommodate the bend radius of the fusible PVC product pipe. Once the product pipe was accommodated, bursting the ductile iron host pipe presented its own set of challenges.

According to Dorn, static bursting is one of the few trenchless methods that can handle ductile iron host pipe.

“Static pipe bursting is able to burst ductile iron pipe for several reasons. First is flat-out pulling power.”

Mark Dorn

“Static pipe bursting is able to burst ductile iron pipe for several reasons,” Dorn says. “First is flat-out pulling power. The right systems have the hydraulic pulling muscle to tackle these pipes. However, that is just part of the equation. Specialized bursting heads along with wheeled cutting blades that are specifically designed for ductile iron pipe are needed to make bursting this pipe possible. The third component is knowledge. You must understand how the pipe reacts and can react in the bursting environment. Missing any of those pieces, bursting ductile iron pipe can be a frustrating experience, let alone costly.”

Wilson added, “There are so many unknowns and variables, and you don’t really know until you get started. If you’ve ever cut wet cardboard with a slightly dull box knife, the cardboard tears uncontrollably away from the blade versus dry cardboard that cuts cleanly, right where the blade goes. That’s kind of the concern with bursting ductile iron pipe. If the existing pipe has such low integrity, it’s not breaking where the cutter cuts it. It can telescope and fold up inside. And after you telescope two or three sections of pipe together, you can’t pull it anymore. You’ve got to go dig down and spend a day cutting off all these sections of pipe that have stacked up on each other.”

With the bursting runs established and the knowledge of the potential issues they faced, the Siteworks crew took a measured approach to the first few bursts in case crews ran into anything unexpected.

“As it turns out, the pipe was conducive to bursting,” Wilson says. “The first couple runs we did, we were a little nervous with this larger-size pipe. I think our first one was only 180 feet, but it went really well. The next one was like 240 feet, and we also did a 380-foot burst. The first 95% of the pullback goes in in about 2 hours, but you still have another 2 hours of technical work to finish it up and get the last 20 feet into the pit. But everything came together.”

The experience of TT Technologies and Underground Solutions with their fusible PVC created a successful project. Additionally, Joe and Alex at Banner & Associates played a key role in designing this first-of-its-kind project in Sioux Falls.

“The final key element is the open-minded engineering staff at the city of Sioux Falls,” Wilson says. “Nick Borns is very progressive at new technologies and methods to effectively serve the growing city and its taxpayers.” ✦

FEATURED PRODUCTS FROM:

Underground Solutions, Inc.
858-679-9551
www.undergroundsolutions.com

TT Technologies, Inc.
800-533-2078
www.tttechnologies.com

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.

STUDYING LONG-TERM RESULTS

NASSCO's Infiltration Control Grouting Committee Releases Test Cell Grouting White Paper

By Sheila Joy

In 2016, a group of engineers, contractors and vendors began working on an update to the NASSCO packer injection grouting technical specifications. It was recognized that recent practices in chemical grouting, or more specifically, capital grouting, had achieved significant long-term reductions in infiltration. These results were documented via independently conducted studies.

The changes in tools, practices and procedures were based on an understanding of how the grout in situ was achieving long-term seals. These results were backed up by several studies conducted using pre- and post-rehabilitation control-based procedures to determine that not only was long-term infiltration elimination effective but remained effective for over a decade.

These results were backed up by several studies conducted using pre- and post-rehabilitation control-based procedures.

The group's objective was to update the NASSCO packer injection grouting technical specifications to incorporate capital grouting techniques and to differentiate them from the traditional, short-term or pre-rehabilitation grouting methodologies. While developing these specifications, several questions arose that necessitated scientific investigation. To confirm/prove the underlying reasons that capital grouting was so effective over such a long period of time, this team identified the need to design a full-scale test. The conception of the Test Cell Study was initiated because of the recognition that significant changes in the understanding of how chemical grout works to seal out pipe leakage, especially long term, had been achieved in prior decades.

The test cell program was intended to evaluate the variables that go into how grout is applied via packer injection grouting, and to assess the resulting formations using a set of variables and evaluation criteria.

The variables included:

- Pumping rates
- Gel times
- Step grouting practices
- Soil types or pipe beddings

The evaluation criteria included:

- The shape and formation of the grout mass
- The strength or the cohesion of the grout mass, both above and below the pipe upon excavation

To determine if the grout achieved a seal at the defect, the following were documented:

- Testing procedures using packer method positive air test
- The dissection of the grouted mass or gel/soil matrix
- The shape and volume of the grout seal surrounding the defect

This was done by assessing the impact of the grouting variables to determine where the grout provided the best long-term results in sealing the actual defect, stabilizing the pipe, and providing a trench dam to reduce trench water migration.

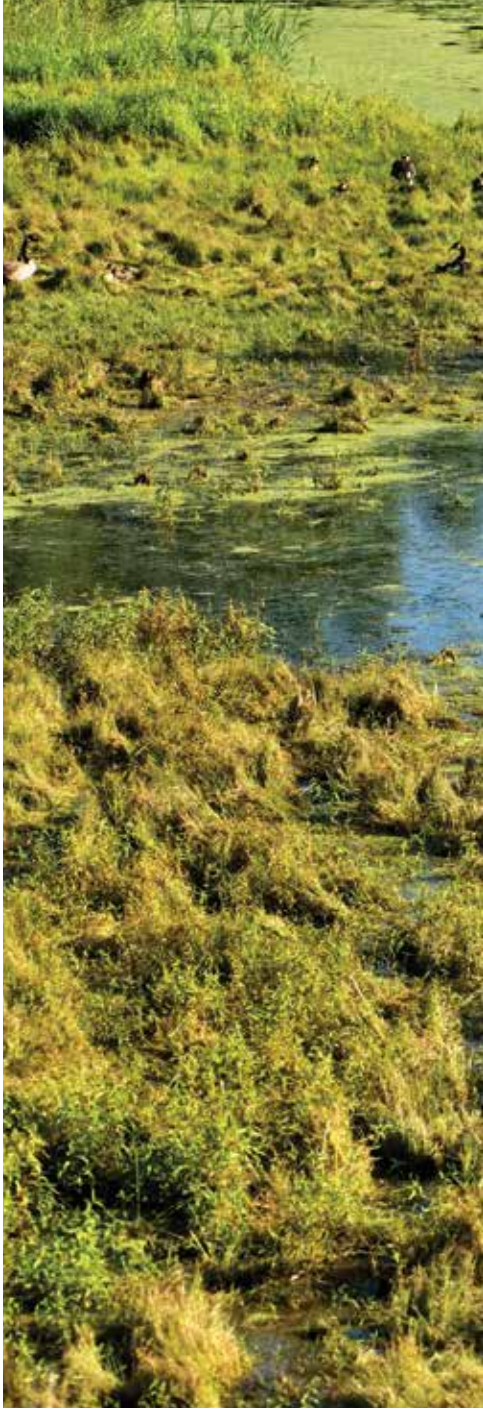
It was decided in 2016 that a test cell would be constructed of suitable dimensions that would allow an independent testing team to trial different types of grouting practices, exhume the resulting grout masses, and assess what was going on outside the structure. This work was done specifically to guide the developing specification, the technical manual, and the engineer and inspector certification training program.

This white paper documents the results of the test cell findings and the conclusions that resulted, refers to the eight different tests that were conducted, and includes many photographs to illustrate the findings to collaborate the results and conclusions. To download the white paper and other grouting specification guidelines, please visit www.nassco.org/resources/nassco-specification-guidelines. ✦

PROTECTING WATER RESOURCES FROM ALGAE

Ultrasonic mitigation provides an effective and environmentally safe solution to algae blooms

By George Hutchinson



Algal blooms are endangering human health, the environment, and economies across the United States. Rising temperatures and nutrient runoffs from lawns, farms and roads are having a negative effect on freshwater and marine environments, according to the Environmental Protection Agency. All of these factors are causing harmful algal blooms to occur more often, in more water bodies and to be more intense.

While essential for plant growth, high levels of nutrients facilitate nearly uncontrollable algal growth when coupled with warm temperatures and sunlight. If we follow the nutrients back to the source, we very often find that they originate from industrial and wastewater treatment plant discharges, nonpoint sources (such as septic tanks and stormwater runoff from urban areas, farms and residential areas), and from nutrient-enriched rainfall. Though nitrogen and phosphorus occur naturally and are essential plant nutrients, an overabundance can cause significant imbalances in the water body's ecology, and blooms are one symptom.

Algal blooms occur when there is a rapid rise in the volume of algae in a pond, lake or other water body. While these blooms can occur naturally, their recurrence is often an indication of environmental conditions that promote growth, such as increased temperatures and higher nutrient levels (phosphorus and nitrogen). When algal growth becomes unmanageable, algae will change the water to shades of green, yellow, brown or other shades depending on the variety. When it proliferates, the algae typically form a robust blanket that floats on or underneath the waterline.

What makes algae blooms especially troublesome is that they are often composed of cyanobacteria or blue-green algae. Cyanobacteria are bacteria. They use solar energy and carbon dioxide to grow (photosynthesis), like plants. This bacterium occurs naturally in both freshwater and marine (salt) water bodies and are the result of dinoflagellates (single-cell microorganisms). The threat of cyanobacteria has been increasing for years and with the rise in temperatures is becoming more of a problem. It's destructive and harms aquatic ecosystems, people, animals, drinking water supplies, the economy, and recreational activities. In fact, it's a worldwide problem that is becoming worse and requires immediate attention.

The threat of cyanobacteria has been increasing for years and with the rise in temperatures is becoming more of a problem.

To control troublesome algae growth issues, technologies have continued to evolve and are now much more capable of managing a broad range of algae and cyanobacteria. Because prevention is critical to ward off an algae bloom, many organizations are turning to ultrasonic algae mitigation for its ability to act quickly without the use of harmful chemicals.

Environmentally safe

Ultrasonic algae mitigation solutions are significantly more effective when compared to the first systems that came to market more than a decade ago. The latest generation ultrasonic systems transmit more than 2,000 sound wave frequencies to allow for targeting of the most pervasive cyanobacteria. Today's ultrasonic algae mitigation is an excellent preventive and active remedy to dispel harmful algae blooms. While a premier choice to prevent algae, they are also highly effective at reducing the algae levels in infested waters, helping to return the environment to its natural state.

Operating in an environmentally safe manner, ultrasonic frequencies are emitted in cycles, transmitting 2024 frequencies over 33.7 minutes in a specially tuned pulse wave. The sound waves impact algae by causing structural resonance. This structural resonance results in the collapse of blue-green algae gas vesicles. With green algae the resonance disrupts the "plasma layer," significantly reducing or stopping its proliferation. A popular analogy is when an opera singer causes a crystal glass to explode as these sound waves impact algae in a similar fashion. The structural resonance produced causes the gas vesicles to collapse and fall to the bottom of the lake, pond, reservoir, etc. When the vesicles collapse and fall to the bottom they perish as they are unable to resurface and engage in photosynthesis. As blue-green algae decomposes, it consumes the harm-

Ultrasonic solutions are a highly effective and much safer way to eliminate the broadest range of algae, including cyanobacteria.

ful toxins in a fruitless effort to survive. Hence, there is little toxic release during decomposition.

Approximately 95% of the more than 70,000 species and 2 million subspecies of algae have been shown to be affected by ultrasound. Ultrasonic solutions are a highly effective and much safer way to eliminate the broadest range of algae, including cyanobacteria. In most cases, the technology will preempt an algae bloom and keep it from spreading further as sound waves travel through water to where the algae is located. The expert teams managing these systems have spent hundreds and thousands of hours studying algae, empirically understanding the ultrasonic frequency ranges, and the best placement of appliances for a given body of water.

Municipalities and governments are actively seeking out algae control alternatives to alleviate the use of expensive chemicals. These groups are deploying these systems globally as today's state-of-the-art autonomous systems do not require land-based power and are perfect for large bodies of water, including ponds, reservoirs and lakes. The more advanced ultrasonic solutions include IOT and telemetry components as well as solar power to enable all onboard systems to provide years of continuous use, replacing the need for problematic chemicals. ✦

George Hutchinson is the CTO of WaterIQ, a provider of modern ultrasonic algae mitigation solutions, proven across a wide range of problem areas.

 By Craig Mandli

PIPELINE INSPECTION, SURVEYING AND MAPPING

Acoustic Inspection

InfoSense SL-RAT

The **Sewer Line Rapid Assessment Tool, or SL-RAT,** from **InfoSense** is an acoustic inspection technology used to screen for blockages in small-diameter gravity sewers. It is a highly portable onsite assessment tool that utilizes transmissive acoustics to safely provide a very fast and low-cost understanding of blockage conditions. Hundreds of utilities around the world utilize the SL-RAT to rapidly screen collections systems and better deploy costly cleaning and CCTV resources. This technology offers real-time blockage assessments in 3 minutes or less with no flow contact. **704-930-0145; www.infosense.com**

Asset Management

Subsite Electronics UtiliGuard 2 RTK

The **UtiliGuard 2 RTK** receiver from **Subsite Electronics** was designed as a simple, easy-to-operate utility locating option, making it the ultimate tool for operators locating, mapping and capturing underground utilities. It utilizes survey-grade technology and features dual-band antennas to provide operators with accurate and reliable positioning data with centimeter-grade accuracy. Its high level of accuracy and precision make it an ideal solution for locating abandoned and untracked utilities that are often difficult to pinpoint. By quickly verifying the utilities installed, operators can efficiently tailor their bids to match job site needs, as well as gain insight into the underground infrastructure to avoid cross bores during future projects. The receiver provides locate crews with integrated data capture, GPS positioning and an intuitive user interface to help operators improve work quality and maximize locate awareness. By downloading the MyUtiliGuard application, operators can simplify and streamline how they capture, map and share data.
800-846-2713; www.subsite.com

Vivax-Metrotech vLoc3 RTK-Pro

The **vLoc3 RTK-Pro** receiver from **Vivax-Metrotech** adds RTK GNSS accuracy to a utility locator. Using the internal cellular module with 4G LTE capabilities, the operator can connect to an NTRIP RTK (Real-Time Kinematic) caster that provides RTCM 3 corrections. By utilizing these corrections, the operator can collect both utility location data and the utility's geographical location with survey-grade accuracy. It is designed for all operator levels, utilizing user-friendly and intuitive locate screens. Operators confirm the utility data with the press of a button and align the electronic spirit level to store the data. All field data is sent to the cloud and retained in the receiver's onboard storage for review and exporting to mapping programs. **800-446-3392; www.vxmt.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 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 for quick configuration changes in varying pipe sizes and conditions. Optional high traction tires are available for extreme slippery conditions. The unit is designed to operate with all CUES inspection systems with up to 2,000 feet of single- or multi-conductor cable to inspect 7- through 72-inch-diameter pipe. **800-327-7791; www.cuesinc.com**

Envirosight ROVVER X

The **ROVVER X** sewer inspection system from **Envirosight** allows an operator to run inspections, view and record video, log observations, generate reports and link directly to asset management software. Twelve wheel options enable the crawler to inspect lines from 4 to 96 inches in diameter. 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. Scale up this crawler by adding side-scanning, laser profiling and lateral launch. Users can view data from onboard sensors and assess defects on screen. Its firmware updates automatically to the latest features. The Flexspection sewer video capture platform's three video resolution options (SD, 720p HD and 1080p HD) allow operators to change file size and resolution depending on the needs of each inspection.
866-936-8476; www.envirosight.com

Fiberscope.net by MEDIT TROGLOTREK

The **TROGLOTREK** pipe inspection robot from **Fiberscope.net by MEDIT** is operated by a rechargeable battery and does not require access to an AC power supply, making it convenient for use in remote locations. All system parts, includ-

ing a motorized cable drum, are battery-powered. With a full range of quick-changeable wheels, the robot can inspect pipes from 4 inches in diameter and up. For larger pipelines, additional auxiliary lights and wheel extension brackets are available. The pan-and-tilt camera thoroughly observes the inspection area, while a rear-view camera lets you monitor the surrounding area when moving backward. The crawler comes with a 984-foot Kevlar braided cable. The splashproof control center allows the system to be used in wet locations or during rain or snow. Inspection data can include text, footage and inclining information.
877-613-2210; www.fiberscope.net

Mainline TV Camera Systems

Electric Eel eCAM Ace 2 SL

The **eCAM Ace 2 SL** from **Electric Eel** includes an extra-bright display screen, which is an important factor in the clarity and definition of viewing inspection camera images and data. A brighter screen provides better contrast and visibility of inspection, making it ideal in brightly lit environments like full and direct sunlight. It has a new location on the rear of the monitor for the battery cradle and AC/DC power input. The unit can handle both 18-volt battery (Milwaukee M18 or compatible) or 12-volt AC/DC adapter inputs. It includes an entirely new operating system and menu navigation. Other new standard features include the addition of screenshot function in JPEG format, an on/off function instead of powering up when plugged in, menus in three languages including English, French and Spanish and a keypad to reflect new functionality including a sonde function.
800-833-1212; www.electriceel.com

General Pipe Cleaners Gen-Eye X-POD Plus

The **Gen-Eye X-POD Plus** sewer camera system from **General Pipe Cleaners** includes the Gen-Pack battery adapter, Wi-Fi transmitter and an on-screen distance counter as standard equipment. The battery adapter lets you operate the camera system for up to 12 hours in remote locations with limited access to power. Fuse-protected to safeguard your equipment investment, the battery adapter is also available separately. A battery and charger are not included. The built-in Wi-Fi transmitter lets you view and record inspections on a cellphone. And using the system's USB port, you can also archive activity on handy flash drives. The on-screen distance counter also shows how far the camera has traveled down a line in feet or meters. Settings can be adjusted for full-size or mini-reel configurations. **800-245-6200; www.drainbrain.com**

Milwaukee Tool M18 Modular Pipeline Inspection System

Milwaukee Tool's M18 Modular Pipeline Inspection System is built around its M18 500GB Control Hub, which powers the reels and easily swaps between the reels for added versatility. Available in 100-foot flexible, 120- and 200-foot mid-stiff, and 200- and 325-foot stiff reels, technicians can inspect 1.5- to 10-inch sewer and drainlines on one system. Each reel features a high-resolution camera, and the 1080p HD self-leveling camera head features high-intensity LEDs to optimize the light output for better visibility down the line. The push cable is built to withstand harsh conditions when navigating through cast iron, clay and PVC pipes. Technicians can digitally pan and zoom up to 4X, making it easier to narrow in on the point of interest. View, record, edit and share HD images and video recordings from the M18 wireless monitor or the free Milwaukee Pipeline Inspection app on a mobile device. **800-729-3878; www.milwaukeetool.com**

MyTana PGR200

MyTana's PGR200 push camera has the range and rigidity to inspect long laterals and small mains. The reel has a brake with adjustable drag to help manage the 200-foot 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 saves footage to internal storage or a 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. **800-328-8170; www.mytana.com**

Ratech Electronics Plumber's Helper Jr.

The **Plumber's Helper Jr.** pipe inspection system from **Ratech Electronics** is based on a small-scale reel and comes with 100 feet of mini Gel Rod cable, a removable compact command module with 7.1-inch LCD, a built-in battery and an SD recorder for digital images and video. This mini pipe inspection system is available with a full-spectrum, 1.375-inch, self-leveling color camera; a standard color camera; or any of the company's three micro camera heads — 5/8-, 3/4- or 1-inch diameter.
905-660-7072; www.ratech-electronics.com

RIDGID SeeSnake Mini Pro

The **RIDGID SeeSnake Mini Pro** inspection camera with TruSense Technology provides digital self-leveling without mechanical rotation, inspecting up to 200 feet of 1 1/2- to 8-inch pipe with its mid-flex push cable that can navigate hard 90-degree bends. Its 25 mm digital self-leveling camera always keeps the in-pipe image upright and, when paired with a TruSense enabled monitor, it delivers an in-pipe image with superior clarity, detail and fewer blown-out areas and sections of the pipe that are too dark to see. Digital Zoom/Pan provides the ability to focus on a single point of interest, while the TiltSense Inclinometer measures the camera's angle and displays the degree of tilt on the monitor — giving professionals a useful indicator of the in-pipe pitch of the camera. It pairs with the RIDGIDConnect Online Business Tool for seamless customer reporting. **800-474-3443; www.ridgid.com**

USA Borescopes FastCam

The **FastCam** from **USA Borescopes** is a rugged and simple sewer camera. This compact and portable inspection camera offers 130 feet of working length with the convenience of on-board picture and video recording. This system is ideal for inspecting pipes from 2 to 6 inches and the waterproof camera head can perform in depths up to 25 feet deep. The camera head also offers a standard built-in transmitting camera head with 512 Hz signal. The robust steel frame supports the 130- or 200-foot pushrod system and transports easily. **931-362-3304; www.usaborescopes.com**

(continued)

Software

ADS Environmental Services PRISM 3.0

The **PRISM 3.0** solution platform from **ADS Environmental Services** equips users with the necessary tools to capture, analyze, store, report and visualize actionable answers to the industry's most critical collections system problems — prioritizing sewer cleaning and preventing SSOs, assessing RDII and measuring and managing CSOs. Updates include a home screen map with updated notification tiles and GID mapping; a notification dashboard with customer level controls for setting alarms, tiered alarm escalation and contextual alarms using ANSR entities; and the ability to save configuration settings for the location dashboard.
800-633-7246; www.adsenv.com

ITpipes Asset Management Integration

The **ITpipes Asset Management Integration** module provides benefits that fully and automatically integrate an asset management system with pipe inspection planning and prioritizing. When work is done, work orders are automatically created in the asset management system. Likewise, pipe inspections can be assigned to specific crews through the AMS, and performed with ITpipes in the field. Data automatically syncs each night, allowing new inspection data to be uploaded to the AMS and Esri for review, and new work orders assigned to be downloaded to the CCTV inspection vehicle. Additionally, field inspectors have a work order assignment available that shows the latest updates and is pre-populated to eliminate operator data entry. All AMS users have access to comprehensive inspection information and inspection comparison details. Schedulers, planners and engineers can create work orders based on location mapping or filtered selections using condition assessment detail. Additionally, hyperlinks allow for inspections to be sent outside of the organization.
877-487-4737; www.itpipes.com

RapidView IBAK North America IKAS Evolution

IKAS Evolution sewer analysis software from **RapidView IBAK North America** is capable of PACP, LACP and MACP data interface, can be adapted to the modern sewer inspection standards, and customized to the specific user's workflow. It is available in four base bundles with over two dozen extension options including: full digital HD resolution, laser measurement and LaserScan continuous profile analysis. One module included in all four bundles is a powerful tool called 3D GeoSense. Compatible with all RapidView cameras (excluding AxialCam 2.0), each camera has an option to install a sensor that tracks the movement as it travels through the pipe. This allows it to capture distance, position and depth accurately and efficiently.
800-656-4225; www.rapidview.com

WinCan Enterprise

WinCan Enterprise helps managers keep track of progress on different sewer projects directly from the cloud. Supporting an enterprise approach to work-order management, it gives users high-level control of project data for their whole sewer system. They can quickly break down inspection results with rating metrics and observation data, and when they are ready, all the details and raw media from individual inspections are available at the click of a button. Job maps give management teams the ability to oversee all projects currently in progress, with color-coded results that give insight into system health. Users can drill down into inspections directly from these map views or switch to a Kanban-style inspection manager to assign or move projects through their life cycle. **877-626-8386; www.wincan.com** ✦

Product Spotlight

Smoke blower adds versatility with battery option

By Craig Mandli

Smoke testing can be a quick and effective way to test laterals and find faults that lead to odors, leaks and inflow. Superior Signal Company's 5E FLEX Smoke Blower takes everything offered with the company's original 5E plug-in unit and adds the portability of battery power.

The 5E FLEX is compatible with leading 18- to 20-volt tool batteries most utility workers already have in the toolbox. Utilizing a high-quality power adapter, the 5E FLEX integrates seamlessly into an existing electric tool set. In addition, it can also run off a 12-24 volt DC power source, such as a car or truck battery, using the DC Clips power adaptor. The unit comes with the smoke blower unit, hose, and the selected power adaptor compatible with a pre-purchased battery. According to Helen Kovacs, director of marketing for Superior Signal, while the 5E is popular for a variety of plumbing applications, they have recently seen increased interest from municipalities, particularly for testing sewer laterals.

"One municipality purchased it after a recent trade show to demonstrate to homeowners when a sewer fault or leak in a lateral occurred on private property and was therefore the homeowner's responsibility," she says. "While the 5E has always been available with 120-volt power, the recent proliferation of battery-operated tools made us realize that compatibility to that popular and convenient ecosystem was key for our customers who are working in the field and not always near a convenient power source."

The 5E easily connects to any clean-out, port or vent to smoke test the entire system in just a few minutes. It gently pushes smoke throughout a system to find cracks or leaks and quickly identify problems. It comes complete with 8 feet of industrial-grade hose, and when used with Superior Smoke Candles, the solution is ideal for hard-to-find odors, leaks and other faults in commercial, residential and municipal facilities. Kovacs says the industry reaction to the added portability of the FLEX unit has been overwhelmingly positive.

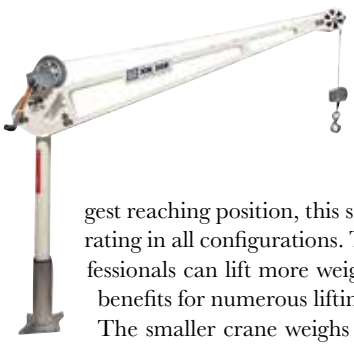
"Customers have noted how much easier and more affordable it is to smoke test with the lightweight 5E FLEX compared to heavy and expensive alternatives," she says. "The adaptable battery power has taken that convenience to the next level, and customers are thrilled with the ease of use and portability."

732-251-0800; www.superiorsignal.com

SPECIAL REPORT

OZ Lifting XR Series davit cranes

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



800-749-1064; www.ozliftingproducts.com

ADS Environmental Systems Top Side Retrieval system

ADS Environmental Systems' new Top Side Retrieval system enables collections system maintenance staff to access ADS ParaDepth and ParaFlow noncontact sensors quickly and easily after installation without requiring confined-space entry. After the initial installation requiring manhole entry, the TRS is used to do routine maintenance without descending into the manhole. The system includes a bracket, telescoping (6 to 20 feet) retrieval pole and hardware accessories for mounting. The ParaFlow and ParaDepth sensors are compatible with the ADS TRITON+ flow monitor and ADS PRISM software management system.

800-821-6710; www.adsenv.com

SPECIAL REPORT

Find Sources of Sewer and Plumbing Odors and Inflow with Superior 5E Smoke Blower

Smoke testing is a cost-effective solution ideal for hard-to-find odors, leaks and other faults in commercial, residential and municipal facilities. It's a quick and effective way to find plumbing faults when testing laterals and building plumbing. The Superior 5E Electric Smoke Blower gently pushes smoke throughout the system to find cracks, leaks and quickly identify problems. It takes only minutes to set up the blower and seconds to see the results. Superior's 5E Electric Smoke Blower easily connects to any clean-out, port or vent to smoke test the entire system. Made in the U.S.A., the durable 5E is complete with 8 feet of industrial-grade hose. Use with 1A or 2B Superior smoke candles which create 4,000 or 8,000 cubic feet of smoke, respectively. Superior's smoke candles are also sold in convenient SealPac cans which extend shelf life.

732-251-0800; www.SuperiorSignal.com/MS5

SPECIAL REPORT

Vacall AllExcavate/AllExcavate2 811 models deliver hydro and air excavation in a smaller footprint

Vacall's AllExcavate 811 delivers power and reliability in a smaller footprint. Get in and out of tight jobs faster with the 8-cubic-yard debris tank, 1,100-gallon water tanks and an overall vehicle length of under 35 feet. The AE 811 delivers vacuum forces up to 5,400 cfm at free air and waterjetting power of 0 to 25 gpm at 3,000 psi. The AE2 811 adds air pressure modes at 110 psi at 185 cfm or 150 psi at 150 cfm. The AllSmartFlow CANbus intelligent control system features a programmable LCD display that monitors engine, water flow, air pressure and vacuum performance for precise boom and reel adjustments. Aluminum water tanks and optional galvanized debris tanks with supreme finish carry a lifetime warranty. Both models, manufactured by Gradall, use one engine to power the chassis and excavation functions, reducing service and operation costs.

800-382-8302; www.vacall.com ✦

Avanti announces two new managers

Avanti International has named two managers to its team. Northeast Regional Manager Keith Sisson has been a member of Avanti's sales and support team since 2015. For the past several years, Sisson has served as the West/South-Central regional manager. In his new role, he will serve the following states: Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont and Washington, DC. West/South-Central Regional Manager Billy Jalomo has been part of the logistics/procurement team at Avanti since 2016 and has made the transition into the role of regional manager for the West and South-Central states including Alaska, Arkansas, Arizona, California, Colorado, Hawaii, Idaho, Louisiana, Mississippi, Montana, New Mexico, Nevada, Oklahoma, Oregon, Texas, Utah, Washington and Wyoming.

Billy Jalomo

Keith Sisson

Patent approved for Felling Trailers' Air Bi-Fold Ramps System

Felling Trailers was awarded a U.S. patent grant for their Air Bi-fold Ramps system, U.S. Patent 11,613,197. The Air Bi-fold Ramps system was first introduced to the construction and paving industry at the 2020 CONEXPO-CON/AGG show. The system was featured on Felling's 25-ton FT-50-3 LP, a tri-axle low-profile flatbed tag trailer. Key features of the design are the operation of the flip ramp and also the controlled-flow air ramp technology.

Vermeer opens new global parts distribution center

Vermeer opened a new 312,000-square-foot global parts distribution center in Pella, Iowa, as part of the manufacturer's Vermeer Mile. The center is located at the end of the old runway where company founder Gary Vermeer once delivered parts to customers by plane. With three times more space than the previous building, the new center includes 23 dock doors, a warehouse management system and improved warehouse technology.

Vermeer Center

Florida Pumping Solutions acquires American Sock & Dewatering

Thompson Pump distributor Florida Pumping Solutions is expanding its services with the acquisition of American Sock & Dewatering, based in northern Florida. With the addition of American Sock, FPS will now be able to provide a full range of construction dewatering services, including socking — a technique used to prevent water intrusion during excavation and construction, slurry pumping, bypass pumping, emergency response and more. This allows FPS to meet unique north Florida challenges such as low-lying terrain, coastal areas and heavy rain and flooding that require effective dewatering and flood control solutions for construction, agriculture and other industries.

City of Greeley, Colorado implements new AMS

The city of Greeley, Colorado, has gone live with its Cityworks Asset Management System, implemented by Woolpert. The implementation provides an enterprise-wide platform for managing assets through system-based activity, cost, and document tracking for the Greeley Water and Sewer Department. The department includes two water treatment plants, a water reclamation or wastewater treatment plant, and nine water reservoirs. The growing city of more than 100,000, located 60 miles northeast of Denver, treats and distributes nearly 9 billion gallons of water over 500 million miles of pipeline annually.

VMAC recognized at 2022 BC Export Awards

VMAC was recognized at the 2022 BC Export Awards for its outstanding contribution to British Columbia's economic growth. The rotary screw air compressor and multi-power system manufacturer earned two awards: Manufactured Products and the top award, BC Exporter of the Year. Each of VMAC's rotary screw air compressors and multi-power systems is designed, manufactured, and assembled in Nanaimo, British Columbia, at its 44,000-square-foot facility, which includes a foundry, machine shops, fabrication shop, quality assurance lab and assembly.

DEVELON names its top 10 dealers of 2022

DEVELON annually recognizes its equipment dealers that have excelled in providing top-level performance in sales, parts and service to customers in their respective markets. The following enterprises have been recognized as the top 10 DEVELON dealers of 2022: Equipment East, Dracut, Massachusetts; Bobcat of Mandan, North Dakota; Barry Equipment Co., Webster, Massachusetts; GF Preston Sales and Service, Sundridge, Ontario; Equipment Rentals, Watertown, New York; Texas Timberjack, Lufkin, Texas; Westerra Doosan Enterprise, Abbotsford, British Columbia; Best Line Leasing, State College, Pennsylvania; Hartington Farm Services Limited, Hartington, Ontario; and Wilson BC Cos., Central Point, Oregon. ✦

CASE STUDY

PIPELINE INSPECTION, SURVEYING AND MAPPING

By Craig Mandli

ROV-mounted sonar used to inspect combined sewer and storm system

Problem:

The Toronto Water team was charged with inspecting a 100-year-old submerged sewer pipe, which would be dangerous for divers and ineffective due to the murkiness of the water.

Solution:

To safely and quickly conduct an inspection, Deep Trekker worked with PipeTek to perform a zero-visibility inspection of a Toronto CSO using just an ROV-mounted sonar. Using the **Deep Trekker REVOLUTION ROV,** equipped with sonar. The REVOLUTION ROV was more than capable, with six powerful vectored thrusters for enhanced stabilization.

RESULT:

Using the sonar-equipped ROV saved the team considerable time and money and removed the need to send divers into dangerous waters. Arash Farajian, business operations consultant for Toronto Water noted how crucial the sonar integration was to a successful inspection. "With sonar, we were able to know if there were any structural issues, and if there were any potential leaks," he says. "With the camera feed, we were able to see things as you get closer to it. Traditionally, we weren't able to do that. This solved a problem that's getting us to be more proactive with our infrastructure, to know about problems ahead of time — before it gets to failure."

519-342-3177; www.deeptrekker.com ✦

What's New With You?

Send In Your Industry News To Us!

Send your company's latest business news to editor@mswmag.com. Newsworthy items may include business expansion, honors and awards, new contract announcements, employee promotions and executive hires, and new services. Please include high-resolution digital photos with the news releases.

MUNICIPAL SEWER & WATER

CLASSIFIEDS

see photos in color at www.mswmag.com

JETTERS-TRAILER

The HotJetII® is a best-selling hot- and cold-water drainline cleaner featuring a 35hp Vanguard engine by Toyota and delivering 10gpm @ 4,000psi that cleans drains up to 300' and 12" in diameter. The HotJet II® is American made using nonproprietary parts for affordability and ease in serviceability making its return on investment truly impressive. Prices subject to change. Financing available.Contact us for current pricing and availability. **800-624-8186; sales@hotjetusa.com; www.hotjetusa.com** (MBM)

JETTERS-TRUCK

2005 International 7600 Jeter/Vacuum Truck 6 x 4. Vactor 2100 Series Vacuum Body, Cummins engine, push-button transmission, aluminum water tanks, floation fronts, 65,000k gvw, showing 16,630 hours, odometer 119,678 miles. $60,000. Please contact **Mitch@mitchellcontractinginc.com** or call **985-200-0518.** MS (M09)

SERVICE/REPAIR

Dynamic Repairs - Inspection Camera Repairs: 48-hr. turn-around time. General Wire, Ratech, Ridgid, Hathorn, Electric Eel, Gator Cams, Insight Vision, Vision Intruders. Quality service on all brands. Rental equipment available. For more info, call Jack at **973-478-0893.** Lodi, New Jersey. **www.dynamicrepairs.biz** (MBM)

TV INSPECTION

NEED TRACTION? We make aftermarket gritted/gripping pads for all chain-driven camera transporters. Custom fabrication secured to a high-quality, nickel-plated carbon-steel chain that doesn't stretch. Also have non-gritted pads, wheels, and tires for all different brands. Pad samples upon request. Pipe Tool Specialties LLC: **888-390-6794;** Fax **888-390-6670; pipetoolspecialties.com** or email **pts4422llc@gmail.com** (MBM)

CAMERA OPERATORS, STOP SPINNING YOUR WHEELS IN GREASY PIPE! Aftermarket gritted polymer wheels, steel carbide wheels, gritted and treaded tracks, tow cables, kiel sticks and more. Fitting Aries, CUES, Envirosight, Ibak, Rausch, RST, Schwalm & IDTec. ORDER TODAY at **www.TruGritTraction.com; info@trugrittraction.com; 407-900-1091** (MBM)

Submit your classified ad online!

www.mswmag.com/classifieds/place_ad

PEOPLE/AWARDS

The Rhode Island Infrastructure Bank awarded more than $630,000 in grants for stormwater management projects in the city of **East Providence, city of Pawtucket** and **town of Little Compton.** The funds are from the Sewer Overflow and Stormwater Reuse Municipal Grant Program.

The **Southwest Butler Stormwater Planning Group** (Pennsylvania) received a Governor's Award for Local Government Excellence.

Mike Huffman, stormwater division manager, received the inaugural Hendersonville Sustainability Hero Award. The honor celebrates a city of Hendersonville (North Carolina) employee or team who champions sustainability in the city and surrounding community. ✦

CALENDAR

Aug. 29-31
StormCon 2023, Sheraton Dallas Hotel, Dallas. Visit www.stormcon.com.

Sept. 11-13
California Stormwater Quality Association Annual Conference, Paradise Point Resort, San Diego. Visit www.casqa.org.

Sept. 13-15
Indiana Association for Floodplain and Stormwater Management Annual Conference, Belterra Casino Resort, Florence, Indiana. Visit www.inafsm.net.

Oct. 3-4
American Public Works Association-Utah Chapter Fall Conference and Stormwater Expo, Mountain America Expo Center, Sandy, Utah. Visit utah.apwa.net.

Oct. 4-6
Southeast Stormwater Association 2023 Regional Stormwater Conference, Hilton Head Marriott Resort & Spa, Hilton Head Island, South Carolina. Visit seswa.memberclicks.net.

Oct. 17-20
Utah Floodplain and Stormwater Management Association 2023 Conference, Cedar City Courtyard Marriott Hotel, Cedar City. Visit www.ufsma.org.

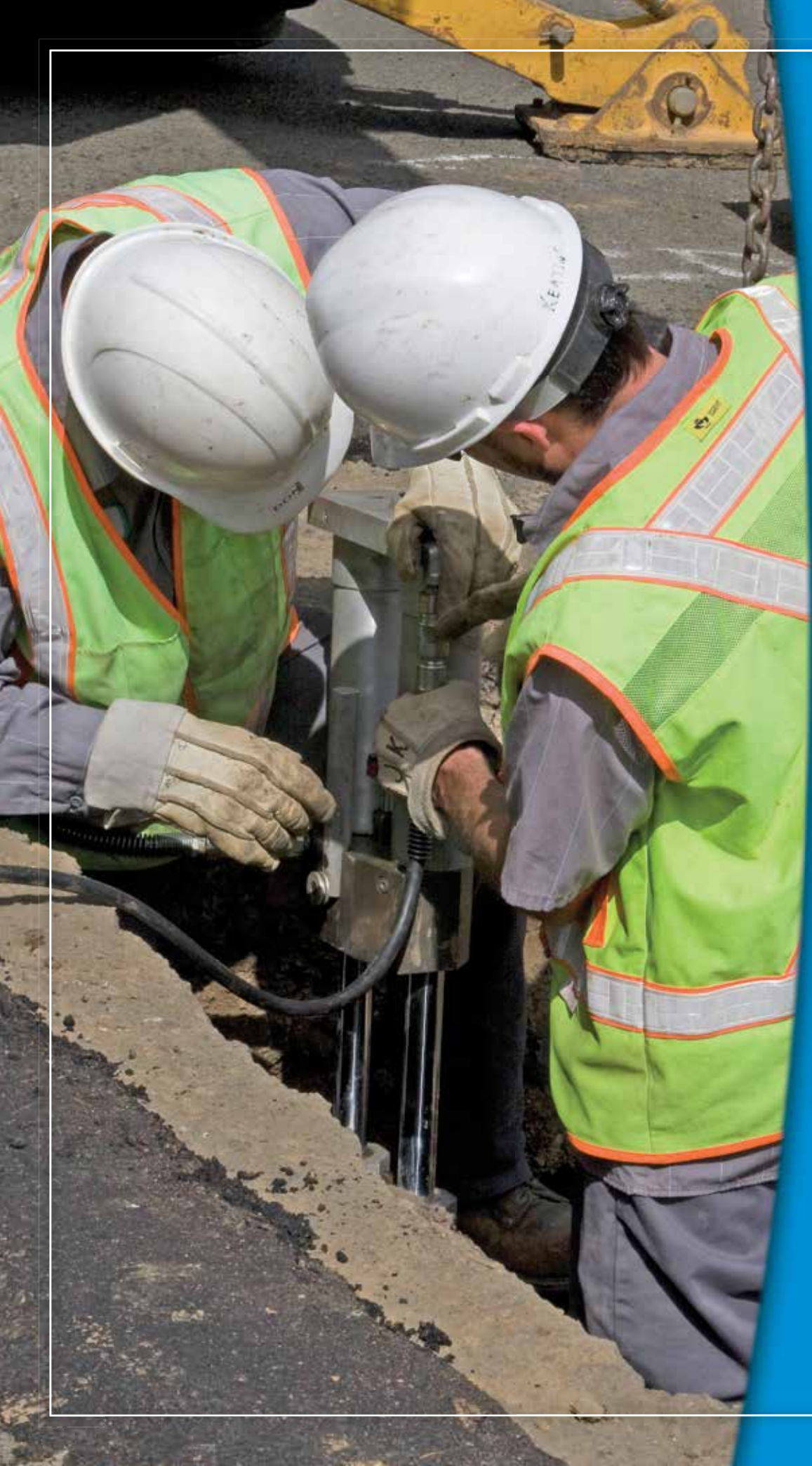
Oct. 24-26
Tennessee Stormwater Association Annual Conference, Montgomery Bell State Park, Burns, Tennessee. Visit www.tnstormwater.org.

Nov. 1-2
Wisconsin Association for Floodplain, Stormwater and Coastal Management 2023 Conference, Hyatt Regency Hotel, Green Bay. Visit www.wafscm.org.

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

Have a story idea?

Email us at editor@mswmag.com



What you learn on these pages can **save** your community $**1,000s.**

It's all yours for — **FREE.**

That's right. Some 30,000 of your industry peers welcome Municipal Sewer & Water every month for the value it brings — in saving money and improving customer service and satisfaction. Each issue shows you:

- New techniques that boost efficiency and drive out costs.
- Tips for building a stronger, more productive staff.
- Bargains on a wide range of tools and equipment.
- And much more.

Best of all, you'll learn from **other** community **managers** – how they did it, and how you can, too.

Don't miss an issue – subscribe today!

MUNICIPAL SEWER & WATER™

www.mswmag.com

SUPERIOR • VERSATILE • RELIABLE

GapVax®

THERE'S NO TIME FOR DOWN TIME - that's why we build the most reliable equipment, ready for anything AND easy to operate and maintain. GapVax custom builds to meet YOUR needs. Industrial vacuum equipment built FOR THE OPERATOR, BY THE OPERATOR.

Air movers, hydro excavators, combination jetvacs, recycle jetvacs, trailer jetters, skid mounted vacuum units, parts and accessories - we've got what you need! Give us a call today to request a demo or speak with a sales manager!

Stay up to date with us on social to see where we're going next!

281-884-8658
LA PORTE, TX

GAPVAX.COM

888-442-7829
JOHNSTOWN, PA

SAVE THE DATES AND SEE YOU SOON!

Tri-State Seminar
LAS VEGAS
AUGUST 7-10

PWX PUBLIC WORKS EXPO
SAN DIEGO
AUGUST 27-30

THE UTILITY EXPO
LOUISVILLE, KY
SEPTEMBER 26-28

VACTOR®

A WINNING LINEUP

Multiple products & configurations

IntuiTouch™ technology
all cleaning functions are in a single control panel

Comprehensive Service Support
National authorized dealer network

OEM parts and options available

For Any Application. Municipalities and contractors, stormwater management, treatment plants, lift stations, underground utilities— there's a Vactor for your job. And over 100 years of engineering, manufacturing and technical know-how go into each vehicle. Backed by service excellence and the support of the industry's strongest dealer network, we uphold the Vactor promise every day — to be there for the life of your machine.

intuitive. intelligent. innovative.

Have questions on equipment or applications?

ASK OUR EXPERTS

THE UTILITY EXPO

INDOOR
N-231
OUTDOOR
E-221