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October 2015

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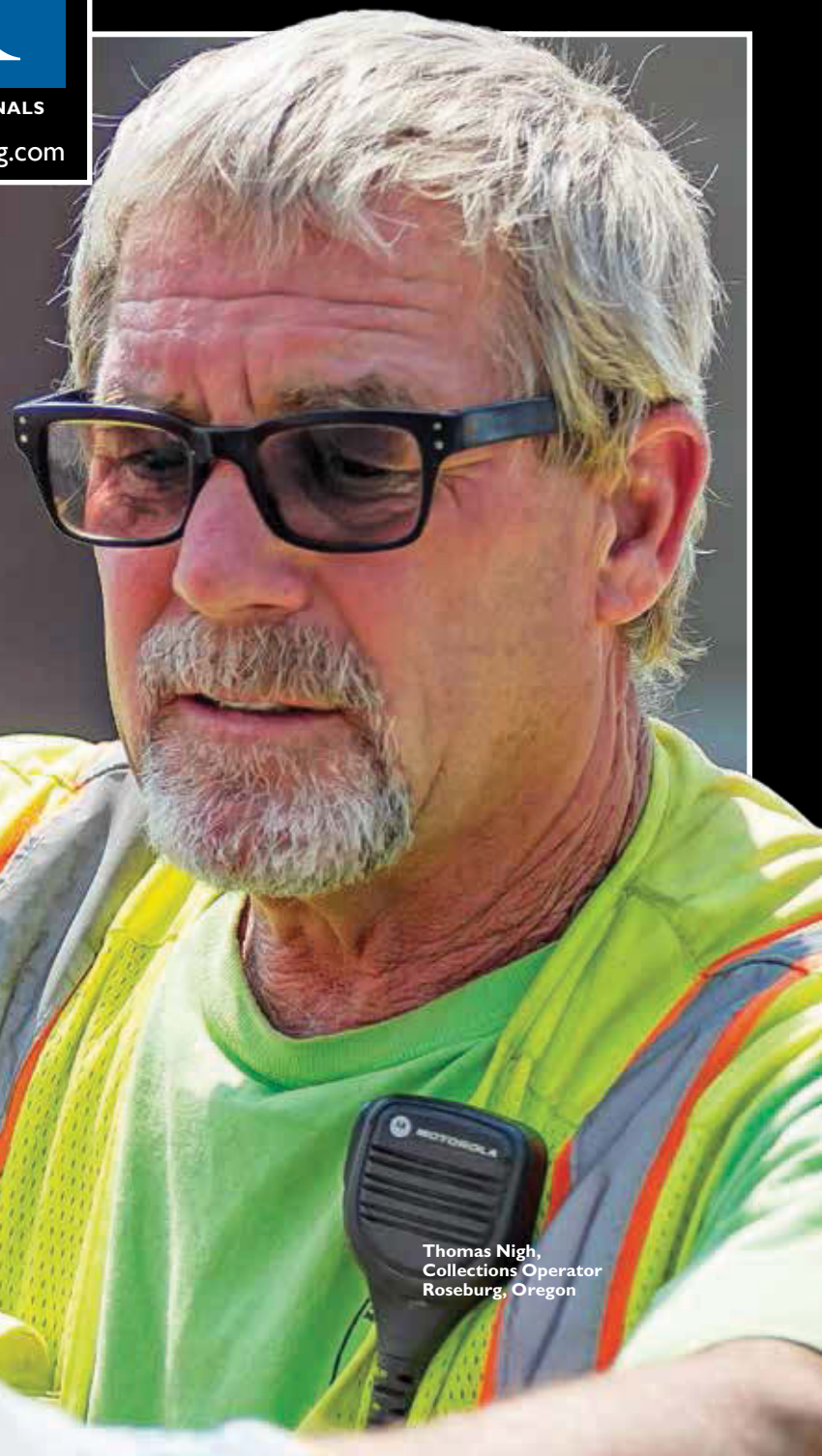
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MORE THAN CAPABLE

Collections Operator
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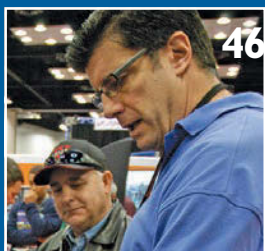
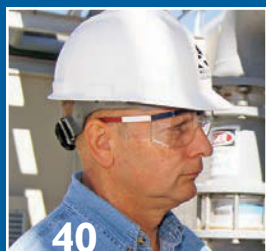
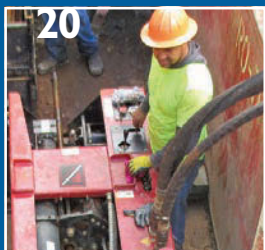


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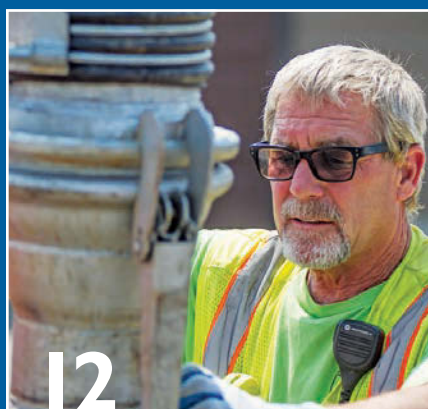
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FLOW CONTROL & MONITORING



ON THE COVER:

Roseburg (Oregon) Urban Sanitary Authority collections operator Thomas Nigh was the 2014 Wastewater Collections Operator of the Year for the Umpqua Basin Operators Section of the Pacific Northwest Clean Water Association. (Photography by Erik Bishoff)



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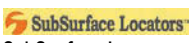






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Good stories and good discussion provide perspective and insight that can help you improve your utilities

I'm always trying to engage you in conversation and develop new content that helps you and your utilities.

Sometimes that can mean telling compelling stories about utilities that have overcome limited budgets and laissez-faire attitudes to make major system improvements. Sometimes it's simply a product or tool that solves a problem and boosts efficiency.

That's the case in this month's Tech Talk feature on mobile data collection. The tools available for data collection in the field and analysis in the office have improved significantly in recent years. Smartphones and tablets along with simple, flexible and affordable applications developed specifically for them make it possible to streamline every step of the collection, analysis and reporting of data. Learn how several different utilities are using these tools to improve their operations, and how you can do the same.

This issue also includes a feature on a Michigan utility that saved a sig-

nificant amount of money and avoided major disruptions by using prechlorinated pipe bursting to replace 17,000 feet of deteriorating water mains. The story provides a detailed look at the process as well as the project.

I hope you find these stories helpful. If not, feel free to let me know. I always like getting calls and emails from readers. It lets me know that we're connecting with you. Sometimes it lets me know we're missing the mark. Either way, you're the people in the field, using the tools and doing the work, so your perspective is extremely valuable to me.

To further that exchange, we recently relaunched our discussion board at MSWmag.com. It's a forum for you to discuss the issues that matter to you. It's another way for us to engage each other, to discuss the stories in MSW as well as your problems and successes in the field.

It's going to take a little while to build up a robust library of questions and in-depth discussion, but we want this forum to be a resource for you. Just like our content is aimed at bringing you new perspectives and insights, the forum is a place for you to connect with your peers and get their thoughts and perspectives on the issues you're facing. It could be anything from tricks for maintaining a jet/vac truck, to technical insight for stormwater control, or tips for boosting your team's efficiency.

You'll find the recent *MSW Forum* posts right on the MSW home page. Create a user name and join the discussion, or find the answer to your own question.

I hope you check it out and use it as a resource.

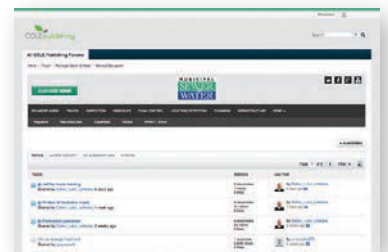
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FROM THE EDITOR

Luke Laggis



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BETTER THAN BOTTLED

City Shows Off Water With Traveling Tap

Tap water made a splash across south-eastern Wisconsin this summer. Since making its debut during the Fourth of July weekend, Kenosha's Traveling Tap wagon has received two thumbs up from thirsty residents and their canine friends. Learn more about how the utility promotes the environmental and economic benefits of microfiltered Great Lakes water. mswmag.com/featured



STORMS A-COMIN'

Ready for Rain in Drought-Stricken California

Major rain events in southern California are not commonplace. In the midst of four years of severe drought, recent downpours have arrived as an even bigger shock, testing the preparedness of local officials and infrastructure. With another El Niño on its way, a proactive approach to stormwater management helps mitigate risks when the state suddenly gets too much rain.

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OVERHEARD ONLINE

“There is a lot to be said for historic preservation. But when it comes to transferring stormwater, we prefer that it actually works.”

— *Savannah Stormwater: City to Replace 19th Century Brick Pipeline* mswmag.com/featured

H2 OH, MY!

Worms Invade Neighborhood Drinking Water

Residents from the Woodland Acres subdivision near Houston, Texas, gathered in the street to compare tap water samples that contained several slimy red and black worms after a power outage disrupted services at the private water company that services the area. What could have led to the infestation, and who is to blame? mswmag.com/featured



SUPPLY & DEMAND

New Water Tunnel Built for the Future

As population, business and industry continue to grow in Maryland's Montgomery and Prince George's counties, the area's water system will be ready to deliver. Meeting the demands of projected growth required years of precise planning and execution for the Washington Suburban Sanitary Commission and its partners, and the result is a new 5.3-mile, 84-inch-diameter pipeline that came online in February. mswmag.com/featured



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MORE THAN CAPABLE

Collections Operator of the Year Thomas Nigh doesn't let dyslexia — or anything else — interrupt the flow of his collections system

By Erik Gunn

If there's one thing that stands out about Thomas Nigh, says his boss, it's Nigh's attention to detail.

But that's only the beginning. Nigh's track record with the Roseburg Urban Sanitary Authority in Roseburg, Oregon, is so strong that in 2014 and again in 2015, he was recognized as Collections Operator of the Year for the Umpqua Basin Operators Section of the Pacific Northwest Clean Water Association.

"I consider Thomas my biggest asset here because of what he brings to the table," says Steve Lusch, Nigh's supervisor at the authority.

That may be particularly remarkable because Nigh's been with the authority for just eight years, although he has worked in and around the field for much longer. "His talents are so varied," marvels Lusch.

All the more so because of another fact: Nigh, 57, is dyslexic, which makes reading, writing and most kinds of detailed computer work difficult for him.

"Some people would consider that a disability," Lusch says. "He's never let it be that."

Utility merger

The Roseburg Urban Sanitary Authority came into being in 1983 when three separate sanitary districts were combined to serve the city of about 30,000 people. Authority employees maintain the collections system while a private contractor, Operations Management International (a unit of CH2M Hill), runs the authority's treatment plant.

RUSA is funded strictly by collections fees. While the agency is just over 30 years old, its infrastructure is a lot older. RUSA's 160 miles of sewer mains include some that date back a century. RUSA also takes care of nine lift stations in its system — eight owned by the authority and one privately owned but maintained by RUSA crews.

The sanitary authority's customer base includes a mix of light industrial and residential users. The community appears to have become a magnet for retirees in recent years, and with them has come an influx of senior citizen homes and communities, he adds.

A hospital and a major dairy plant are part of the industrial mix, each adding their own distinctive challenges to the process of managing and treating sanitary waste. Microbreweries and wineries have started to crop up as well.

Cleaning and maintenance

RUSA has had a systematic line-cleaning program in place for as long as

(continued)

Roseburg Urban Sanitary Authority collections operator Thomas Nigh was the 2014 Wastewater Collections Operator of the Year for the Umpqua Basin Operators Section of the Pacific Northwest Clean Water Association. (Photography by Erik Bishoff)

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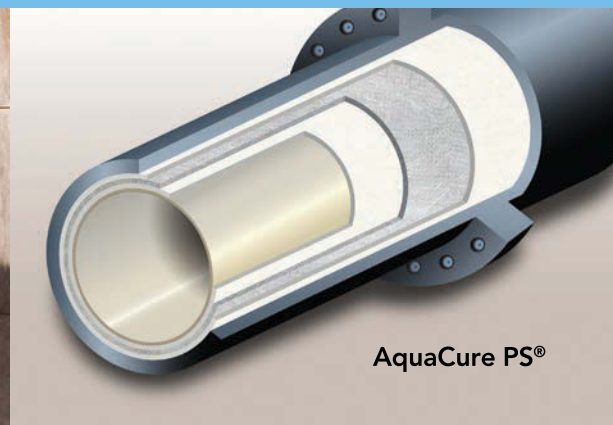


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“You don’t want anybody getting hurt. It’s a really sick feeling. You prevent it by stopping, slowing down and checking things out. If it takes five hours longer to make it fit, then it does.”

— Thomas Nigh

Thomas Nigh and Matt Chasteen service one of Roseburg’s eight lift stations, all of which are cleaned on a regular schedule.

Lusch has been with the authority — going on two decades now. The entire system is cleaned over a three-year cycle, in keeping with EPA guidance; crews tackle about a third of the lines every year. Lines with special problems may be cleaned more often.

“As the crews are cleaning, we observe what kinds of stuff we’re bringing back,” Lusch says. When it comes across specific chronic cleaning problems that might be related to discharges in a particular area of town, the authority reaches out to businesses that are believed to be the source of that particular mess.

While the line-cleaning procedures have maintained a status quo, other maintenance practices have been tightened up.

Ratcheting up standards

About two years ago RUSA implemented a more frequent rotation of CCTV sewer inspections across the system. That came after the agency began paying closer attention to the sites of sanitary sewage overflows caused by inflow and infiltration, often exacerbated by root penetration into the line. As part of the analysis, crews reviewed when each overflow site had last been inspected. Not recently enough was often the conclusion. That changed.

“We used to have a 10-year cycle, which we never met,” Lusch admits. “We’ve put more of an emphasis on that.” So much so that even with the faster seven-year rotation schedule, “We’re actually beating that.”

TV inspection is important for combating problems such as root growth, he points out, because it can show what’s being missed during simple cleaning. “For roots, for example, you can run a jet nozzle up through the line and bring it back — but you don’t kill off the roots.”

Lift station problems

The new, shorter CCTV cycle isn’t the only change. “We’re cleaning our lift stations a lot more often,” Lusch says. In the past, stations would get cleaned as conditions demanded, but about five years ago RUSA decided to implement a schedule.

The added attention on the lift stations is the result of increased awareness of the damage from so-called “flushable wipes” clogging lift station pumps, he explains, as well as recurring problems with fats, oils and grease.

In addition to routine visits to each lift station every week, crews give each a deep cleaning once a year, draining the wet well and removing all debris. All the stations also get an annual draw-down test to check how well their pumps are performing. And the lift stations that are on sewer lines dominated by sources of FOG get visited once a quarter for cleaning.

But Roseburg doesn’t just rely on its own efforts to reduce clogs from wipes and FOG. The utility has also mounted a public education program, operating information booths at one or two community events each year to distribute handouts on the problems. “We show videos of

PROFILE: **Thomas Nigh**



POSITION:
Collections System
Maintenance II Foreman

EXPERIENCE:
Employed at RUSA for 8 years: 2007-09 Collections System Maintenance I, 2009-present as Collections System Maintenance II Foreman

EDUCATION:
High school diploma

MEMBERSHIPS:
Umpqua Basin Operators Section (UBOS); Pacific Northwest Clean Water Association (PNCWA); Water Environment Federation (WEF)

CERTIFICATIONS:
Oregon Wastewater Collections Grade III Certification; Asbestos Abatement Worker Certification; Class B Commercial Driver’s License

AWARDS:
2014 Umpqua Basin Operators Section Operator of the Year

the results of what happens” when things go in the toilet that shouldn’t, whether wipes, FOG or other material, Lusch adds.

And while the authority has its eye on possibly acquiring chopper pumps in the future that mechanically break up wipes so they don’t cause clogs, it won’t rush things. “The pumps are not cheap, for one thing,” he notes.

(continued)

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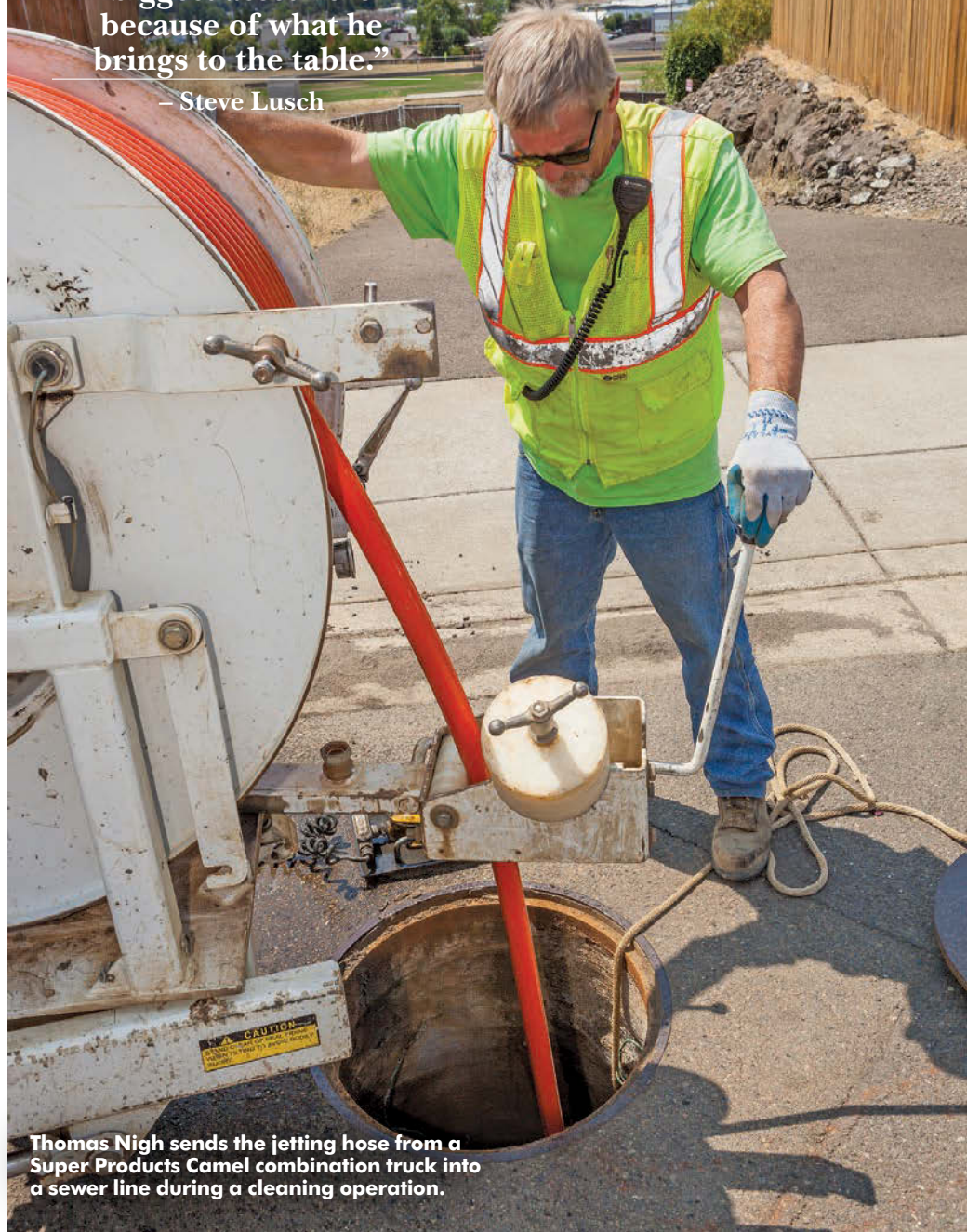


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"I consider Thomas my biggest asset here because of what he brings to the table."

— Steve Lusch



Thomas Nigh sends the jetting hose from a Super Products Camel combination truck into a sewer line during a cleaning operation.

Focus on rehab

RUSA management and its board of directors have been striving to stay on top of major rehabilitation and repairs.

Lusch estimates the authority spends about \$500,000 a year on "just rehab work," with additional funds set aside for smaller repair jobs. A lot of the bigger work entails repairing or replacing heavily damaged lines where the worst I&I problems prevail.

For those jobs, RUSA mixes open-trench replacement with lining and pipe bursting technologies, depending on what looks most suitable for the particular situation. For example, the work has been all open trench so far in 2015 because the repairs targeted for the year entail not just

eliminating leaks but also redirecting the flow and depth of sewer lines.

When open-cut replacement isn't necessary, the agency has used Insituform lining solutions and HDPE pipe bursting products as well.

The crews tackle all these jobs with two combination jet/vac trucks: a 2005 Super Products Camel and a 2014 Aquatech B-6 (Hi-Vac Corporation). RUSA also employs an Envirosight CCTV camera supported by a 2005 Sprinter CCTV van; a rodder and bucket machine; a complement of six Ford and Chevrolet trucks for service and inspection; a pair of dump trucks; and a Caterpillar 415B backhoe. For its sewer camera database the authority uses WinCan 8, and its asset management platform uses Lucity software.

Man for all seasons

For Nigh, RUSA has been a good fit. The feeling is mutual.

"I've always enjoyed working in dirt, and I've worked for the Public Works field for 17 years," Nigh says. "I enjoy working outside and doing sewer work more than anything."

A good day for him is "just coming in and finding out what needs to be done, looking at the problem and communicating it with the guys, and just going and getting it done," he says.

Nigh joined the authority as a Collections I worker in 2007, and his strong leadership skills became apparent almost immediately.

"Early on I could see that Thomas really pays close attention to detail," Lusch says. "We would go out and I could give Thomas any job to do, and he would be able to schedule it and run people."

Nigh also demonstrates strong communication skills — perhaps a bit ironic considering his challenges with written communication. "We have three or four generations here, and he can communicate with all different generations," Lusch says.

Nigh's approach to the task at hand fits right in with Lusch's priorities. "He really strives to do a very good job. I'd rather see quality work than quantity work — we'd rather do it right the first time, and that's his approach, too."

Fast riser, quick study

After just two years with RUSA, Nigh moved up to Collections II leadman in 2009. "He just showed me that he could lead and do a good job of it," Lusch says.

The same degree of care he takes with each assignment extends to the people under his direction. "He's a very safe individual," Lusch says. "If it's not safe, it's not going to get done. Since he took over that position in 2009, we haven't had one lost-time accident, because he pays attention and he's always on the ball."

"You don't want anybody getting hurt," says Nigh. "It's a really sick feeling. You prevent it by stopping, slowing down and checking things out. If it takes five hours longer to make it fit, then it does."

Nigh's experience has helped him learn how to take safe shortcuts with technology. It's also prepared him for all manner of assignments, like his design and direction of the construction of a special 5-acre terraced wetland on a piece of RUSA property, where treated effluent is pumped as part of the treatment process. Without Nigh there, "It would have probably cost us about a hundred grand," says Lusch. "And we did it with our own people."

The project also included construction of a weir to measure the flow leaving the property. And whatever challenges he might have had with

ACCOMMODATING DYSLEXIA

While Thomas Nigh's skills and work ethic have earned him the appreciation of his supervisor and the 2014 Oregon Collections Operator of the Year award, his dyslexia hasn't always made life easy.

According to Mayo Clinic in Rochester, Minnesota, dyslexia is a result of problems a person has relating the sound of speech to the appearance of letters and words on the page.

"Dyslexia occurs in children with normal vision and intelligence," states Mayo's description of the condition, posted on the clinic's website. "Sometimes dyslexia goes undiagnosed for years and isn't recognized until adulthood."

Although there's no cure, special tutoring and specialized education can help people with the condition succeed.

Steve Lusch, Nigh's supervisor at the Roseburg Urban Sanitary Authority in Oregon, agrees that Nigh's strengths — his ability to listen and communicate with a team of co-workers who span four generations, as well as his attention to detail and painstaking care — could be an accommodation on Nigh's part for the inborn difficulty dyslexia causes.

Both the state and RUSA have found ways to accommodate the condition so that Nigh can maximize his strengths.

When Nigh needed to pass his Oregon Wastewater Collections Grade III Certification exam, a state Department of Environmental Quality representative came to the facility and conducted the exam orally, reading Nigh the questions and then letting him relate his answers.

"He didn't have any problems passing that certification test, either," Lusch says.

reading and writing, Nigh wasn't taken aback by the construction drawings.

Lusch had studied the plans himself and showed them to Nigh. "Thomas looked at them one time, went home and thought about them, and came in and built it perfectly," Lusch says.

Nigh has two grown sons, 29 and 30, and a daughter, 35, and all of them work in some aspect of the building and construction trades. And for relaxation, Nigh himself can't seem to get enough of the work. "I like fixing up homes,"

he says. "I remodel them, from plumbing to sheetrock to framing — anything that has to do with just staying busy."

For his boss, however, even more important than all of Nigh's well-honed skills is his high integrity.

"I don't know if I've met another person who has a work ethic like he does," Lusch says. "I know if he tells me something it's going to be the truth." ♦

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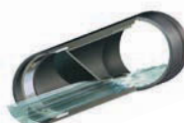
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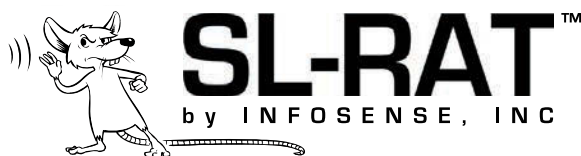


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PIPE BURSTING IN BLOOMFIELD

Prechlorinated technique solves issues with major water main replacement project in historic Michigan community

By Joe Bradfield

Pipe bursting requires relatively small excavations such as this one to access the existing water main and valves instead of open cutting the entire run. Olivia Olsztyn-Budry, Bloomfield Township engineer, says prechlorinated pipe bursting was chosen for the water service upgrade project to minimize pavement demolition and reconstruction.



A length of prechlorinated HDPE pipe, already connected to the pull rod, rests at the entry pit prior to a pipe bursting run in Bloomfield Village, Michigan.

Bloomfield Village, Michigan, is a 1,000-home section of Bloomfield Township, about a 30-minute drive northwest of Detroit. Gracefully winding, tree-lined residential streets branch off into carefully landscaped lanes and cul-de-sacs that provide access to homes maintained under guidance from the village's homeowners association. Generations of residents here have worked hard to maintain the serenity and pleasing aesthetics of Bloomfield Village since its establishment in 1924.

Thanks to prechlorinated pipe bursting, Bloomfield villagers were spared the property disfigurement and detouring traditionally associated with water main renovation.

Olivia Olsztyn-Budry, Bloomfield Township engineer, says almost from the beginning plans for the four- to five-year water service upgrade specified prechlorinated pipe bursting replacement. Open cut required pavement demolition and reconstruction, which Bloomfield Township preferred to avoid.

Olsztyn-Budry says other underground trenchless replacement methods were considered, such as horizontal drilling, but the pipe bursting technique was most conducive to the limited space available along the street right-of-ways in the village. With no rig to position as in the horizontal drilling technique, and working to and from comparatively small access pits, pipe bursting presented the least amount of disruption to traffic. Nor was residents' water service interrupted except for the single day that work was performed in front of their homes.

Pipe bursting specialist

Pipe bursting specialist Bidigare Contractors of Northville, Michigan, was the low bidder for the multiphase project, expanding its workforce in a joint venture with D'Angelo Bros Utilities of Farmington Hills, Michigan.

For bursting operations Bidigare used its own hydraulic pipe bursting machine, a HammerHead Hydroburst HB100. Although the machine is capable of up to 100 tons of pulling force, John Bidigare, vice president of Bidigare Contractors, says the average burst required only about 20 tons.

Bidigare Contractors began replacing the 17,000 feet of Phase I pipe in October 2013, completing the first 3,000 feet as scheduled before shutting down for winter in November. Work resumed in March 2014.

Replacement specifications

The Bloomfield Village water system enhancement project launched with three primary objectives: replace aging and undersized water mains, replace and upgrade fire hydrants and improve coverage, and replace and add water system valves for more reliable water system operation. It was designed to take place in four phases, giving highest priority to sections that were most urgent. Phase triage considered three factors: age of pipe involved, water main breakage record, and potential conflicts with utilities.

Portions of Bloomfield Village's legacy water system range in age from 47 to 90 years old. The newest sections of the 11 miles of ductile iron pipe, valves and hydrants were installed in 1968.

Most bursting in the Phase I stage of the project involved 8-on-8 replacement of ductile iron



Bidigare Contractors' pulling machine, a Hydroburst HB100 from HammerHead Trenchless Equipment, is capable of up to 100 tons of pulling force, but Vice President John Bidigare says the Bloomfield project required bursts of only about 20 tons.

pipe with high-density polyethylene, with some sections of 6-inch ductile iron to be upgraded to 8-inch HDPE.

Prechlorinated pipe replacement

Originally a method devised in Europe, the prechlorinated pipe bursting technique was first introduced to the U.S. for a Florida municipal water main replacement in 2000. Fifteen years later the technique is commonly used throughout both the United States and Canada.

In his presentation to Bloomfield Village's water main board, Bidigare explained in detail how prechlorinated pipe bursting would be conducted, property by property.

The process begins on the surface by fusing sticks of HDPE to the length required to complete a burst. The fused pipe is pressure tested, chlorinated and tested for bacteria by a state-certified lab. Then it is sealed at both ends, one with an 8-inch DIPS pulling head fused onto it and the other with a fused cap.

The prechlorination process can take up to two days. Once sealed, the sterilized pipe can remain this way for up to two weeks prior to use in the replacement process, which allows for stag-



The tool string consists of the pull rod (inside the pipe at this point) connected by a flex joint connector to the pulling head. The pulling head is nestled inside the expander, which drives the splitter (seen here positioned at the pipe mouth).

ing pipe in advance of a series of bursts.

Installation process

Prior to each burst, Bloomfield Village utilities were located and flagged. Residents received 24 hours' notification of when they would lose water service, which usually lasted eight to 12

hours. For many residents, the shut-off occurred at the time of day when they were away from home, minimizing disruption to their daily routines.

Each evening prior to the next day's bursting operations, the crew prepared two 5-by-10-foot access pits, 5 to 6 feet deep. One would serve as a work-

ing pit with the pulling machine in it, and the other as the replacement pipe entry pit, where the bursting run would begin.

During a typical 10- to 12-hour shift that included a pipe bursting run, the burst itself generally took between two and three hours to perform.

Pull rod was paid out from the HB100 through the existing pipe to the entry pit. A flex joint connected the pull rod to a pulling head nestled inside a hollow body expander. The expander's function is to fracture the existing pipe and press it away from the pipe path, leaving sufficient room for the pulling head and replacement pipe.

Expanders are typically 25 percent larger than a pipe's nominal diameter. For the 8-inch HDPE in this application, the expander was 10 inches in diameter. The replacement pipe, which was fused directly to the pulling head, was drawn along behind the pulling head as the assembly progressed.

Once in place, crews flushed the pipe, reattached the residential service to the main and activated the water system. Other than the access pits, the only other landscape affected was a 3-by-3-foot pit to access the water service shut-off valve. Though pipes were believed to be sterile, residents were advised by the city to boil drinking water during the next day or two, until receiving confirmation by a certified laboratory that their water did indeed pass regulatory guidelines.

Compression and ground memory

Ground material and pipe fragments compressed to the sides during a burst soon press back in around the replacement pipe after the run is complete. This tendency of ground conditions to restore themselves after bursting compression is referred to as soil memory.

The compression from the bursting head is actually confined to just a short radius in the ground immediately surrounding the pipe and does not affect the surface, which is several feet above the compression area. Nor does it impact nearby utilities.

Sensitive or rigid structures such as foundations, footings, brittle casings and manholes lying within the bursting run's anticipated compression area may require precautionary measures but once identified are rarely obstacles that prevent a burst. The contractor didn't encounter any such obstacles on this project.

Nate Hrabosky, a HammerHead bursting and ramming technician, says that when experienced contractors such as Bidigare discover such obstacles, the solution is to "shed daylight on them." A small excavation is made to remove material at the point of interference, which eliminates the compression factor.

"Vacuum excavation is excellent for this, since it makes such a small hole and any fill sucked out is easily pumped right back in afterward," Hrabosky says.

Bidigare Contractors replaced between 200 and 500 feet of pipe a day using this method. Olsztyn-Budry says the township is pleased with how well the pipe bursting process has been working. The number of lines included as part of Phase I was increased, and she says Bidigare Contractors is right on schedule. ♦

Joe Bradfield is senior writer for Ellenbecker Communications, an international communications firm

specializing in the drilling, mining and construction industries.

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SOUND CONDITION

Owen Sound is modernizing its infrastructure and developing in-house expertise to solve its toughest sewer and water challenges

By Peter Kenter



Owen Sound water distribution operator Chris Downs secures a tapping machine with the boom truck hoist. (Photography by Julia Wells)

The City of Owen Sound, Ontario, is modernizing its water and wastewater infrastructure at a solid pace. However, on occasion Mother Nature, in the form of an unexpectedly cold winter, can drive the city to move even faster.

Owen Sound is a city of about 22,000 people with a relatively mature and stable population. It's located about 150 miles north of Toronto, along the shores of Georgian Bay. The city's first water system, fed by a spring, dates back to 1880 when the local lumber industry drove the town's growth.

Today, the city is served by a modern water treatment plant, upgraded with UV disinfection.

The city's water mains are typically cast iron, between 6 and 8 inches in diameter. Local trunks 16 inches in diameter or greater are largely made of ductile iron. The city's largest main is a 24-inch Hyprescon reinforced concrete pipe (Hanson

"We've had some significant sewer main failures over the years, and it's always been a clay pipe. In one case a few years back it was a complete collapse of a section of pipe underneath a roadway."

— Matt Prentice

Pressure Pipe). The age of the system spans the city's history with about one-third aged 90 to 130 years, one-third aged 60 to 90 years and one-third aged less than 50 years.

In-house audit

A city asset management and infrastructure report was completed in 2013, largely by in-house staff. It reveals that just over 70 percent of the water distribution network is in good to very good condition, 16 percent is fair condition and only 13 percent is poor to very poor condition.

"When water pipes break, statistically it's mostly caused by corrosion, frost heaves and occasionally even water hammer," says Matt Prentice, M. Eng., P. Eng., manager of water and wastewater with the

City of Owen Sound. "Many of the breaks are circular and fairly easy to deal with using clamps. It's the longitudinal breaks that cause the most problems."

The system typically sees between 20 and 40 water main breaks annually, with the exception of the last winter, which was far worse with more than 50 main breaks from November 2014 to May 2015.

The city balances multiple water pressure zones, which create operating challenges.

"We have a large number of control valves to operate to keep that working," says Prentice. "It also means we have a fair number of dead ends, and we need to continually bleed the system in those locations to keep chlorine residual up."

Prentice is also overseeing an effort to renew cathodic protection on ductile iron trunk mains.

"We need to replace those anodes in the next two years, since they were originally installed in

(continued)

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the early 1990s and are beyond their useful life,” he says.

A newer sewer

A typical sanitary sewer pipe is made of vitrified clay and measures 8 inches in diameter, although the system contains some atypical construction as well. The system also includes small sections of historic 24- by 36-inch brick-lined box sewers. The largest sewer is the city’s east-side interceptor measuring 40 inches in diameter.

“Generally speaking, the wastewater system is not as old as the water system,” says Prentice. “It began to be constructed in earnest in the early to middle 20th century.”

The condition of the system reflects its newer construction timeline. About two-thirds of the collections is in fair to very good condition, and the older remainder is poor or very poor condition.

“We’ve had some significant sewer main failures over the years, and it’s always been a clay pipe,” says Prentice. “In one case a few years back it was a complete collapse of an entire city block of pipe underneath a roadway.”

On the sanitary sewer side, the city struggles primarily with inflow and infiltration. “Normal flows at the sewage plant go from about 2.6 mgd to well over 10.5 mgd,” says Prentice. “Under extreme storms we go up to 21 mgd. Once flows get in the 13 to 21



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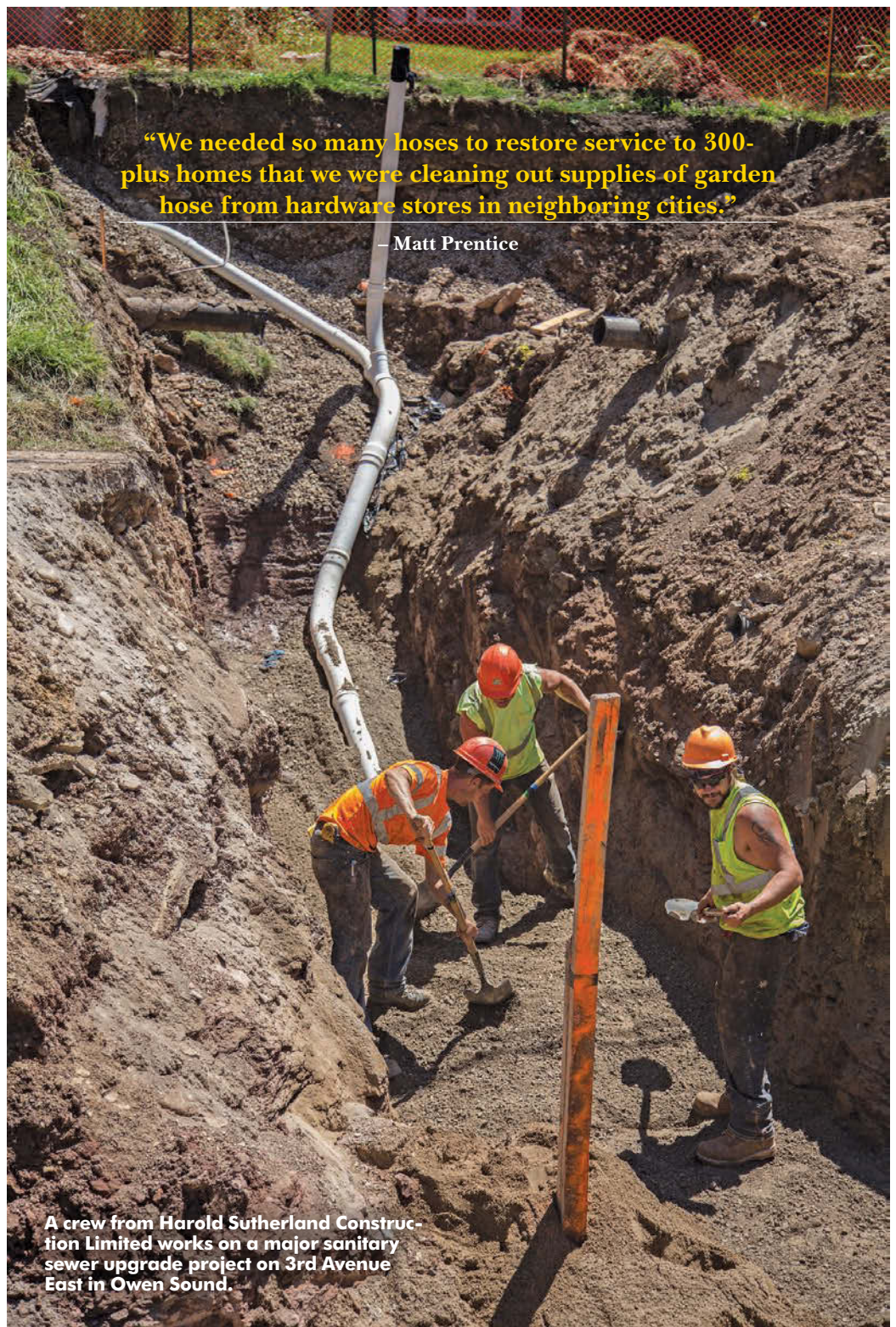
DEPARTMENT STAFF:
17

INFRASTRUCTURE:
Sewer: 69 miles; Water: 88 miles

**ANNUAL DEPARTMENT OPERATING
BUDGET:**
Sewer: \$5 million; Water: \$5 million

ASSOCIATIONS:
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“We needed so many hoses to restore service to 300-plus homes that we were cleaning out supplies of garden hose from hardware stores in neighboring cities.”

— Matt Prentice

A crew from Harold Sutherland Construction Limited works on a major sanitary sewer upgrade project on 3rd Avenue East in Owen Sound.

mgd range we are pretty much certain to be bypassing at multiple locations on the system. We’ve established a roof drainpipe diversion program and constructed a detention tank on the west side in 2000, but we still have issues on the system.”

Construction of a new \$48 million, state-of-the-art wastewater treatment plant with increased capacity will allow the plant to exceed rigorous federal standards for wastewater effluent. The

new plant is scheduled to come online in late 2016.

Employing in-house expertise

The city has developed a tremendous capacity for in-house expertise in repairing and replacing both water and sewer mains.

Water main break repairs are handled by city Water Distribution crews, while sanitary sewer break repairs are handled by city Public Works staff. Trenchless technologies are always consid-

(continued)

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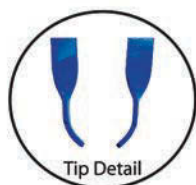
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Luke White (left) and Kevin Nicolls, pipe layers with MacDonnell Excavating, work on a city water main extension project.



ered as an option for sewer line repair, although the city isn't currently engaged in any trenchless or relining programs.

"We only get contractors involved for repair-type work when the problem exceeds our capacity," says Prentice. "Full road reconstruction projects, including the underground infrastruc-

ture, are designed by consultants under direction of the city Engineering Department and put out to tender."

While the city still favors high-pressure concrete for trunk lines, smaller-diameter sewer and water pipes are almost universally replaced with PVC.

The overall sewer inspection program is car-

ried out by contractors. Cleaning and camera inspection of most of the sewer system and the city-owned portion of sewer laterals are almost complete. However, a city-owned camera truck performs routine lateral inspections and locates. A city Vactor also performs a regular cleaning regimen in parts of the city that demonstrate recurring issues.

"GIS mapping is a work in progress," says Prentice. "Some of the information related to our water system is already available on GIS — for instance, our hydrants. We're continuing to make progress on this with in-house staff using Esri ArcGIS and Geocortex Essentials."

Frozen

There's still no doubt that cold weather can be the water system's greatest nemesis. How cold was the winter of 2014-15 in Owen Sound, Ontario? So cold that it threatened to shut down one-third of the city's residential water distribution system.

"Many of our older water pipes are buried no more than about 4 feet underground," says Prentice. "Frost was penetrating as far as 8 feet underground.

The Owen Sound water distribution team includes (from left) supervisor Harry Lumley, lead hand Mike Duncan, distribution operator Randy Jackson, distribution operator Chris Downs and distribution coordinator John Van Horne.



HISTORIC SHIPWRECKS FAIL TO SCUTTLE OUTFALL PIPE CONSTRUCTION

Divers conducting a pre-construction survey of the area around an effluent pipe project at the City of Owen Sound, Ontario, made a surprising discovery: historic shipwrecks.

The exploratory dive preceded the construction of the upgraded outfall diffuser for the city's \$48 million secondary wastewater treatment facility.

"Provincial regulations required a diffuser to be placed at the end of the pipe to meet mixing criteria for the concentration of effluent leaving the pipe into Georgian Bay," says Matt Prentice, manager of water and wastewater at the City of Owen Sound. "The marine contractor discovered the ship in 20

feet of water about 650 feet off shore while using side-scanning sonar around the outfall pipe."

Scarlett Janusas Archaeology identified the ship as the Dan Proctor, a 200-foot, three-masted schooner built in Michigan in 1893. It was originally named the Ed McWilliams, but was later converted to a barge, renamed and eventually scuttled in 1936. Two older unidentified shipwrecks were located farther south.

Prentice notes that construction crews who built the outfall pipe in 1962 were almost certainly aware of the existence of the shipwreck.

"They probably wanted to finish the project without a delay, so they didn't mention it," he says. "In order to protect the wrecks, we only had to make minor modifications to the project by slightly shortening the diffuser pipe and directing the effluent away from the Dan Proctor."

Under those circumstances we instruct many residents to keep running their water to prevent freezing."

By March, warming normally allows customers to slowly ease back on running their water, but this year the cold continued to expand its grip.

"It soon became abundantly clear that we were down the rabbit hole and had to take it to the next level," says Prentice. "We were delivering water-run notices door to door and were adding blocks to the 'run water' list on a daily basis until we covered about a third of the system."

As water services froze, city crews fought back using Magikist Pulse Jet deicers to defrost individual services. The department also ordered a pair of low-voltage, high-amperage RIDGID electric water main defrosters to maintain home service.

"All of our efforts were a drop in the bucket," says Prentice. "Cast iron mains began to split and we had to perform triage, isolating burst mains and cutting and capping them. We then ran temporary surface waterlines, which we covered in straw for insulation. We needed so many hoses to restore service to 300-plus homes that we were cleaning out supplies of garden hose from hardware stores in neighboring cities."

City crews and local contractors immediately began round-the-clock water main reconstruction, using open-trench methods to construct new PVC water mains. This time, mains were installed at a depth of 6 feet, and where that was not possible, to a 4-foot minimum depth with two sheets of insulation protecting them.

"By midsummer we were still working hard on replacing sections of the water distribution system, with just one project to go in the fall," says Prentice. "That was the only part of the project where we had the luxury of enough time to send it out to tender." ♦

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The background of the entire page is a wide-angle, high-angle shot of the interior of Lucas Oil Stadium. The stadium is mostly empty, with blue seats visible in the foreground and middle ground. The top of the stadium's steel structure is visible. In the center, there is a large graphic overlay. At the top of this graphic is a stylized building icon with a grid of windows. Below it, the text 'WWETT SHOW' is written in white, bold, sans-serif capital letters. Underneath that, the word 'KICKOFF' is written in large, white, bold, sans-serif capital letters on a blue banner. Below the banner, the words 'LUCAS OIL' are written in red, italicized, serif capital letters, and 'STADIUM' is written in white, bold, sans-serif capital letters. At the bottom of the graphic, the text 'WEDNESDAY 5-8 P.M.' is on the left, '- Two Nights -' is in the center, and 'THURSDAY 5-8 P.M.' is on the right. Below this, the text 'Free Welcome Reception!' is written in white, italicized, sans-serif capital letters. Underneath that, the text 'Kickoff the 2016 WWETT Show in a big way—inside the enormous Lucas Oil Stadium!' is written in orange, bold, sans-serif capital letters. Below this, there is a list of activities: 'Exhibitor Sponsors', 'Beer, Wine, Soda', 'Networking', and 'Snacks, Hor d'oeuvres'. At the bottom of the graphic, the text 'Complete party details at: wwettshow.com/kickoff' is written in orange, bold, sans-serif capital letters. At the very bottom of the page, there is a small inset photo of a busy trade show floor with many people and booths. On the right side of the page, there is a logo for 'wwett 16' with a blue wave icon above it. To the right of the logo, the text 'Feb. 17-20, 2016' and 'Indiana Convention Center' is written. Below the logo, the text 'Water & Wastewater Equipment, Treatment & Transport Show' is written.

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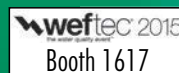
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LEARN TO THINK CRITICALLY

Making smart decisions requires shedding our assumptions and biases — and admitting we might actually be wrong

By *Ken Wysocky*

Business guru Peter Drucker once noted that making good decisions is a crucial skill at every level of an organization. Yet the odds are that you — and your colleagues — are making poorly considered decisions every day, despite your best intentions.

While difficult to quantify, the effects of those bad decisions can decrease productivity, hurt morale and cost your business or organization money.

The culprits that lead decision-making astray? Three little entwined gremlins called assumptions, infallibility and confirmation bias. The strategy for banishing them? A process called critical thinking.

There seems to be as many definitions of critical thinking as there are bad decisions. But essentially, critical thinking can be summed up simply as this: a systematic, objective attempt to avoid the wrong answer, according to Dale McGowan, a freelance writer and Web editor who taught critical thinking at the college level and has presented numerous corporate seminars on the topic. “Most people try to think about finding the right answer,” he notes. “But avoiding the wrong answer is the best way to get to the right answer. ... In effect, you need to interrogate reality. It’s better to recognize what’s true than to always go with our emotionally comforting preferences.”

Clearly, not everyone is a critical thinker. In fact, it’s human nature to *not* think critically, because we usually tend to believe what we want to be true. But the good news is that anyone can learn how to think critically, McGowan asserts. And it’s not just something for philosophers and academicians to brood over — it’s a valuable skill that can be commonly used by everyone both at work and in our personal lives. And without hyperbole, it’s probably more important than ever to embed critical thinking into our everyday lives, he suggests.

“I would argue that critical thinking is more important today because we’re all more interdependent than we ever were before,” he says. “Wrong decisions can do more damage now than in the past — they can affect thousands of people. A good example is the Internet. If you make a bad decision and put out misinformation, it can rapidly reach millions of people. That power didn’t used to exist. ... It’s easier for us to do harm than ever before, so it’s much more important to take care and be sure we have our decision-making processes in line.”

So how do we go about honing the skill of critical thinking? Fortunately, it’s not complicated — we just need to deal with those three aforementioned gremlins: assumptions, infallibility and confirmation bias.

The assumptions part is fairly obvious and easy to understand: To make sound decisions, we need to seek the truth, not what we prefer to believe. But in practice, it’s easy to succumb to other instincts, especially in the

workplace. These flaws in reasoning are known as logical fallacies, and they’re so ingrained in our culture that they’ve even earned formal names and definitions, McGowan notes. You may not know them by name, but you’ll no doubt recognize the scenarios.

For example, consider the so-called appeal to authority, in which we reason that if information comes from an authority figure, it must be true. Or the slippery-slope fallacy, in which we erroneously assume that one event will inevitably follow another one without any debate about whether or not the assumptions are true. Or the hasty generalization, in which we draw a conclusion about something based on an inadequately sized sample. Or the argument from false premises, in which we make what appears to be a logical argument that’s actually based on false premises, rendering the conclusion untrue. Or ... Well, you get the picture. “We have to work very hard in order to be totally objective and find the truth,” McGowan advises.

Diminishing your sense of infallibility sounds simple enough but can be very hard to do. The bottom line: Always consider the possibility that you could be wrong. “One of the most powerful things you can say in a discussion is, ‘I could be wrong,’” McGowan says. “You need to get to the point where you’re confident enough to ask that question. It’s amazing how much better everything would work if people would just admit their fallibility — it changes the nature of the discourse and keeps you examining your conclusions.”

The last hurdle to overcome is firmly entwined with the other two: confirmation bias, in which we’re inclined to go with things that we believe to be true, for any number of psychological or cultural reasons. This can manifest itself in something as simple as diagnosing a leak in a sewer pipe, McGowan notes. “You might view certain scenarios as easier to pursue and more cost-effective than others, which can lead you away from the right answer,” he explains. “If we allow confirmation bias to lead the process, it can negatively influence decisions, waste time and money, and lead down blind alleys.”

So how do we avoid confirmation bias? This may sound silly, but you need to approach every issue with the intention of discovering the truth of the matter. Anything else will get in the way, McGowan points out. “If you have a team member who is rock solid on a particular position and not willing to recognize his or her fallibility, it will screw up the process,” he says. “We all need to approach things with humility and recognize that everyone carries within them preferences that may or may not be true.”

That leads to another issue: how to diplomatically dislodge people higher up the management food chain from their lofty perch of infallibility or confirmation bias. This is no small issue; telling the emperor he’s

We invite readers to offer ideas for this regular column, designed to help municipal and utility managers deal with day-to-day people issues like motivation, team building, recognition and interpersonal relationships. Feel free to share your secrets for building and maintaining a cohesive, productive team. Or ask a question about a specific issue on which you would like advice. Call editor Luke Laggis at 800/257-7222, or email editor@mswmag.com.



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wearing no clothes could easily earn you a ticket to Unemploymentville. In short, be brave — and tactful. “People’s preferences are very dear to them, and if you’re talking to your boss, your job is at risk,” McGowan says. “This is why executives often surround themselves with ‘yes men.’”

“There are good and bad ways to go about it,” he continues. “You can’t make people feel threatened. It’s hard for people to hear something that contradicts their preferences — it’s emotionally important to them. So it’s important to move things ahead in a tactful way. You need emotional intelligence. And it has to come from both directions. In other words, managers and supervisors need to invite it — ask people to disagree with them.

“People who can make this happen are a tremendous asset in good decision-making.”

So is it wise to try and banish that pesky trio of gremlins from your workplace? The decision is all yours. ♦



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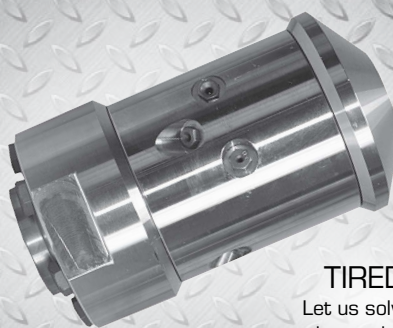
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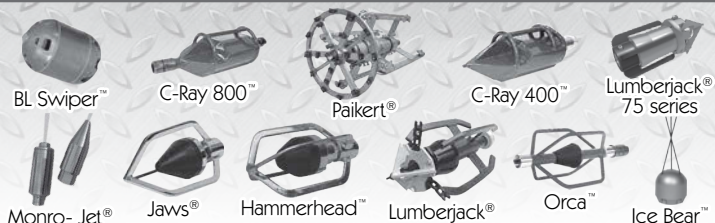
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NO MORE NOTEBOOKS

Mobile technologies make data management more efficient and accurate, streamlining every step of collection, analysis and reporting

By Alan Fabiano

Mark Wippler and his staff use mobile technology at their facility in Victorville, California, for general-purpose checklists, calibrations, inspection forms, and health and safety checks.

Every day, the team that operates and maintains the 330 mgd Union Park pump station in South Boston, Massachusetts, uses mobile technology in the form of hand-held tablets to enter data on checklist forms. This allows them to store runtimes and retrieve data for monthly reports.

The team members, who service nine other sanitary, stormwater and water pumping stations in the area ranging from 1.5 to 6.5 mgd, also enter corrective maintenance work orders through a mobile application on tablets or smartphones; the information is automatically loaded to a computerized maintenance management system (CMMS).

This team's experience offers just one example of the efficiency and other benefits that go with using mobile data collection and management technology instead of manual, paper-based methods.

Utilities that use paper forms to collect data face a number of issues. Notes coming from the field are often hard to read, and data entry can be inconsistent. Manual entry errors are common.

These same utilities probably enter data into spreadsheets for calculations and reporting, introducing another source of errors and uncertainty. For example, has the data been entered or copied and pasted correctly? Is the formula accurate? What happens when there are dis-

crepancies between manual and digital reports?

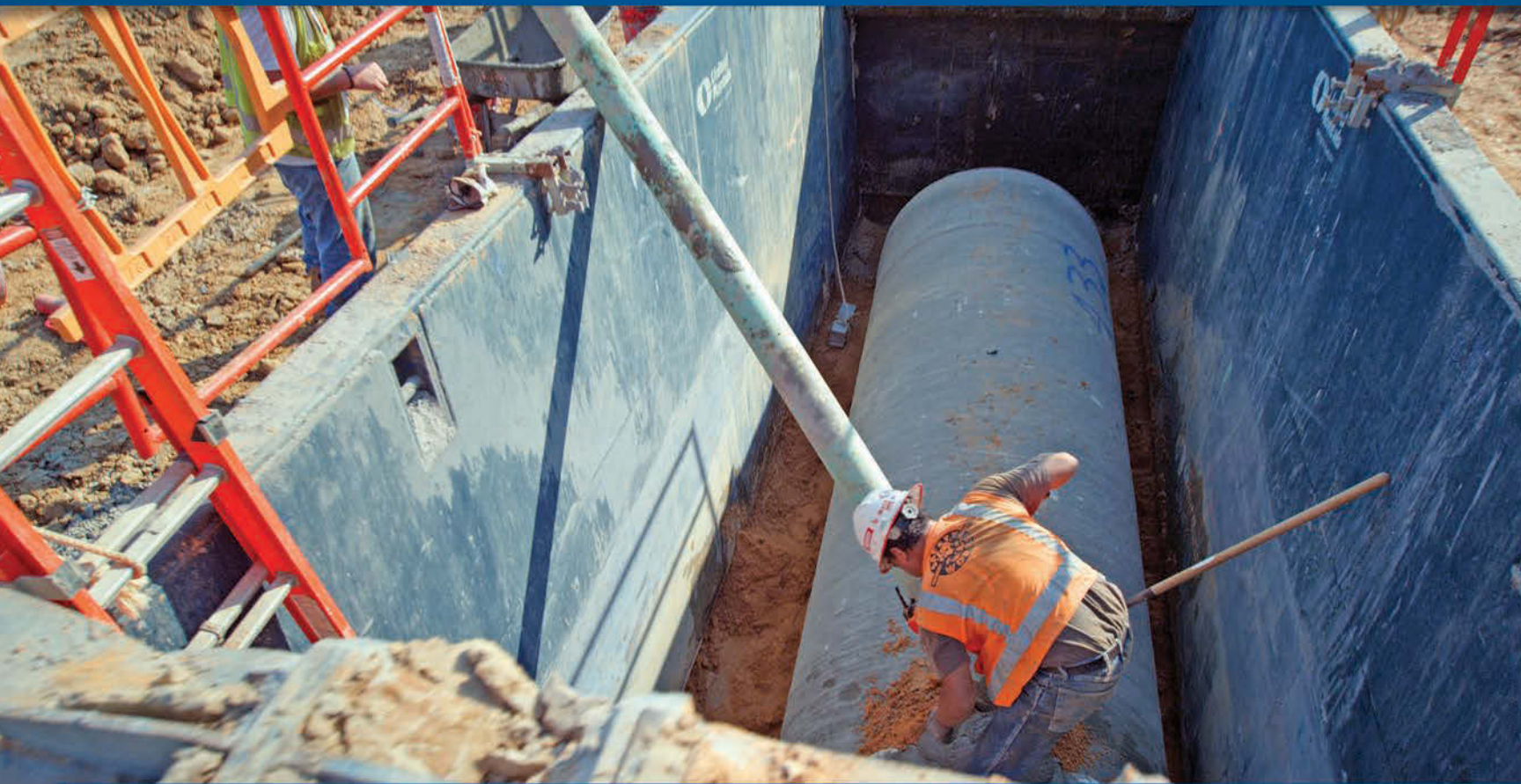
Furthermore, utilities often deal with file integrity issues. What happens when copies of the same spreadsheet are on multiple computers with several people updating them? How is data compared among multiple spreadsheets? What happens when permit levels change or when the spreadsheet expert leaves the organization? When utilities do not have good answers to these questions, issues accumulate and the agency has a data problem.

The tools available for data collection in the field and analysis in the office have improved significantly in recent years. Smartphones and tablets along with simple, flexible and affordable applications developed specifically for them make it possible to streamline every step of the collection, analysis and reporting of data.

The mobile advantage

Generally, utilities find that mobile technology and a data collection application solve the problems presented by paper forms and manual data entry. Mobile technology programs are simple and easy to learn and, because they bring efficiencies that save time and money, the initial startup costs are quickly paid back. Furthermore, when staff mem-

(continued)



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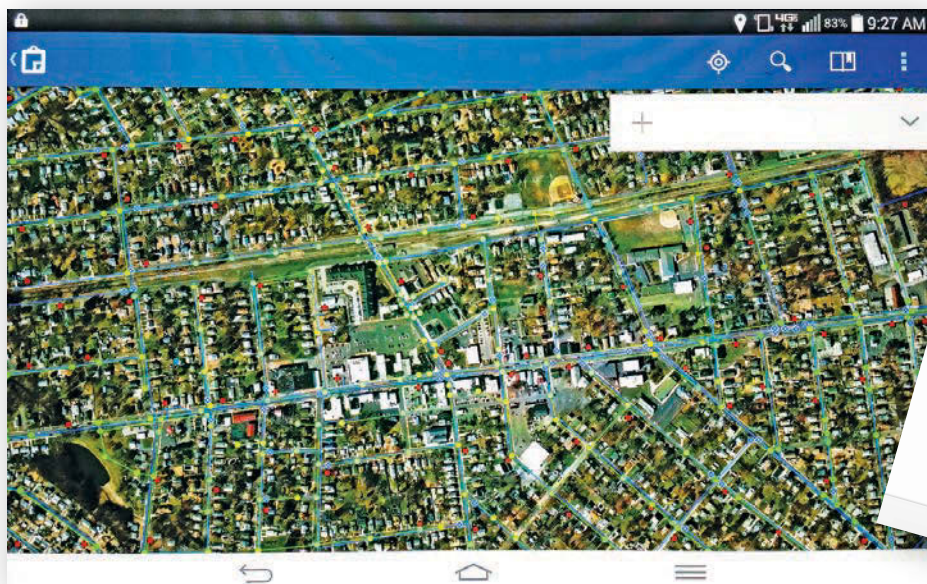


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LEFT: GIS data on mobile devices in the field enables staff members to see their utility system instantly in relation to their current location. **RIGHT:** Corrective work orders can be generated in the field. In addition, preventive work orders can be dispatched directly to an operator's tablet.

“We have two tablets in use on a daily basis. The paper method we previously used needed the same data written on multiple forms. ... The effort needed to find the required data and manually type it into a monthly report was time-consuming and prone to errors.”

– Russ Howe

bers spend less time collecting and entering data, they can devote more time to process repairs and improvements.

Because the cost of entry is low, small-scale operations can take advantage of mobile technology. For example, the team at the 0.6 mgd Wolfeboro (New Hampshire) Wastewater Treatment Facility, serving a community of 7,000, uses mobile technology.

“We have two tablets in use on a daily basis,” says Russ Howe, plant manager. “The paper method we previously used needed the same data written on multiple forms: bench sheets, logbook, operational forms and others. The effort needed to find the required data and manually type it into a monthly report was time-consuming and prone to errors. Plus, document storage was always a challenge. Now the tablet is carried with the person and data is entered once into the application.”

The Wolfeboro staff uses Hach Water Information Management Solution (WIMS) software, which includes a database that receives and stores data where it is available at any time by way of a computer with an Internet connection. “The WIMS software generates plant reports using this data,” notes Howe. “This saves the staff hours we used to consume developing reports.”

Mobile technology users find that errors are significantly reduced. They can immediately validate data in the field, receiving notifications if an entry falls outside the normal or expected range. Richer data can be collected, including photos, video, GPS coordinates, and automatic

date and time stamping. In addition, since real-time data is instantly uploaded, managers can be alerted when new information is available or action needs to be taken.

Greater security can be employed on a tablet or a mobile application: User authentication and password protection means forms and data can only be viewed and edited by those authorized. With electronic storage and automatic backup, there are fewer lost forms.

A versatile application

Among strong believers in mobile platforms is Woodard & Curran, a firm based in Providence, Rhode Island, that operates more than 45 treatment facilities and remediation sites. After deciding to use mobile technology, the firm selected the doForms application for creating forms and collecting data. This simple but customizable application lets the company create purpose-built forms for different needs and provide direct upload of data from a wide range of mobile devices.

The offering includes a website portal for creating forms and reporting on the data, as well as a mobile application for completing and submitting the forms. The form-building engine includes multiple options, including skip and relevance logic, lookup tables, and dropdowns to simplify data entry. A created form can be copied or updated easily. Deploying forms to a mobile device simply requires hitting a publish button.

The doForms system comes with pre-built report templates that can be modified for a specific need. Data and reports can be viewed through the application website or exported to PDF, Excel, CSV, HTML or KML. The system also integrates with CMMS and the Hach WIMS systems.

Simplicity in practice

At the 2.5 mgd wastewater treatment plant at the Southern California Logistics Airport in Victorville, plant manager Mark Wippler and his



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staff use doForms for daily plant checks, general-purpose checklists, calibrations, inspection forms, and health and safety checks.

The team works with three distinct databases: doForms, Hach WIMS (lab data) and SEMS (from SEMS Technologies, for maintenance data). "doForms is the glue that sticks to our lab data and maintenance data," says Wippler. "Some effort is needed to ensure all three databases are set up correctly, but once that is done we need only minor attention to software upgrades or modifying forms to meet changing requirements."

All the forms are stored in the doForms online database, so if they ever need a form printed for their records, it is available. When data is requested, Wippler and staff just download or email it. The doForms data is interfaced with Hach WIMS and updated hourly. Data collected on the tablets populates the reports automatically, making end-of-month reporting easier.

The doForms application is linked to Victorville's SEMS program so that corrective work orders can be generated in the field and preventive work orders can be dispatched to an operator's tablet directly. Work orders can be created and received in the field as long as a data connection is available. This allows managers to communicate tasks to staff wherever they are, along with specific work orders relevant to that task.

Process data can be collected in the field and immediately sent to the operations database, alerting managers to potential issues. This combination multiplies the efficiency gains of a mobile data collection system alone.

GIS on the fly

Utility staff can use GIS applications for data collection or map viewing while in the field. GIS data on mobile devices enables staff members to see their utility system instantly in relation to their current location.

Project managers find that a GIS-enabled map makes it easier to locate utility assets, versus searching through a pile of paper maps. Further, as more experienced utility workers retire and take institutional knowledge with them, it will be important to map assets electronically using GIS technology.

GIS applications are used both for viewing and collecting data. Today's smartphones and tablets generally have GPS capability, but it is imprecise. It is better to use a Bluetooth GPS receiver that delivers submeter locations to the mobile application. Both doFORMS and collector applications can collect GIS information and gather it over time. For example, staff members can collect accurate GIS data while inspecting manholes, flushing hydrants or exercising valves, and then use that data to help manage those projects more efficiently in the future.

Greater efficiency

Using the right mobile devices and applications can eliminate not only paper but also cameras, GPS devices, calculators, pens, clipboards and more. Transcribing paper notes to spreadsheets and deciphering illegible handwriting are all obstacles of an old technology.

"Errors are still made, but they are mostly fat-finger errors caused by hitting the wrong button," says Victorville's Wippler. "They are easy to spot in the Hach WIMS database before creating the monthly reports. My estimate is that we are about 99 percent or greater error-free each month." ♦

Alan Fabiano is a technology manager with Woodard & Curran responsible for operations and maintenance technology implementations for operations data management databases, maintenance data management, mobile applications, GIS and other hardware or software support. He can be reached at afabiano@woodardcurran.com.

THE VALUE OF INDUSTRY CONFERENCES

Annual NASSCO event provides networking and educational opportunities centered around trenchless technologies

By Ted DeBoda, P.E.

The busy conference and exhibit season is here once again. With the majority of the conferences held during the winter months when business slows down around much of the country due to colder weather, we can sometimes feel exhausted as a result of all the travel, exhibit setup, take-down and networking.

After WEFTEC, the NASSCO team will get busy preparing for the Water & Wastewater Equipment, Treatment & Transport (WWETT) Show, Underground Construction Technology International Conference and Exhibition, NASSCO's Annual Conference and NASTT No-Dig Show, as well as multiple regional Water Environment conferences throughout the year.

If your organization is like ours, we often return from conferences and analyze the return on our investment to exhibit and/or attend these shows. While we cannot always identify a tangible return, we do see a strong return on our own education and how NASSCO can best impact the industry.

Underground infrastructure conferences are an excellent way to bring together industry experts to share information, identify common needs and challenges, provide training and education, and review the latest and greatest technologies. NASSCO's Annual Conference is no exception.

NASSCO members tell us the benefits they receive by attending NASSCO's Annual Conference include the opportunity to network with peers, join one of our influential committees, and learn about the latest trends

and technologies available during our Technical Day. What may not be as obvious is the way NASSCO's Annual Conference impacts our industry. Members leave armed with new knowledge, quality contacts and a renewed spirit to come together to set standards for the assessment and rehabilitation of underground infrastructure.

NASSCO has been setting standards since 1976 and will celebrate its 40th anniversary next year in Hawaii. We are busy working to make the 2016 Annual Conference bigger and better than ever. Technical tracks will focus on inspection, laterals, cleaning and rehabilitation, and will include a municipal forum with participants who represent cities and utilities deeply involved in the use of trenchless technologies. Additionally, the conference will feature expanded committee meetings and networking opportunities that include our annual golf tournament, welcome reception and banquet. NASSCO's 2016 Annual Conference is not one you will want to miss.

Book your flight now for the best possible fares, and reserve your room at the Sheraton Maui Resort and Spa by visiting sheraton-maui.com. Don't forget to request your special NASSCO rate.

Register for the conference before Nov. 20 and you will receive an early-bird discount of \$50. Visit nassco.org to register or, if you are not yet a member, join online today.

See you in Hawaii! ♦

NASSCO (National Association of Sewer Service Companies) is located at 2470 Longstone Lane, Suite M, Marriottsville, MD 21104; 410/442-7473; www.nassco.org

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November 2

Northville, MI

1-Day PACP Recertification

Trainer: Brandon Conley

Contact the Camera Department for more information or to register: 248-349-0904 or email pacp@dohenycompanies.com

November 2-5

Northville, MI

Includes Manholes and Laterals!

Recertifications Welcome

Trainer: Brandon Conley

Contact the Camera Department for more information or to register: 248-349-0904 or email pacp@dohenycompanies.com

November 2-5

Anchorage, AK

Includes Manholes and Laterals!

A limited number of PACP Re-Certification seats available.

Contact Marilyn Shepard for more information or to register:

916-899-8961 or email mshepard1@hotmail.com

November 9-11

Marriottsville, MD

Includes Manholes and Laterals!

Trainer: Ted DeBoda

Contact Dawn Jaworski for more information or to register:

410-442-7473 or email dawn@nassco.org

November 9-11

Conyers, GA

Includes Manhole and Laterals!

Recertifications Welcome

Contact John Jones for more information or to register:

404-431-5584 or email plumblineconsultant@gmail.com

November 10-12

York Beach, ME

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Recertifications Welcome

Contact Laurie Perkins for more information or to register:

603-606-4420 or email laurie.perkins@wright-pierce.com

November 10-12

Wharton, NJ

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Recertifications Welcome

Trainer: Brandon Conley

Contact the Camera Department for more information or to

register: 248-349-0904 or email pacp@dohenycompanies.com

November 17-19

San Francisco, CA

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Recertifications Welcome

Trainer: Brandon Conley

Contact Ashley Groves for more information or to register:

248-349-0904 or email pacp@dohenycompanies.com

November 19-20 & 23

Framingham, MA

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Recertifications Welcome

Contact Laurie Perkins for more information or to register:

603-606-4420 or email laurie.perkins@wright-pierce.com

ITCP TRAINING (CIPP and Manhole)

October 15-16

Salt Lake City, UT

Cured In Place Pipe

8:00 am – 5:00 pm Day 1 • 8:00 am – 1:00 pm Day 2

Trainer: Rocky Capehart

Contact Rocky Capehart for more information:

916-834-2712 or email rcapehart01@comcast.net

October 15-16

Des Moines, IA

Manhole Rehabilitation

8:00 am – 5:00 pm- Day 1 • 8:00 am – 1:00 pm- Day 2

Contact Tim Back for more information:

513-253-8461 or email timbacktwo@gmail.com

November 3-4

Detroit, MI

Manhole Rehabilitation

8:00 am – 5:00 pm Day 1 • 8:00 am – 1:00 pm Day 2 Morning

Contact Tim Back for more information:

513-253-8461 or email timbacktwo@gmail.com

December 1-3

Sioux Falls, SD

Cured In Place Pipe

8:00 am – 5:00 pm Day 1 • 8:00 am – 1:00 pm Day 2 Morning

Contact Gerry Muenchmeyer for more information:

252-626-9930 or email gerry@muenchmeyerassoc.com

Manhole Rehabilitation

1:00 pm – 5:00 pm Day 2 Afternoon • 8:00 am – 5:00 pm Day 3

Contact Tim Back for more information:

513-253-8461 or email timbacktwo@gmail.com

Courses can be taken individually.

NASSCO
PRO
TRAINING



If you are interested in having a class at your facility or in your area, contact Gerry Muenchmeyer at 252-626-9930 or gerry@muenchmeyerassoc.com

INSTANT CREDIT FOR MUNICIPALITIES! PUMPER HOSE & ACCESSORIES

HOSE HEADQUARTERS



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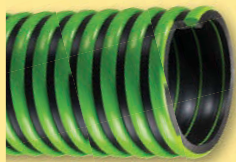
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COUPLED HOSE PRICE INCLUDES M X F QUICK CONNECTS					100 FT. BULK SAVE!
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2"	\$45.95	\$54.95	\$63.95	\$69.35	\$1.59 ft
3"	\$66.95	\$80.25	\$93.75	\$101.95	\$2.65 ft
4"	\$135.19	\$162.47	\$189.76	\$206.13	\$4.95 ft



Actual Colors May Not Match Photo



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4"	\$147.21	\$177.50	\$207.79	\$225.97	\$4.69 ft

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\$84.06	\$100.79	\$117.57	\$134.40



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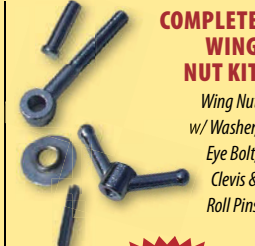


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Roll Pins
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\$12⁹⁵

SMART, PORTABLE INSPECTION

New Gen-Eye SDP video inspection system from General Pipe Cleaners integrates with digital locator

By Craig Mandli

As featured at the 2015 Water & Wastewater Equipment, Treatment & Transport (WWETT) Show, the Gen-Eye SDP video inspection system from General Pipe Cleaners provides wastewater professionals with everything they need for small- to medium-size pipe inspection.

"Its portability is very appealing to septic and pipe cleaning professionals," says Marty Silverman, vice president of marketing for General Pipe Cleaners. "The target market is drain cleaners, but it's popular with municipalities, plumbers and pumpers who perform septic system inspections as well."

Weighing 14 pounds, the Gen-Eye SDP offers features for full-size video inspection systems in a compact package. It has a four-hour rechargeable battery and a Wi-Fi transmitter. A panel indicator lets technicians know when the battery is running low. A full-size reel can be mounted on the docking arm to troubleshoot 3- to 10-inch lines. The unit's 10.4-inch LCD sunlight-readable screen with on-screen distance counter makes viewing easier when doing inspections in bright sunlight.

"The Wi-Fi capability means photos and video can be sent right to the customer without the tech having to set foot in the home," says Silverman. "That saves time for the tech and inconvenience for the customer."

Not only can the Wi-Fi transmitter send video to a smartphone or tablet, a free app allows for easy viewing and recording of real-time video inspections at a range up to 500 feet. In addition, an integrated SD recorder captures 32 GB of video or still images with a date and time stamp.

The unit includes a built-in voice-over microphone with switch, LED dimmer control, camera test port, video- and audio-out connections for external recording devices, and AC and DC power cords. A self-leveling color camera keeps pictures right-side up so contractors and customers can follow the camera as it moves through the line. The unit is protected by a heavy-duty Pelican case.

The system has been available since fall 2014, and Silverman says feedback has been positive.

"The techs that already have the SDP really love it," he says. "The best reviews have been focused on its lightweight portability and the Wi-Fi capability. It's met our expectations so far."

Silverman notes that many techs who show interest in the SDP also look



Mike Silverman, vice president of operations for General Pipe Cleaners, explains the features of the Gen-Eye SDP video inspection system to attendees at the 2015 WWETT Show. (Photo by Craig Mandli)

"The Wi-Fi capability means photos and video can be sent right to the customer without the tech having to set foot in the home."

— Marty Silverman

at General's Gen-Eye Hot Spot digital locator. Compatible with the SDP, the Hot Spot eliminates guesswork when inspecting and tracing drain, sewer or septic lines.

"We certainly market the SDP and Hot Spot together," he says. "Once the SDP is used to identify the type and

nature of the problem, the Hot Spot is used to pinpoint that spot to efficiently repair the problem without any unnecessary digging."

General chose the WWETT Show to roll out the marketing campaign for the system. Silverman says the show is a great opportunity to put General's products in front of the target audience.

"This show always has great traffic, and the attendees, especially this year, are buying," he says. "We always get a ton of feedback here that we can take back and integrate into our products."

General is already thinking ahead to next year's WWETT Show. "We're always looking for ways to improve and integrate," Silverman says. **800/245-6200; www.drainbrain.com.** ♦



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Water & Wastewater Equipment, Treatment & Transport Show

FLOW CONTROL AND MONITORING

By Craig Mandli

Tight budgetary constraints demand that municipalities accurately monitor and control the flow in their water and wastewater systems. Here is a look at the latest advanced metering infrastructure and reading tools, data loggers, flow controllers and monitors, meters, and software designed to keep municipalities on top of system performance.

AMR

Ford Meter Box H-20-rated lid



H-20 lids for coil pit setters from **Ford Meter Box** carry a load rating for up to 40,000 pounds. They are available in 15- and 18-inch sizes, with an optional bracket for encoder receiver transmitter devices. Made from reinforced composite polymer, they are durable yet provide low AMR signal

interference. The H-20-rated lids are weather- and UV-resistant, and can be used for road or driveway installations. **260/563-3171; www.fordmeterbox.com.**

Mars Company AMR/AMI

AMR/AMI products from **Mars Company** communicate with any meter brand. The low-cost, necessary software to operate the AMR system will interface with any billing system. Reading equipment is compact and durable, and is portable from one vehicle to another. Fixed network equipment in the high-output or low-output versions is available for larger utilities or submetering applications. Systems are frequency-hopping, spread-spectrum-type designed for long battery life and easy field replacement. **800/782-5268; www.marswater.com.**

Nicor AMR/AMI mounting bracket

The mounting bracket for Mueller HotRod and MiNet AMR/AMI systems from **Nicor** includes a threaded cap that allows the bracket to be used on lids of varying thicknesses. The ratchet adjustment makes sure the tip of the antenna in the Mueller endpoint is always 3/16 inch above the surface of the lid. There are no tools needed for installation, and the bracket can be installed in the recess for a flush mount. **707/484-0835; www.nicorinc.net.**



Sensorex TX2000 and CX2000

TX2000 and **CX2000** intelligent pH/ORP and conductivity transmitters from **Sensorex** can be programmed for online measurements. They have dual 4-20 mA current outputs and two adjustable alarm or control relay contacts. A large, backlit LCD screen displays both the

measured parameter and temperature. Results are delivered to automated process control systems. **714/895-4344; www.sensorex.com.**

Data Loggers and Management

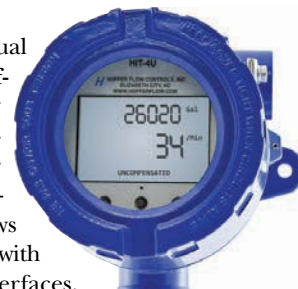


FreeWave Technologies WaveContact

WaveContact data logger functionality from **FreeWave Technologies** provides Class 1, Division 1 and Division 2 certified wireless I/O solutions for industrial machine-to-machine and Internet-of-things applications. The feature enables it to serve as both a master radio and data logger, eliminating the need for third-party data loggers, remote terminal units or programmable logic controllers that only log inputs. **800/548-5616; www.freewave.com.**

Hoffer Flow Controls HIT-4U

The LCD **HIT-4U** rate indicator with dual totalizers, Modbus and data logging from **Hoffer Flow Controls** has a six-digit rate display and separate eight-digit resettable and non-resettable flow totalizers. It is configurable for 4-20 mA loop-powered or battery-powered service. The multi-drop Modbus serial port allows for two-way communication and configuration with remote devices via hardwired or wireless interfaces. The standard explosion-proof enclosure includes powder-coated aluminum and stainless steel options. Full front panel operation without the need to open the explosion-proof enclosure provides convenience to users, and is accessed via the magnetic pointer included with the unit. Data logs are part of the unit menu and are also accessible without opening the enclosure. It has 12-point linearization, dual setpoint alarm output configurable for rate or total, and a range of engineering unit display icons. **800/628-4584; www.hofferflow.com.**



Telog Instruments Ru-33



The **Ru-33** and Telogers Enterprise software from **Telog Instruments** provide a complete monitoring, data collection and reporting solution. The Ru-33 provides real-time monitoring and alarming of instruments and sensors, even in the harsh environments of sewers and underground water vaults. It forwards data wirelessly to a host computer. The battery-powered unit operates for six months to two years, eliminating hardwired power sources. Field technicians no longer need to visit remote sites to retrieve data. Real-time information and easy-to-use templates help create the reports required. Enterprise aids in the use of modeling programs, helping municipalities predict CSO events and their potential hazards to adjacent waterways, beaches and public or private lands. **585/742-3000; www.telog.com.**

Flow Control/Monitoring Equipment

Aclara through-the-lid antenna

The through-the-lid antenna from **Aclara** reaches 100 percent of meters in pits and vaults while providing high read rates. Designed for install-



ing communication modules in meter pits and vaults, the unit enables utilities to reuse existing metal lids or replace them with lids that radio frequency signals can penetrate. The antenna installs through an industry-standard-sized hole drilled in the pit lid and attaches to the Aclara STAR network meter transmission unit and meter. **800/297-2728; www.aclaratech.com.**

Blue-White Industries Sonic-Pro



Sonic-Pro hybrid ultrasonic flowmeters from **Blue-White Industries** measure flow using either Doppler or Transit Time methods. Noninvasive clamp-on transducers work with clean and dirty fluids, with a high-capacity flow velocity range up to 30 feet per second. They can be configured and controlled remotely via RS-232, RS-485, USB or Ethernet. View real-time flow and

download data log files remotely on a Windows PC. They have custom, quality metric algorithms and DSP technology, an easy-reading backlit LCD, an isolated 4-20 mA output that's fully configurable, and a 0 to 1,000 Hz pulse output that's fully configurable. Data is logged to a standard SD card format supplied with the unit. A T-Track mounting system enables fast and accurate installation on small pipes down to a 1/2 inch, while a metal clamp on the transducer enables large pipe capacity up to 100 inches. The system has NEMA 4X quick disconnects and comes with NEMA 4X (IP 66) washdown housing. **714/893-8529; www.blue-white.com.**

E.H. Wachs Valve ID

The **Valve ID** from **E.H. Wachs** is designed to identify and delineate valves based on size, function, pressure boundaries or direction of closure. The one-size-fits-all application ensures the correct valves are being cycled and the direction of closure is never in doubt. **866/392-1060; www.turnvalves.com.**



FCI - Fluid Components International ST100



The **ST100** flowmeter from **FCI - Fluid Components International** has a wide choice of communication options with 4-20 mA analog, frequency/pulse, alarm relays and fully approved digital communications: HART, Foundation Fieldbus, Modbus and Profibus. It is designed with a plug-in card replacement that can be changed out by technicians in the field to adapt to changing network communication needs. Its sophisticated readout continuously displays all process measurements and alarm status, and it has the ability to

query for service diagnostics. **800/854-1993; www.fluidcomponents.com.**

Fluid Conservation Systems Touch Pro

The **Touch Pro** correlator from **Fluid Conservation Systems** accurately locates leaks in traditionally difficult situations, such as on plastic or large-diameter pipes. Its intuitive interface with step-by-step instructions guides users through the correlation process with minimal training required. Acoustic data is transmitted back from two outstations attached magnetically to valves at different points along the pipeline. It then uses an automated filtering intelligence system (AFIS) to ensure an accurate interpretation.



The AFIS automatically runs up to 55 different filter combinations on each correlation, checking the quality of the result and optimizing the filters to obtain the best possible result. The system can be used with both live and pre-recorded correlation data, removing the need for a manual filter setting. The outstations offer long-range radio transmissions with clear sound quality. The correlator and outstations can all be charged in the carrying case simultaneously from a single outlet. **800/531-5465; www.fluidconservation.com.**

Greyline Instruments OCF 5.0



The **OCF 5.0** open-channel flow monitor from **Greyline Instruments** uses a non-contacting ultrasonic sensor to measure wastewater flow through flumes or weirs. It has a built-in data logger with on-screen flow reports and output to USB flash drives, plus Windows software to display and graph flow reports in fully customizable formats. It works with a non-contacting ultrasonic sensor mounted above the flume or weir. It includes an isolated 4-20 mA and USB outputs, two programmable relays, a large, backlit LCD

flow-rate display, and totalizer. Calibration and selection of flume or weir are made through a built-in, five-button keypad and user-friendly menu system. The calibration setup is password protected, and flow data and totals are safely stored through power interruptions. Temperature compensation is automatic and accuracy is plus or minus 0.25 percent. **888/473-9546; www.greyline.com.**

Harwil Corporation Wireless Switch Controller

The **Wireless Switch Controller** from **Harwil Corporation** eliminates the cost of the wire, installation (conduit or trenching) and maintenance that would normally be needed for a switch to control a device. The range can cover distances of 1,000 feet. The system includes a switch, a sending unit that can be attached to two separate switches and a relay, and a receiving unit that has 10- and 15-amp relays. It can be used to control water levels in a tank, detect moisture intrusion or line breaks, or remote control on/off status of equipment during installation or service in temporary and portable applications. The two-switch unit allows forward/reverse or up/down remote control. The switch unit is powered by 9-24 VDC or three C batteries, and relays are powered by 12-24 VDC, 120 or 220 VAC. **800/562-2447; www.harwil.com.**



Keyence Corp. of America FD-Q

The **FD-Q** series of clamp-on flow sensors from **Keyence Corp. of America** are designed to detect and monitor flow from the outside of a pipe. The device can sense the flow of liquid (water, oils, chemicals) through metal or resin pipes from 1/4 to 2 inches in diameter. **888/539-3623; www.keyence.com/usa.**

McCrometer FPI Mag Flow Meter

The **FPI Mag Flow Meter** from **McCrometer** has plus or minus 0.5 percent accuracy, and installs without cutting pipe, welding flanges, dewatering lines or interrupting service. It offers a significant reduction in time for installation – up to 45 percent less than traditional full pipe meter installations. **800/220-2279; www.mccrometer.com.**



(continued)

Mueller Co. multi-parameter monitoring & flushing system



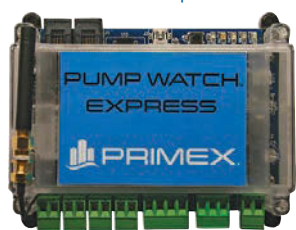
The data and condition assessment system from **Mueller Co.** allows water utilities to continuously monitor critical distribution system water-quality parameters. An extension of the company's Hydro-Guard S.M.A.R.T. System, the multi-parameter monitoring and flushing system continuously monitors pressure, chlorine residual, temperature, pH and turbidity using third-party sensors from installation points located throughout the water distribution system. Data is logged and transmitted to the utility via cellular service to secure cloud-based servers, and presented to the user with a GIS mapping interface. As water-quality thresholds are reached, flushing is initiated and text and email messages are triggered, facilitating quick decision-making and event mitigation responses. **800/423-1323; www.hydro-guard.com.**

Orenco Controls OLS Series

Corrosion-resistant **OLS Series** control panels from **Orenco Controls** contain integrated variable-frequency drives to optimize system operation, reduce energy usage and decrease hard starts and water hammer. They can be used on any pumping application where consistent flow and energy-efficient operation are essential, such as lift stations, dewatering or sludge pumping. They can be used as a "SCADA patch," connecting peripheral equipment to an existing SCADA system. Each panel is designed and built specifically for application and setup needs. Multiple drives can be configured through one user-friendly HMI. Engineers preprogram user interfaces to the site-specific needs of an installation, making the panel virtually plug-and-play. Maintenance staff can easily adjust settings and monitor the system remotely. They are housed in a weather-proof enclosure, with circuit protection, heat dissipation systems (fan or A/C), phase and voltage protection, and level controls. **877/257-8712; www.orencococontrols.com.**



PRIMEX Pump Watch Express



Pump Watch Express from **PRIMEX** is designed for monitoring duplex lift stations. It offers Web-based cellular remote monitoring with a mobile app offering easy setup and monitoring. This tool for management of wastewater and water collection systems includes built-in I/O, battery backup for digital inputs and two cellular service options. **844/477-4639; www.primexcontrols.com.**

Singer Valve PR-SM Series

Singer Valve's 106-PR-SM and 206-PR-SM series pressure-reducing control valves have a backup system that is independent of the primary operating system. The secondary pilot provides full downstream protection as it continually monitors and can respond quickly to downstream pressure changes if the primary system fails. Maintenance schedules may be extended as pressures continue to be controlled, even in the event of failure with the primary system. Under normal pressure-reducing conditions, the primary pilot senses the down-



stream pressure through a connection at the valve outlet. Under flowing conditions, the pilot reacts to small changes in pressure to control the valve position by modulating the pressure above the diaphragm in the lower operating chamber. The downstream pressure is maintained virtually steady at the pilot setpoint that is adjustable. **604/594-5404; www.singervalue.com.**

Spire Metering Technology 280W-CI

The **280W-CI** commercial- and industrial-grade ultrasonic water meter from **Spire Metering Technology** has quad-path ultrasonic technology with moving parts. Housed in an IP68-rated heavy-duty enclosure, it can replace mechanical water meters, including compound meters. It exceeds ISO4064 Class D/AWWA C750, and its quad-path technology improves accuracy and reduces the straight-pipe run requirement. It has a wide dynamic range, leakage detection and a 10-year battery life. It is unaffected by magnetic interference and is AMR/AMI ready with pulse, M-Bus, Modbus, 4-20 mA or wireless interface. **888/738-0188; www.spiremt.com.**



Meters

Analytical Technology Q46N Free Ammonia Monitor

The **Q46N Free Ammonia Monitor** from **Analytical Technology** is designed for the continuous measurement of free ammonia, total ammonia and monochloramine in potable water. It is intended for monitoring chloraminated water to minimize the amount of excess ammonia in the system. It has a fast response time for real-time ammonia measurement, providing continuous, real-time updates for better process control. It uses a simple chemical system with three separate, inexpensive reagents required for operation. These reagents can be purchased directly or can be easily mixed on site using readily available chemicals. Each system is supplied complete with monitor, chemistry module, sensor membranes and electrolytes, reagent bottle brackets, reagent pickup tubing assemblies, a spare parts kit, and a manual. **800/959-0299; www.analyticaltechnology.com.**



OTEK Corp. New Technology Meter

New Technology Meters from **OTEK Corp.** include a digital display and an auto-tricolor bar graph with four alarm pointers to indicate the process status. They are available in loop, signal or external power. The units are HMI/MMI compliant and are DCS/SCADA/intranet compatible. The meters include an input failure indication. The software has been verified and hardware has been approved for seismic and harsh environments. They are housed in a standard 4-inch ANSI switchboard housing, and available with bar segments. **520/748-7900; www.otekcorp.com.**

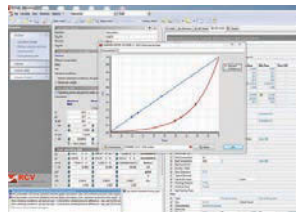


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Software

Badger Meter RCVcalc

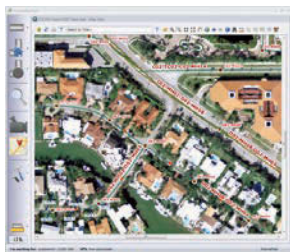


RCVcalc sizing software for research control valves, available for download from **Badger Meter**, enables users to graphically visualize operation setpoints and review various trims and characteristics that are dynamically filtered based on selections. For low-flow calculations, the program has advanced formulas to serve transitional and

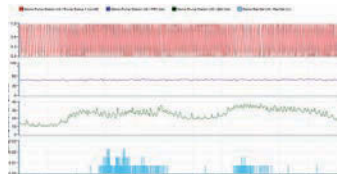
laminar flow situations. **800/876-3837; www.badgermeter.com.**

CUES GraniteNet v2.4

GraniteNet v2.4 from **CUES** enables data fusion with the ability to aggregate multiple types of inspections, conducted at different times, into a single view for each asset so that superior assessment with advanced scoring can be made to measure an asset's remaining useful life and accurately estimate its repair/replacement schedule. Built with Microsoft and Esri ArcGIS components, it has bidirectional integration with work order management systems such as IBM Maximo, Azteca Cityworks and Infor's Hansen. Users can easily click on a map, start and complete an inspection, upload it to the office and make it available to authorized reviewers via the gNet Web portal through a browser over the Internet. **800/327-7791; www.cuesinc.com.**



FlowWorks Pump Station Calculator



The **Pump Station Calculator** from **FlowWorks** uses simple pump on/off signals to determine pump station inflow and pump performance. The signals can be collected from data loggers or SCADA systems, and the program is

designed to handle a variety of pump station configurations. It lets users estimate pump station inflow based on pumped wet well volume and pump start/stop times. The inflow signal will be similar to having a flow-meter installed at the inlet of the pump station. The estimated inflow signal can be used for I&I studies, capacity assessment for capital planning, and computer model calibration. The ability to make ongoing estimates of pumping rates for each pump in operation allows operators and engineers to determine if the pumps installed are performing as designed. Alarming can be set up to inform users of pumps that drop below a pre-determined performance point. **888/400-3288; www.flowworks.com.**

iWater infraMAP Software

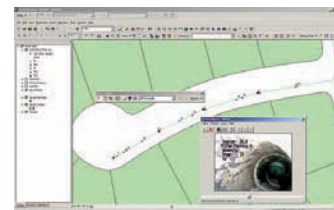
Real-time **infraMAP Software** from **iWater** is a mobile GIS program that allows seamless data collection, updates to a utilities asset management program, and pulls data from Neptune's N_Sight Software. It gives operations and main-



tenance personnel improved response times, efficiency and paperless data entry in a digital map-driven software. It comes with Neptune's R450/R900i/R900 meter details, reads, events, alarms and exceptions, along with additional infraMAP tools like redlining, one-click reporting, isolation traces, asset inspection forms and work history records. It's an easy-to-use product that connects and helps manage meter and other system data with a commercial off-the-shelf application. **877/482-5834; www.inframapssoftware.com.**

Pipelogix GIS Module

With the addition of the **Pipelogix GIS Module** added to ArcMap, supervisors can view all surveys performed on an asset. The toolbar filters survey data in the master database to highlight pipes with selected conditions, grades or score values, allowing the user to link to the movie or survey. Survey conditions can be exported to a shape file or a geodatabase feature class. When opened in ArcMap, this layer displays the condition along the length of pipe. Selecting the condition will link to the video and jump to the correct footage for viewing. Seeing the problem and where it exists on the pipe can make it easier to schedule repair and cleaning crews. It is compatible with ArcGIS 9.3 through 10.3. **866/299-3150; www.pipelogix.com.**



Vector Manufacturing VectorTRAK



The **VectorTRAK** data collection system from **Vector Manufacturing** monitors and reviews sewer cleaning operations on Vac-tor 2100 Plus combination sewer cleaners equipped with the system. It collects and transmits comprehensive, operational intelligence to a secure, hosted website where the public utility or professional contractor

customer is able to access information from any Internet-connected device, such as a smartphone, tablet or laptop. The operator can enter the work order number to correspond to the daily dispatch work list, allowing the operations manager or supervisor to view the activity performed for any specific job. **800/627-3171; www.vector.com.** ♦



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Electronic system locates leaks in irrigation main



Problem:

The Salt River Project maintains a 1,300-mile irrigation system for the Phoenix metropolitan area. Recently, a 27-inch gravity-fed raw water concrete irrigation main was thought to be leaking. After previous inspections, Electro Scan was invited to evaluate the pipe to pinpoint any leaks.

Solution:

Electro Scan technology accurately locates and measures leaks without operator interpretation using a probe that emits a low-voltage, high-frequency electric current to assess the pipe wall. Traveling at 45 to 60 feet per minute and taking readings every 14 milliseconds, the probe collects 10,000 to 20,000 data points every 300 feet. Data is processed on its CriticalH2O cloud application, which estimates defect flows in gpm for the whole pipe and each leak individually. The water probe uses the existing cable and reel typically found in CCTV vans and can locate defects to the closest 0.4-inch. A four-in-one probe is available for pressurized water mains for direct entry through air valves, fire hydrants, flow meters, gate valves and pressure fittings. The probe, offered as a service from Electro Scan, includes Electro Scan, an acoustic sensor, color HD CCTV camera and pressure sensor.

RESULT:

Electro Scan was able to locate 31 defects for the 321-foot pipe, resulting in a combined defect flow rate of 35.21 gpm. As suspected, the 60-foot section where bubbling water was found accounted for 75 percent of the total defect flow. **800/975-6149; www.electroscan.com.**

Flowmeter package installed quickly, with minimal disruption

Problem:

The Indian Springs Resort and Spa in Napa Valley, California, needed to install a flowmeter in its private wastewater collections system. The flowmeter assembly needed to meter the discharge of a geothermal water source into the City of Calistoga's public collections system. The city required the



new flowmeter due to the problems that the geothermal wastewater caused in the municipal collections system and at the sewer treatment plant. It needed to be installed quickly to minimize the impact to the city and the spa.

Solution:

The property owner had his civil engineer contact **Romtec Utilities** regarding

the supply of a prefabricated flowmeter assembly. Romtec designed and supplied the complete assembly, which included a Toshiba Mount-Anywhere Magmeter with an associated totalizer, a Val-Matic Swing-Flex check valve, and two Val-Matic Cam-Centric plug valves, all prefabricated into a 5-foot I.D. precast concrete vault with an access hatch. Romtec Utilities also worked with the city to provide remote monitoring of the flowmeter.

RESULT:

The prefabricated flowmeter assembly allowed for quick installation by the site contractor with little to no impact on the operation of the spa. The package system offered easy operation and maintenance. The city was also happy with the reliable and accurate flowmetering that is monitored remotely. **541/496-9678; www.romtecutilities.com.**

Leak detection system reduces water loss



Problem:

El Paso Water Utilities in Texas needed to replace leak-noise loggers. The existing loggers had become maintenance-intensive and low in sensitivity over the years. More plastic distribution pipes in the ground presented additional challenges in terms of finding leaks.

Solution:

A team of EPWU employees conducted a three-month pilot test on four leak detection systems. They measured

and compared performance under real and simulated conditions, and ranked the loggers by sound sensitivity, radio transmission range, corrosion and water resistance, and ease of use. The team purchased 12,000 **Vivax-Metrotech LOGN3** acoustic leak detection loggers. The loggers showed the best combination of features, usability, leak detection sensitivity and value.

RESULT:

After a total delivery time of six months, all loggers have been placed throughout the 2,500-mile water distribution system. The enhanced, preventive leak detection system helps the utility to better manage its water resources, detect potential main breaks early and keep single leak repair cost at a minimum. **800/446-3392; www.vivax-metrotech.com.** ♦



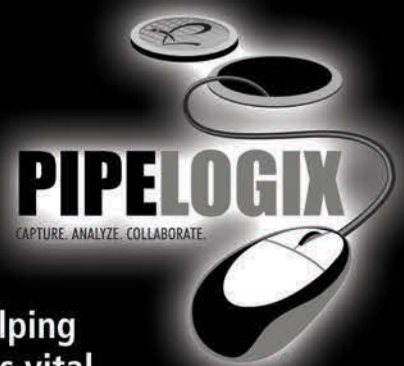
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"There has been a mind shift from getting rid of water and treating it, to keeping it and using it. The Onondaga Indian Nation has a mantra that they make decisions in the best interest of people living seven generations from now. People have embraced that around here. We aren't making short-term decisions about how to solve a problem for today. We are making more long-term decisions about solving issues for generations to come."

Joanie Mahoney
An Original Environmentalist
County Executive, Onondaga County, N.Y.

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APS holds groundbreaking, forms rental company

Advanced Pressure Systems held a groundbreaking for the 35,000-foot expansion of its administrative offices and distribution center in Tomball, Texas, site of the company's primary manufacturing facility. Work is scheduled for completion this fall. The manufacturer of high-pressure waterblasting equipment also formed a rental company featuring StoneAge tools.

Dewberry engineer named Diplomat

Kim Dunn, a senior engineer in Dewberry's Philadelphia office, was certified Diplomat, Water Resources Engineer, by the American Academy of Water Resources Engineers, a subsidiary of the American Society of Civil Engineers.

Legacy Building receives ISO quality certification

Legacy Building Solutions, designer, manufacturer and installer of tension fabric buildings, received ISO 9001:2008 quality-management certification. As part of the ongoing certification process, Legacy will undergo an annual quality audit to ensure that every level of the organization is working toward greater customer satisfaction.

Draincables names sales representative

Draincables Direct of Ohio named Glenn Corbett sales representative for the New York City area. Draincables Direct manufactures and supplies sewer and drain cleaning cables.

Hi-Vac Corp. names Coley president

Hi-Vac Corp. named Daniel J. Coley company president. He will be responsible for new product and channel development for Hi-Vac's product lines, including Aquatech, X-Vac, UltraVac, Hi-Vac and O'Brien.



Daniel Coley

WJTA-IMCA launches conference/expo website

The WaterJet Technology Association-Industrial & Municipal Cleaning Association launched a dedicated website for the 2015 WJTA-IMCA Conference and Expo, Nov. 2-4, in New Orleans. The site is accessible through www.wjtaimca2015.com and www.wjtaimcaexpo.com.

Asahi/America opens new headquarters

Asahi/America held an April ribbon cutting and open house to celebrate the opening of its new headquarters in Lawrence, Massachusetts. The 200,000-square-foot facility includes corporate offices, warehousing, valve and actuation assembly shops, fabrication, skid assembly, powder coating, a clean room, and a machine shop.



Asahi/America Grand Opening

Cityworks CEO finalist for entrepreneur award

Brian Haslam, president and CEO of Cityworks, was a finalist in the technology category for EY's Utah Regional Entrepreneur of the Year award.

American Water names vice presidents

American Water Works Company named Martin Ucen vice president of business development and Greg Panagos vice president of investor relations. Panagos succeeds Edward Vallejo, who was named American Water's vice president of financial strategy, planning and decision support.

Spartan Tool names Canadian distributor

Spartan Tool named Joe Johnson Equipment as the company's exclusive distributor in Canada. JJE is one of North America's leading providers of infrastructure maintenance and inspection equipment.

Vermeer breaks ground on technology hub

Vermeer Corp. and the Iowa State University Research Park broke ground on the Vermeer Applied Technology Hub, located at 2710 South Loop Drive, Pella, Iowa. The facility will enable students and faculty from Iowa State and other schools to work collaboratively on technology advancements for Vermeer industrial and agricultural equipment. Vermeer will initially occupy about 23,000 feet of the 35,880-square-foot facility, which will be built, owned and operated by ISU RP. The facility is scheduled for completion in May 2016.

Avanti International names vice president

Avanti International named Frank Aguilar vice president of operations and integrator of Avanti's business endeavors. He will oversee day-to-day operations for all departments.



Frank Aguilar

Ecoflo celebrates 20th anniversary

Premier Tech Aqua, the environmental technologies group of Premier Tech, celebrates the 20th anniversary of its Ecoflo ecological onsite wastewater treatment system.

Subsite Electronics launches website

Subsite Electronics, a Charles Machine Works company, launched a mobile-friendly website, www.subsite.com. The site includes product information and Ditch Witch dealer locator.

Automation Products names director of sales

Automation Products Group named Josh Waters director of sales for developing markets. Based in Utah, he will be responsible for developing outreach and generating new business to drive brand awareness.

SENSIT receives ATEX compliance certification

SENSIT Technologies' HXG-2d combustible gas leak detector received ATEX compliance certification, enabling the product to be used in Europe and other countries. ♦

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magazine



Tony Conn
Wastewater Collection &
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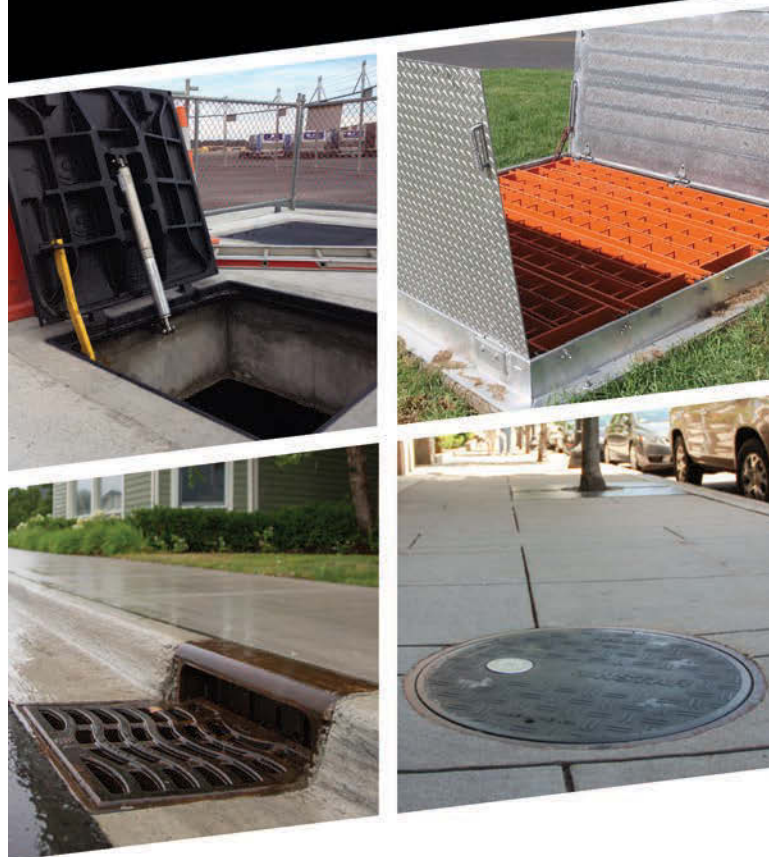
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Product Spotlight

LED manhole light rated for safe use around sewer gas and dust

By Ed Wodalski

The 150-watt, explosion-proof LED temporary manhole light fixture from Larson Electronics features a 21-inch manway support bracket that allows the light to hang down 12 inches while the supporting plate rests on the lip of the opening. Custom sizes are available.

"It hangs down inside of the cavity," says Rob Bresnahan, president, Larson Electronics. "You can position the light where you need it without blocking airflow. This particular model is explosion-proof. The light, cord and plug all have a Class 1, Division 1 rating so it can be used around dust and sewer gas."

The 46-pound fixture, designed to accommodate blower systems, provides 13,000 lumens of light and is IP-67 water- and dust-resistant. The cast aluminum, powder-coated body provides durability and is vibration- and impact-resistant. The heat-dissipating design, along with LED technology, enables the fixture to achieve a 60,000-hour life span with 80 percent lumen retention.



"The top ring is built to exceed the diameter of the manway," he says. "If it's a 22-inch manway, we make a 23-inch ring. The light itself is only 16 inches. Basically, you just grab the light by the top and pass it through the opening. By design, the bigger top ring can't fall through the hole. You just drop it in, plug it in and go. Workers can position the light from inside the hole."

The light is available in AC (120 to 277 volts) and DC (11 to 25 volts) models, and delivers six to seven hours of illumination on a fully charged battery.

"You can run it off a generator or a vehicle battery," Bresnahan says. "Any standard vehicle battery. It's going to draw about 10 to 12 amps."

The lamp contains 12 individual LED boards in a series of banks. Each bank contains two LED boards with individual drivers. Should a driver fail, only one bank of LEDs is affected. Should an LED fail, the other LEDs continue to operate. 800/369-6671; www.larsonelectronics.com.

RIDGID telescoping basin wrench

The telescoping basin wrench from RIDGID extends up to 17 inches. It has a heavy-duty jaw with a rust-resistant spring and travel limiter for a tight grip and long life span. An LED light illuminates dark work spaces and automatically shuts off after five minutes of inactivity to preserve battery life. A removable T-handle pivots 180 degrees for easy access in tight, under-sink spaces, and provides the option to use a standard 3/8-inch ratchet or breaker bar for additional leverage. 800/769-7743; www.ridgid.com.



Franklin Electric high-head grinder pumps

The single- or three-phase FPS IGPH Series of high-head grinder pumps from Franklin Electric are designed for the demands of higher-head conditions found in low-pressure sewage transfer applications. Available in automatic or manual, the pumps are powered by a 2 hp, 3,450 rpm motor that delivers 414,000 cuts per minute, and have two non-clogging impeller stages for pumping sewage slurries to a shut-off head of 200 feet. 800/701-7894; www.franklinengineered.com.



Electric Eel electric, gas jetters

Eel Jet EJ1500 electric and EJ3000 gas jetters from Electric Eel Mfg. Co. are designed to clean 1 1/2- through 8-inch drainlines. The EJ1500 electric jetter cleans 1 1/2- through 4-inch-diameter lines and delivers 1,500 psi and 1.7 gpm. It has a 1.5 hp motor, duplex pump with pulsation and reel that holds 150 feet of 1/4-inch hose. The pump/motor assembly removes in seconds for added portability. The EJ3000 gas jetter cleans up to 300 feet of 2-through 8-inch-diameter lines. It delivers 3,000 psi and 4.7 gpm and is powered by a 13 hp overhead valve engine. 800/833-1212; www.electriceel.com.



General Pump high-torque clutch assembly

The electromagnetic mobile clutch assembly from General Pump features a 9 3/4-inch two-groove pulley that receives both "A" (4L) and "B" (5L) belts. A one-piece, solid-forged rotor eliminates the chance of parts separation and maximizes torque. The pulley is made from zinc-coated steel. 888/474-5487; www.generalpump.com.



Hippo auxiliary power units for trucks

Power Pack, Power Plant and Hurricane auxiliary power units from Hippo Multipower Systems are designed for the work and service truck market. The base-model Power Pack delivers electric/welding power and compressed air simultaneously. The Power Plant produces hydraulic, compressed air, electric and welding power from a diesel engine unit. The Hurricane delivers the power and flexibility of the Power Plant plus 100 cfm at 100 psi of compressed air. **800/844-0624; multipower.us.**



KENCO concrete barrier lifter

The Barrier Lift from KENCO hooks with a sling and shackle to any type or model of machine with lifting capabilities. Handles on both sides allow personnel to safely guide the lifter into position. The lifter automatically grabs as it is lowered onto the wall and won't release until the wall has been firmly set into place. Pad angles swivel to match the slope of the wall. Lifting capacities range from 1,500 to 40,000 pounds. Options include self-aligning guides. **800/653-6069; www.kenco.com.**



Komatsu Tier 4 Final wheel loader

The WA470-8 wheel loader from Komatsu America Corp. features a 272 hp Komatsu SAA6D125E-7 variable-geometry, turbocharged, after-cooled Tier 4 Final diesel engine. The loader uses up to 6 percent less fuel than its interim predecessor. In-cab enhancements include an air-suspension, high-back heated seat; seat-mounted electronic pilot control levers with F-N-R switch for operator convenience; and Komtrax telematics that provide KDPF status and DEF-level data, fuel consumption and performance information. **847/437-5800; www.komatsuamerica.com.**



Trelleborg integrated concrete pipe seal

The Forsheda 165 integrated concrete pipe seal from Trelleborg Pipe Seals Milford features a soft, rubber slurry lip (50 International Rubber Hardness Degrees) for flexibility. Forming parts are made from 70 IRHD rubber for stability and grip. **800/626-2180; www.trelleborg.com.**



Peerless reversing switches, modules

Switches and relays for work trucks and heavy-duty vehicles are available from Peerless Electronics, including 40-amp reversing rocker switches from CW Industries, forward and reversing relay modules and 12-volt motor reversing intermittent-duty DPDT vehicle solenoids from



the Cole Hersee division of Littelfuse, and Cole Hersee's three-position, 10-amp rotary switch that can replace toggle or rocker switches. **800/285-2121; www.peerlesselectronics.com.**

Graphic Products label-creation software

DuraSuite label-creation software from Graphic Products enables users to make custom safety and compliance labels, and save templates with imported graphics or access a built-in library of 1,800 safety symbols. Design formats include GHS (international) and HazCom (U.S.) chemical labels, ASME/ASME A13.1-compliant pipe markers, ammonia refrigeration labels, and NFPA 70E-compliant arc-flash labels. **888/326-9244; www.duralabel.com.**



Perma-Liner one-size manhole liner

The one-piece, cured-in-place manhole liner from Perma-Liner Industries is made to fit all manholes, including barrel sections, eccentric and concentric cones constructed of brick and mortar, precast, or block. The liner is engineered to resist freeze-thaw cycles and create a watertight, corrosion-resistant lining. **866/336-2568; www.perma-liner.com.**



Grundfos submersible wastewater pumps

The SL line of submersible wastewater pumps from Grundfos is designed to handle raw, unscreened sewage, effluent, large volumes of surface water, and process water in municipal, utility and industrial applications. The solids-handling pump series ranges from 1.5 to 15 hp and is available with a SLV/SuperVortex impeller for free passage of solids or a SL1/S tube impeller that accommodates up to 4-inch solids and large flows of raw sewage. The SLV and SL1 pumps are made for permanent submerged installation in demanding applications, including municipal wastewater pumping stations and treatment plants. **800/921-7867; us.grundfos.com.**



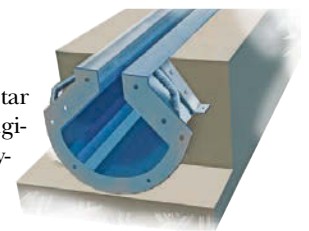
EzRig portable crane

The portable crane from EzRig Crane is designed to lift heavy loads from unique positions and hard-to-get-at locations. It can lift or lower 2,400 pounds, has a vertical reach of 19 feet, and delivers 130 feet of cable for lowering equipment three to four stories. The mini-crane with 8-inch locking caster wheels can go through 3-foot doors and standard elevator openings. **844/395-4387; www.ezrigcrane.com.**



Norstar Industries shop floor drainage

The U-Drain shop floor drain from Norstar Industries is a single-slot, non-grated, pre-engineered floor drain designed to withstand heavy-traffic applications. The sloped, self-cleaning drain is available in 10-, 30- and 150-foot sec-



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tions. Surface water passes through the 1-inch drain slot and into the pre-sloped trench and drain sump. The drain has a galvanized finish (stainless steel available) and connects to the rebar grid in new construction (retrofits possible). 855/746-8200; www.u-drain.ca.

Exact Pipe Tools ductile iron pipe saw

The PipeCut 220E portable pipe saw from Exact Pipe Tools cuts through pipes made of ductile iron, multilayer material and plastics. Features include an adjustable motor, constant torque and automatic fuse. It cuts 0.6-inch through 8.6-inch-diameter pipes with wall thicknesses of 0.23-inch steel and 0.55-inch plastic. The saw weighs 13 pounds and includes mounting rollers for on-site cutting. Interchangeable Diamond X discs (ductile iron pipes), Cermet and TCT blades are available. 844/392-2800; www.exacttools.com.



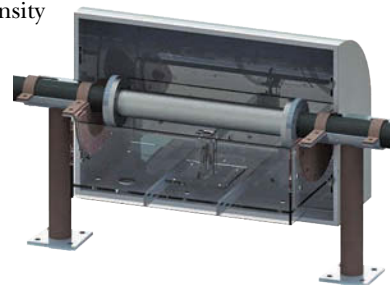
Singer Valve process controller

The SCP-TP process controller from Singer Valve is designed to complement a dual solenoid control valve and can switch between settings for level control, upstream and downstream pressure management, flow control, and position control. It features on/off control and can be configured with a 4-20 mA control motor. The controller is equipped with digital input controls and user selectable digital output alarms. Additional features include data logging, setpoint data and trending graphs. 604/594-5404; www.singervalue.com.



MPV Tech inline slurry density gauge

The MassExact inline slurry density gauge from MPV Tech calculates specific gravity by measuring direct mass over a known volume within a canister. Continuous slurry readings occur 100 times per second with a 45-millisecond data response time. The gauge is accurate up to 99.5 percent with 0.1 percent repeatability. Features include single-button calibration with vibration, noise and temperature compensation. 407/337-0110; www.directdensity.com. ♦



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The Borough of Edinboro, Pennsylvania is seeking applicants for Wastewater Treatment Plant Operator or Assistant Operator positions. PA Wastewater Treatment Operator's Certification required. Driver's license required and Class B PA Commercial Driver's License required within 6 months. Position requires weekends, holidays, on-call duty, and emergency work. Successful candidate must pass complete background investigation including reference, employment, criminal, driving, and personal records check and a pre-employment physical and drug screening test. Positions covered by a CBA. Job descriptions and official application online at www.edinboro.net. Questions, call 814-734-1812. (M11)

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PEOPLE/AWARDS

The Huntington Water Quality Board's Stormwater Division received an Award of Excellence from the West Virginia Department of Environmental Protection for the environmental partnerships it has forged with the community. Specifically, the Stormwater Division was recognized for working with businesses on stormwater protection plans and for public education efforts such as rain barrel and rain garden demonstrations.

The U.S. Environmental Protection Agency awarded a Rain Catcher Award to the **City of Durham Department of Public Works** in the Municipal Category for a project in Durham, North Carolina. The project aims to build small-scale projects on private property to reduce pollutants and storm surge in a sub-watershed of Ellerbe Creek. The EPA Region 4 Rain Catcher Award recognizes excellence in the implementation of stormwater green infrastructure practices. Green infrastructure uses natural systems and/or engineered systems designed to mimic natural processes to more effectively manage stormwater and reduce receiving water impacts.

Shawn Massey, a heavy-equipment operator, and **Douglas Stevenson**, a crew leader, were named June 2015 employees of the month by the City of Valdosta, Georgia, for their outstanding work with the city's Stormwater Department.

The City of Walla Walla, Washington, was chosen to receive a \$466,390 grant from the state Department of Ecology for a stormwater filtration system project.

The Water Environment Federation announced the establishment of the WEF Stormwater Institute, which will address the growing issue of stormwater and urban runoff. The institute will be housed within WEF to leverage the organization's existing leadership, breadth of membership and varied partnerships with federal, state and local entities responsible for managing stormwater issues.

The City of Racine, Wisconsin, received a \$5,000 Wege Award from the Great Lakes and St. Lawrence Cities Initiative to help it implement stormwater management projects. The Wege Award is given to a community with a population of less than 100,000 as seed money for a Great Lakes-St. Lawrence protection and restoration project.

LEARNING OPPORTUNITIES

American Society of Civil Engineers

The ASCE is offering:

- Oct. 22 – Structural-Condition Assessment of Existing Structures, San Diego
- Nov. 5 – Managing the Design Process: Keeping on Schedule, Within Budget, and Selecting the Right Resources, New Orleans
- Nov. 12 – Pumping Systems Design for Civil Engineers, Scottsdale, Arizona
- Nov. 19-20 – Financial Management for the Professional Engineer, Cincinnati

Visit www.asce.org.

American Water Works Association

The AWWA is offering Understanding Advanced Stormwater Management Techniques on Oct. 26 in New Brunswick, New Jersey. Visit www.awwa.org.

Wisconsin

The University of Wisconsin Department of Engineering-Professional Development is offering Using WinSLAMM v.10.1: Meeting Urban Stormwater Management Goals R174 on Oct. 19-20 in Madison. Visit epdweb.engr.wisc.edu. ♦

CALENDAR

Oct. 7-9

National Utility Contractors Association 2015 Fall Leadership Conference, Embassy Suites, Omaha, Nebraska. Visit www.nuca.com.

Oct. 11-14

American Society of Civil Engineers 2015 Convention, New York. Visit www.asce.org.

Oct. 12-16

American Water Works Association 2015 Water Infrastructure Conference and Exposition, Bethesda, Maryland. Visit www.awwa.org.

Nov. 2-4

WJTA-IMCA Conference & Expo, Ernest N. Morial Convention Center, New Orleans. Visit www.wjtaimcaexpo.com.

Nov. 16-19

American Water Resources Association Annual Conference, Grand Hyatt Denver, Denver. Visit www.awra.org.

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

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