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January 2016

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TAKING CONTROL OF OVERFLOWS

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problems and completes consent decree
requirements ahead of schedule

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Todd Carlson,
Duluth Utility Operations Division,
Duluth, Minnesota


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INSIDE:

WWETT PRE-SHOW ISSUE /
PIPELINE REHABILITATION AND RELINING



ON THE COVER:

Duluth (Minnesota) engineering program coordinator Todd Carlson stands above the city's 8-million-gallon overflow tank with Lake Superior in the background. (Photography by Matthew Moses)



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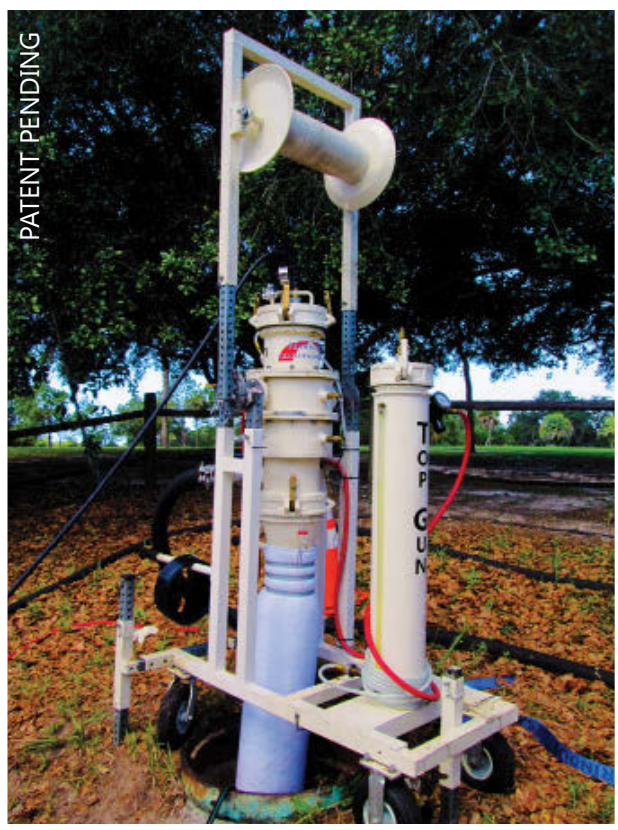
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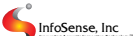






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FOR SANITARY, STORM AND WATER
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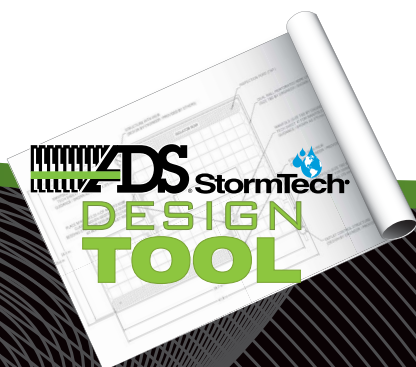
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DRIVE YOUR UTILITY INTO THE FUTURE

The evolution of the water and wastewater industry is on display at the WWETT Show



FROM THE EDITOR

Luke Laggis

It's a new year. Marty McFly came to the future three months ago. Now it's your turn.

The 2016 Water & Wastewater Equipment, Treatment & Transport Show is your ticket to the future of this industry, and the trucks and equipment on display can push your utility just as far forward in time as Doc Brown's DeLorean.

This year's show is slated for Feb. 17-20 at the Indiana Convention Center in downtown Indianapolis. It'll be my fifth time in Indy, and I'm looking forward to it as always. I remember the trucks rolling in and the show floor taking shape leading up to that first show. It was impressive to see it all come together. I was even more impressed by some of the people I met, and that's what continues to make it most interesting to me.

The WWETT Show is like all of our publications rolled into one and brought to life at the Indiana Convention Center. Everything you read about

in these pages is there, from the trucks and tools to the people and perspectives. You'll find countless ways to improve your utility.

There are so many stories walking around on the floor, new stories every year. So many people who are pushing their utilities forward. So many different forms of success. So much insight. It's fun to hear those stories. It provides perspective on how the industry is progressing and gives me a glimpse of what future issues of *Municipal Sewer & Water* will hold.

The WWETT Show is also full of opportunities for your utility. In addition to learning from your peers' successes, the education sessions alone are well worth the cost of attending. Your operators will have the opportunity to learn about collections system management, cleaning nozzle technology, CCTV inspection, controlling I&I, and so much more that can positively affect the work you do day in and day out.

Oh, and there's also some pretty cool trucks, and all the latest tools and technology to make you more effective and efficient on the job. From hand tools to hydroexcavators, it's all there. If you're looking for ways to increase the effectiveness and efficiency of your cleaning and maintenance operations, you won't find a better source.

You'll find a preview of the show in this issue of *MSW*. From Education Day to the Industry Appreciation Party, and all the tools and trucks in between, there's a lot to see and do.

If you haven't registered or begun planning your time in Indy, visit wwettshow.com for all the information you'll need. It's a great way to help build your business, and there's plenty of fun to be had, too.

And while you're at the show, feel free to track me down. I'd like to hear what you have to say about the show, the magazine, and most importantly, the work you're doing and how you're moving your utility forward. After all, that's a goal we both share.

I hope I see you at the show. It's the future of this industry. ♦

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

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IN A (ROAD) JAM

Wastewater Utility Employs Sliplining to Fix Corroding Pipe

The only pipe delivering wastewater to the Warwick Sewer Authority's (Rhode Island) treatment plant lies beneath Interstate 95. So the fact that the 48-inch cement pipe was corroding created a real dilemma. Although it was no easy fix, the utility and its contractor were able to keep the wastewater — and traffic — flowing, even during the repair. mswmag.com/featured



CAPITAL CLEAN UP

Storm-Ravaged City Recovers

Hurricane Joaquin's impact was felt throughout much of South Carolina in early October as record rainfall led to flash flooding throughout the region. The state capital in particular was among the hardest hit, and while there's much work still to be done, the City of Columbia is a shining example of how to respond when disaster strikes. mswmag.com/featured



EYESORE NO MORE

New Sewer Pipe Gets Artistic Overhaul

Over the last half century, an aging sewer line above the Truckee River had become graffitied with stickers and "every color of gum you could possibly imagine." When it came time to replace the 80-foot section of 38-inch pipe, city leaders had a brilliant idea. Learn what the Tahoe City (California) Public Utility District did to curtail vandalism and beautify the landscape in the process. mswmag.com/featured

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“Sometimes a locator is only as accurate as its operator ... I've seen a lot of bad locates on the inclines and declines of a road because the instrument was not being used on a consistent, horizontal plane.”

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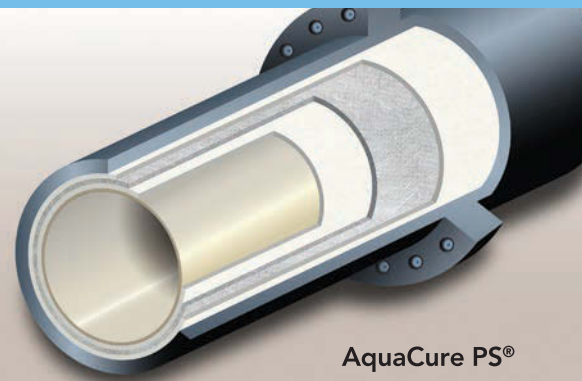


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BUILDING A BACKBONE

Ogden maintenance crew leaders Hal Davis and James Doxey work with technician Colton Chambers to prepare an entrance pit for a pneumatic boring device to lower a water pipe below the frost line in Ogden, Utah. (Photography by Sallie Dean Shatz)

Utah city works double-time to fight water pipe leaks and renew the backbone of its water infrastructure

By Peter Kenter

Ogden, Utah, is a city of about 83,000 with a plan for infrastructure renewal. Its Public Utilities Department has tackled everything from an aggressive program to address leaks to the challenging replacement of a 100-year-old transmission main running through a narrow canyon.

Ogden is an economic hub located about 40 miles north of Salt Lake City, nestled between the Great Salt Lake to the west and the Wasatch Mountain Range to the east. The Public Utilities Department dates back to 1846. While it once held responsibility for sewer services, it now handles sewer billing only, with rates based on water usage. Sewer maintenance is the responsibility of the Ogden City Public Ways and Parks Department Sewer Division, while sewer construction is the

responsibility of the city's Engineering Division. The Central Weber Sewer District is responsible for the city's wastewater treatment.

The city derives much of its water from a series of underground wells. It also relies on Pineview Reservoir, an engineered lake to the east, which supplies the city via gravity-fed transmission mains that run through rugged Ogden Canyon. A water treatment plant at Pineview supplements the city's water supply during peak demand.

"The wells are more reliable and less susceptible to drought," says Kenton Moffett, P.E., Public Utilities manager with the City of Ogden. "We generally rely on the reservoir during summer months when we need to increase water supply to meet irrigation demands."

Steel pipe a problem

Water pipe infrastructure ranges in size from 2 inches in diameter to 36 inches for transmission mains. Some of the water infrastructure dates back to the 1930s — and some of the original choices of pipe material have not served the city well.

"The smaller-diameter pipe is approximately 60 percent steel and 40 percent cast iron," Moffett says. "We have a lot of different soil types in Ogden and they're inconsistently distributed. It ranges from alluvial deposits to hot soils that really take their toll on the pipe. The steel pipe in particular rusts inside and out and is responsible for a large number of the leaks we see in the system."

The utility is responding with two five-person
(continued)

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Left: Maintenance technicians Todd Espinosa and Kip Bremser replace a hydrant after it was hit by a vehicle. Right: Maintenance technicians Bradon Ferrin and Brad Lund and supervisor Jeff Baldwin (in pit) check a newly installed radio read meter.

crews devoted entirely to tracking down and repairing system main and service leaks, having tackled more than 400 leaks in the past year.

"We literally find ourselves fixing so many leaks that there's no need for a leak detection program at this stage," Moffett says. "We use Pollard Geophones (Pollardwater) to narrow down the location of leaks, and we've toyed with the idea of acquiring some correlators, but we're not waiting around looking for leaks. Typically we get homeowners reporting service leaks or we see the water main leaks as the water reaches the surface. We're experiencing more leaks on service lines than on the mains."

"We've been moving ahead by leaps and bounds over the past few years with most of our mains mapped and our 24,000 service lines in progress."

— Kenton Moffett

Getting a lead on leaks

As part of the fight, the utility is planning to replace frequency transmitter water meters that require a transceiver-equipped truck with fully automated meters.

"That decision is being made in part to free up crew time so that we can get ahead of leaks," says Moffett.

The crews will clamp main breaks and replace short runs of leaking pipe, but will generally contract out larger construction jobs.

The water system is currently being GIS mapped using ArcGIS by Esri, a process nearing completion.

"We've been moving ahead by leaps and

bounds over the past few years with most of our mains mapped and our 24,000 service lines in progress," Moffett says. "We have one person in charge of the GIS mapping program, and service crews are now importing their own data directly into the GIS map from the field, including photos they snap of the infrastructure."

Boosting the backbone

The utility uses GIS data combined with leak reports to prioritize water main replacement, emphasizing large-diameter pipelines — the "backbone" of the system. The replacement material of choice is largely PVC because of its stability in a wide variety of soils.

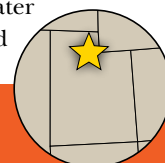
"Our water main replacement program accelerated in 2008 following a large break in our Ogden Canyon transmission main that cut out water to 4,000 people in the northern part of the city," Moffett says. "You don't realize what you've got until it's gone. Funding increases for water main replacement followed soon after that, and we established a goal of replacing 2.5 percent of the system every year — after we dealt with Ogden Canyon."

Construction of the original Ogden Canyon pipeline was completed in 1919 using 24-inch steel pipe and human labor (see sidebar). "After almost 90 years of service, our inspection revealed that it was leaking like a sieve," Moffett says. "We knew we had to replace significant portions of the pipe."

Ogden Canyon is a constricted box canyon with a narrow bottom. While the crews who orig-

inally built the pipeline faced many challenges, modern construction crews faced an additional problem — much of the pipe was now buried directly underneath busy Utah State Highway 39, a two-lane route running along the canyon bottom. The Ogden River, which also runs through the canyon, would provide additional challenges for construction material staging and equipment access. Because of summer water demands, construction would

(continued)



PROFILE:
Public Utilities
Department, Ogden, Utah

YEAR ESTABLISHED:
1846

POPULATION SERVED:
83,000

AREA SERVED:
26.6 square miles

DEPARTMENT STAFF:
54

INFRASTRUCTURE:
Water: 360 miles; Sewer: 360 miles

**ANNUAL DEPARTMENT
OPERATING BUDGET:**
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THE GREAT OGDEN CANYON WATER MAIN PROJECT

In 1915, the growing city of Ogden, Utah, needed to supplement its artesian wells with an additional water source from the Ogden Valley. The most direct route: through Ogden Canyon to the city.

“For water pipelines at the time, it was basically a choice between wood stave pipes or steel,” says Kenton Moffett, P.E., Public Utilities manager with the City of Ogden. “At the time, steel pipe was becoming more accepted for clean-water applications and offered more strength and durability compared to wood stave.”

The National Tube Company was awarded the supply contract of

17,250 linear feet of 24-inch Matheson Joint steel pipe at a cost of just under \$50,000.

“For this bell-and-spigot pipe, an internal pressure seal was created with lead, with the addition of oakum — a tarry fiber — or other fillers to keep the lead from running into the interior of the pipe,” Moffett says. “The Matheson Joint also allowed for the large amount of deflections that would be necessary to align the pipe along the canyon floor.”

The pipe construction contract was awarded to the Green Construction Company of Tooele, Utah, at a cost of just over \$40,000. Crews worked largely with picks and shovels, trenching through rock in parts of the canyon to complete the water project in 1919.

“The transmission main largely held up until 2008, so I think they could be proud of the work they accomplished,” Moffett says. “As we know, with infrastructure nothing lasts forever.”

“We typically had to shut down one lane during the day and completely close the very busy road at night. This had some of the drivers up in arms. That is, until we put sections of the damaged steel pipe on display alongside the road so they could see what we were replacing.”

– Kenton Moffett

have to be scheduled for winter. A single 36-inch transmission main would be responsible for supplying the city’s needs until summer.

Pipe bursting ruled out

“We originally considered pipe bursting, but

they backfilled the pipeline with rocks the size of Volkswagens and that made pipe bursting unworkable,” Moffett says. In addition, vertical rock faces extending into trenches and a shallow bury depth of about 2 feet made pipe bursting impractical.

The city ultimately opted for open-cut using Fusible C-905 DR15 PVC pipe for the higher-pressure section in the lower canyon, and harnessed bell-and-spigot C-905 DR18 PVC pipe for higher elevations. The pipe, supplied by Underground Solutions of Denver, would be buried to a depth

of 4 feet.

Whitaker Construction of Brigham City, Utah, was the general contractor on the \$9 million project, while Horrocks Engineering of Pleasant Grove, Utah, was the design consultant.

Construction began in fall 2012 on the downstream section of the pipe, working up the canyon. Workers used existing trenches where possible, but that meant they had to remove the old steel pipe as well. Wherever possible, open cuts avoided the road surface, running parallel to the highway.

“Between materials, trucks, workers, snow clearing and temporary paving, we were in tight



The Ogden maintenance crew, known as “The Marines” by Public Utilities Manager Kenton Moffett, includes (from left) maintenance technician Bryson Church, maintenance crew leader James Doxey, maintenance technician Colton Chambers, maintenance crew leader Hal Davis, maintenance supervisor Jon Jensen, maintenance technician Lee Shupe, maintenance technician Brandt Hogge, and maintenance technician Ely Charles.



Maintenance technicians Ely Charles and Bryson Church patch entrance and exit pits after boring a new pipe below the frost line at the base of Ogden Canyon.

quarters,” Moffett says. “In quite a few places we’d have to go in with a rock hammer. We typically had to shut down one lane during the day and completely close the very busy road at night. This had some of the drivers up in arms. That is, until we put sections of the damaged steel pipe on display alongside the road so they could see what we were replacing. That stopped a lot of the complaints.”

Work continued all winter through fierce canyon winds and extreme cold. Construction schedules were accelerated to include nighttime work.

Record cold grips Ogden

“It wasn’t a fun time for construction workers,” Moffett says. “We hit record low temperatures that February, and at times equipment would get frozen to the ground.”

A separate and additional project involved running another main up the steep canyon wall

to supply water to the city’s storage lagoons. Sunrise Engineering of Draper, Utah, designed this portion of the project and Whitaker Construction completed the installation.

The project was completed on schedule in summer 2013 and received the Utah Associated General Contractor’s 2013 Utility Project of the Year award for its innovative use of construction techniques and problem-solving.

The Ogden Canyon pipeline has been in service for three years and is performing flawlessly.

“We’re proud to have pulled it off successfully with so many challenges,” Moffett says. “Our next goal is to work so far ahead on leak repairs that we move from being reactive to proactive. In all, we believe that the backbone of our water system is now much more reliable.” ♦

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MISSING THE TARGET

A generic approach to employee recognition can deprive organizations of the very benefits the reward programs strive to obtain

By Ken Wysocky

Studies show that nearly 75 percent of American employers operate employee recognition programs. In fact, organizations spend a whopping \$46 billion a year to recognize employees for everything from good performance to job longevity. Yet a recent Gallup poll shows that only 30 percent of employees nationwide describe themselves as engaged.

Clearly, that's a huge disconnect. The solution to closing the gap? To use a clothing metaphor, organizations need to focus less on a generic, one-size-fits-all approach and more on rewards tailored toward the things that make employees feel purposeful, important and significant, says Kathie Sorensen, an employee and management development consultant.

"According to our research, an employee wants to be known as a unique human being, not copy writer No. 3 or accountant No. 4," says Sorensen, a co-owner of the Coffman Organization (www.coffmanorganization.com). She also wrote a book (with Coffman co-owner Curt Coffman) entitled, *Culture Eats Strategy for Lunch: The Secret of Extraordinary Results*. "One size doesn't fit all. That kind of recognition rarely gives you the kind of lift that you're after.

"People connect to their local work team and immediate supervisor and experience the company through that connection," she explains fur-

ther. "And in that local work unit lies the chance for that immediate supervisor to figure out what you do best — what your goals are and what you believe in. I like recognition programs that are flexible enough and adaptable enough that the local manager can use them in a way that fits each person — gives them a lot of different ways to recognize people."

Recognition matters

The power of meaningful and strategic employee recognition programs is undeniable. One study showed that companies with effective programs enjoyed 31 percent lower turnover than those with ineffective programs. Another determined that 65 percent of employees leave an organization

because they don't feel appreciated for doing good work. Yet another showed that employee recognition is a top engagement driver. In addition, evidence shows that recognition programs can boost productivity and

innovation, decrease employee absenteeism and stress, improve customer retention and encourage positive behaviors. "Organizations get more of what they reinforce," Sorensen notes.

Yet despite the overwhelming evidence, many companies don't even offer recognition programs. These kinds of organizations tend to focus more on pointing out what employees do wrong instead of recognizing what they do correctly. "That's the antithesis of a strength philosophy," she explains. "Sometimes companies get obsessed with weakness correction — the notion that if I point out your weaknesses and help you correct them, then I've somehow contributed to your development and success.

"But just not being wrong doesn't make you great," she continues. "A culture like that makes it hard for employees to take risks ... because they'd rather be safe than wrong. So people feel stifled, even though we want them to create new processes and new ideas about products and services. If you really want excellence, you have to pay attention to it — start to recognize what's going right and see glimmers of excellence all around you. It's not as if too much recognition will spoil employees or stop them from working harder."

Then there are the organizations that do offer recognition programs, but their very creators torpedo them. How? They insist on rewarding employees with meaningless things that don't resonate one whit with the very peo-

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

"It's not rocket science. You only get a return on your investment if you pay attention to the things that help you leverage the energy of people."

— Kathie Sorensen



ple they're designed to motivate. And much of that stems from managers who don't, as Coffman puts it, "attend to the essence of what employees are." In other words, they focus more on recognizing what an employee did (earned top sales honors in a month, for example) instead of rewarding them with something that's truly important to them.

Moreover, these misguided efforts usually occur because managers don't develop good relationships with employees — delve even a little into their interests and personal goals. "It's one of the simplest and most powerful tools managers have," Sorensen explains. "Have you ever been in a restaurant and the waiter knows who you are and brings your favorite drink before you even ask for it? That's what I'm talking about."

That's not to say that managers should start serving employees martinis and margaritas. But managers who get to know their employees well can develop keen insights into things they find valuable. For example, a good manager would never "reward" a harried, time-pressed worker with four children by taking them on a business trip. A gift certificate to a family restaurant, tickets to a nice entertainment event or an unexpected day off might be far more appreciated. On the other hand, a business trip might really resonate with a young, single employee that the manager knows is very interested in developing broader work experience and getting promoted.

"It's not rocket science," Sorensen says. "You only get a return on your (recognition program) investment if you pay attention to the things that help you leverage the energy of people."

As another example, Sorensen cites a well-known retailer that rewarded sales associates who logged the most customer applications for store credit cards. At the same time, it overlooked employees with great customer service skills, but who on principle didn't feel comfortable urging customers to sign up for credit cards. "If you want to recognize employees in that environment, recognize that they earn great customer service scores," Sorensen says. "But don't rate them on how many credit cards they get people to sign up for. ... Again, you need to value those employees for the things they believe are worthwhile."

Managers also should carefully consider who presents the award or reward. Some people might prefer recognition from their immediate supervisor, while others might be thrilled if a senior executive stepped in to make the presentation. "For some employees, recognition from a customer trumps everything else," Sorensen notes. In addition, some employees may enjoy a public presentation, while others may prefer getting recognized during a private, one-on-one session.

The bottom line: If your organization offers a generic recognition program, it's time to encourage upper management to take a different tack. By the same token, management needs to promote people-oriented managers who are capable of getting to really know their direct reports. Those two endeavors will lead to a recognition program that's tailored to fit individual employees, which beats an off-the-rack approach every time. ♦

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Brownsburg wastewater field supervisor Shawn Pabst leans in to make sure the camera is properly positioned at the start of an inspection run. (Photography by Marc Lebryk)

CLEAN, SEPARATE AND EDUCATE

Brownsburg is improving its collections system with regular maintenance, combined sewer separation, and a robust public outreach program

By Jim Force

Nothing would make Brownsburg (Indiana) Wastewater Facility Superintendent Kathy Dillon happier than if everyone in the town knew as much about the sewer system as she does.

And if that seems like an impossibility, take note of Brownsburg's public education and communications program, which includes:

- Town Resident Academy program
- Door hangers
- Sewer camera demonstrations
- News articles
- Online messaging
- "Lift Stations 101" — a comprehensive effort to inform residents about neighborhood lift stations and keeping flushables out of the

sewer system

"It's important that our citizens know and understand their sewer system," Dillon says. "We're really big on being open and transparent. It's part of our strategic plan."

The system

Located 10 miles west of Indianapolis and growing rapidly, Brownsburg operates a collections system consisting of 100 miles of sanitary sewers, some combined. The system includes 31 lift stations and a 1-million-gallon overflow facility. Dillon's staff is also responsible for 120 miles of storm lines and catch basins, and two major pumping stations that feed Brownsburg's 2.2 mgd (average flow) wastewater treatment plant. One

of the pump stations has its own headworks, consisting of a pair of swirl concentrators to remove debris, a Muffin Monster auger grinder (JWC Environmental), mechanically cleaned Hycor bar screen (Parkson Corp.), and grit removal.

Six of the town's wastewater staff are devoted to collections, and they are responsible for inspecting the infrastructure, televising and cleaning the sewers, responding to customer requests, and clearing storm grates.

"The summer storm events are definitely our busiest time," says Dillon, who's worked in wastewater for 24 years, 18 at Brownsburg. "During the winter, when it is more dangerous and difficult to conduct inspections and maintenance activities, we assist the street department with snow removal."

(continued)



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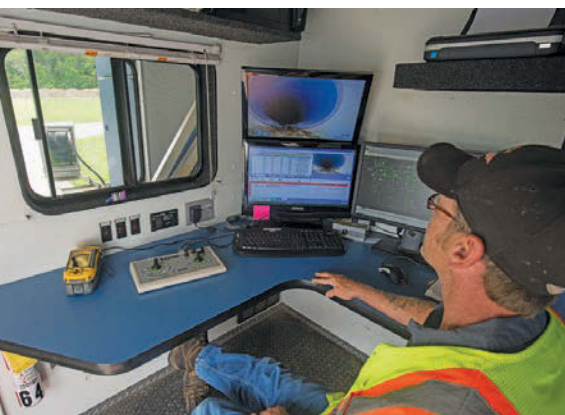


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Clockwise from left: Shawn Pabst inspects a sewer line using a truck-mounted EnviroSight Rovver camera system; the Rovver camera system positioned to enter the pipe on an inspection run; Rick Keeton monitors the video feed in the control room of the utility's CCTV van.



"The winter months also provide a time to review televising video and allow our team to categorize and prioritize the sewer lines needing additional repairs for the next budget cycle."

To evaluate the system, the Brownsburg team

"It's important that our citizens know and understand their sewer system. We're really big on being open and transparent. It's part of our strategic plan."

– Kathy Dillon

uses a truck-mounted camera system (EnviroSight) to televise existing storm and sanitary sewers. Each camera operator is PACP, MACP and LACP certified or in the process of becoming certified.

In addition, Brownsburg purchased a second jet/vac truck (Vac-Con) in 2013 to augment its older 1999 vintage truck. "It provides us with a backup and allows the team to complete more preventive maintenance on both sanitary and

storm infrastructures," Dillon says.

"We generally use the older unit for tasks that are harder on the equipment — cleaning of storm lines and catch basins, as well as hydroexcavating tasks like locating utilities or assisting with water main repairs."

Brownsburg also purchased a portable lateral camera unit (UEMSI Procam) in 2013 to help troubleshoot lateral lines. "The lateral camera often provides a clear picture of what the customer cannot see or struggles to understand," Dillon says. "Once customers can see what is going on in the sewer line, they can better work with their private contractor to get the line functioning again."

She says the lateral camera has helped speed repairing laterals and removing blockages, resulting in better use of staff time.

Brownsburg's goal is to televise 75,000 feet of sewer line and clean 100,000 feet a year, according to Dillon. "The goal is attached to our performance reviews and helps us do a better job," she says, adding that the staff targets areas where there are concerns about roots, backups and larger-than-normal flows to lift stations.

Grease is another culprit, especially from food establishments. In fact, online listings show nearly 90 operating restaurants in the Brownsburg area.

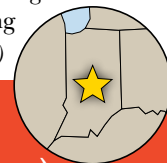
"We have an awesome grease program," Dillon says. "Our team of two plant operators conducts grease trap inspections throughout the year to protect the collections system. Right now we do one inspection per site per year, but that's not enough. Ideally, we'd inspect four times a year."

Pat Duncan supervises the grease program and does a superb job, according to Dillon. "He's good about catching new food places and build-

ings that have large cafeterias."

Brownsburg also guards against discharging what Dillon calls "trap decant" back into the grease trap. "We found that as the traps were being cleaned, the grease was liquid enough that a large amount was getting

(continued)



PROFILE:

Brownsburg (Indiana) Wastewater Facility

YEAR ESTABLISHED:

Facility built in 1987

POPULATION SERVED:

21,000

AREA SERVED:

Town of Brownsburg

DEPARTMENT STAFF:

11, 6 of whom are devoted to collections

INFRASTRUCTURE:

100 miles of sanitary sewers, some combined; 31 lift stations; 120 miles of storm sewers; 1.0 mgd overflow storage facility; 2 large pumping stations

ANNUAL OPERATING BUDGET:

\$3 million

ASSOCIATIONS/AWARDS:

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Bill Shaw Jr. and Steve Wyland empty the tank on their Vac-Con combo truck after cleaning a sewer line.

returned to the trap during the decant process,” she explains. While this requirement can be frustrating for some of the firms doing the cleaning, she says, it decreases the number of times traps need to be cleaned and allows the trap to function more efficiently.

“The lateral camera often provides a clear picture of what the customer cannot see or struggles to understand. Once customers can see what is going on in the sewer line, they can better work with their private contractor to get the line functioning again.”

– Kathy Dillon

Repair and replacement

Brownsburg is using cured-in-place pipe to reline about 2,000 feet of older sewer line a year, a process Dillon describes as less disruptive but expensive. “We’re committed to a four-year program, and we’ll see how it works out,” she says. Insituform and Reynolds Inliner (now known as Layne Inliner) have done the work.

Dillon says the system includes a lot of old clay tile, which can become clogged by roots. “We also watch for leaks after rain events, and TV to locate lines that are in worse condition and will make the biggest difference (in system operation),” she says. “We prioritize where to work first.”

The town is aggressively pursuing separation of sanitary sewers and stormwater lines, as well. The Tilden project, to be completed in late 2016, will separate 55 acres of combined area with the installation of a 48-inch storm line and minimize the number and volume of combined sewer overflows. Next, the Green Street improvement project will install storm sewers beneath a major street renovation.

In addition to repairing and replacing sewer lines, Brownsburg is preparing for future growth with a plan to expand its wastewater treatment plant.

“We have included screening of the sanitary flows coming from the west side of the community,” Dillon explains. “There currently is no removal for items such as baby wipes for this flow. We anticipate seeing a reduction in pump clogging and possibly regaining plant capacity as a result of adding the screening process.”

Communicating the action

Brownsburg makes sure its citizens and ratepayers keep up with all these developments through an effective communications program.

“With the help of our communications director Annisa Rainey, we share different aspects of the wastewater profession with our customers,” Dillon says. “It’s a great opportunity for us to acquaint others about our profession.”

One of the highlights is something Brownsburg calls “Lift Stations 101.” Using a combination of different media, including the town’s website and Facebook page, Brownsburg lets people know what a lift station is and how it works. “It’s impor-

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“With the help of our communications director Annisa Rainey, we share different aspects of the wastewater profession with our customers. It’s a great opportunity for us to acquaint others about our profession.”

– Kathy Dillon

tant that people understand what these utilities are in their backyard,” Dillon says. “We tell them, ‘This is how you can help us. If you hear an alarm in your neighborhood, call us so we can respond before the backup gets to your house.’”

Lift stations are also covered in a new series of meetings with citizens called the Town Resident Academy. Three dozen area residents are participating in sessions with each of the town departments to learn about the current status and future direction of town services. The program consists of six two-hour sessions, stretching over a 12-week period.

“The wastewater department, joined by the stormwater coordinator and fleet maintenance superintendent, completed the second session of the academy last August,” Dillon says. “It was a great opportunity to meet a wide variety of community representatives and share the facility and everyday services that each of us provide. The questions they asked were amazing, as well as the ideas they shared with us.”

A number of questions had to do with flushables — an issue plaguing sewer systems across the country.

“I explained that there are many flushables that don’t really flush,” Dillon says. “Spokane,

Washington, has a great video on flushables, using a settleometer-type device and mixing blades, and we linked to it. It’s an amazing visual of what breaks down and what stays together.”

The wastewater department also submits informative articles to the local newspaper, and uses its TV truck and camera system in its educational efforts, too. “We set up the truck in the work area

and let people — especially students — navigate through a pipe system,” Dillon says. “They can operate the camera and zoom in and tilt to look at different angles.”

Finally, Dillon and her team always close an education program by showing off a collection of objects they have found in the sewer system. “We pass around a jar of what we call ‘sewer prizes.’ It brings smiles to people’s faces.

“It really amazes them and gets them thinking about how those items can even end up there in the first place.” ♦

PUMP STATION REHAB

Brownsburg is on the verge of replacing a pump station that had a rather curious design issue.

“When we looked into it, we realized that all the incoming lines were flush with the bottom of the wet well,” explains Wastewater Facility Superintendent Kathy Dillon. “There was no operational head. The pump would shut off but the lines would surcharge.

“It was old, and it had no modern electrical components, so we decided to install a new pump station right next to it, with a deeper wet well. We’re excited to see how it works.”

Dillon says the old wet well will continue to serve the town as a large manhole structure and also provide backup storage if needed.

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4 DAYS TO MAKE YOUR UTILITY STRONGER



The Water & Wastewater Equipment, Treatment & Transport Show promises great value and opportunity for your utility

By *Luke Laggis*

Last year, the Water & Wastewater Equipment, Treatment & Transport (WWETT) Show was spilling out of the exhibit hall at the Indiana Convention Center. This year, it's pouring into Lucas Oil Stadium.

It all gets started like it does every year, with the industry's best slate of education courses. The show returns to its Wednesday-through-Saturday schedule this year, so Education Day will be held Wednesday, Feb. 17.

A day in the classroom may not sound like the most exciting part of your trip to Indianapolis, but it could be the most valuable. Presenters

“Right now it’s a daily challenge trying to figure out how we’re going to fit this much equipment on the floor. It’s going to be very impressive when the lights turn on and the doors open for showtime.”

— Brad Bisnette

from the industry's top manufacturers and associations will lead a wide variety of classes, covering everything from septic myths to small-diameter pipe cleaning. There are more than 50 classes on Wednesday alone.

When class lets out, the party gets started. Just take the short walk over to Lucas Oil Stadium — it's connected to the convention center — for the 2016 WWETT Show Kickoff Party. Relax, check out the exhibitor sponsor displays, and enjoy a cold beverage and complimentary hors d'oeuvres while networking with manufacturers and peers.

“One of the main requests we receive from attendees year in and year out is for more net-

working opportunities,” says show coordinator Brad Bisnette. “The Kickoff Party presents this opportunity and does so in a very unique, convenient and exciting atmosphere.”

The show really ramps up on Thursday when the exhibit hall opens. Every year, products introduced at the show become important components in many industry professionals' toolboxes and equipment fleets. More than 9,400 people representing 4,200 companies and 54 countries attended the 2015 show, with 597 exhibitors nearly spilling out of the exhibit hall.

This year, it's going to be even bigger, encompassing all 560,000-plus square feet of exhibit space at the Indiana Convention Center, in addition to the classrooms, stadium and the Sagamore Ballroom.

“Right now it’s a daily challenge trying to figure out how we’re going to fit this much equipment on the floor,” Bisnette says. “It’s going to be very impressive when the lights turn on and the doors open for showtime.”

When that moment comes, take your time and scope out the floor. There's a ton to see, and you can't get to all of it in one day. Plus, there are dozens more education courses on Thursday, and you'll want to take advantage of those opportunities. It's the perfect day to take another class or two, give yourself an overview of the show floor and formulate a plan to get everything you need out of the next two days. And when the floor closes, you can head back to Lucas Oil for the

second night of the Kickoff Party.

Friday brings more education and another full day on the exhibit floor, with a chance for you to zero in on the tools, equipment and conversations that can make a difference for your utility.

In addition to being a huge day at the show, Friday is also the biggest night, with the Sagamore Ballroom doors opening at 5 p.m. for the annual Industry Appreciation Party. In addition to 25-cent tap beer and a fun, laid-back atmosphere, country music star Jerrod Niemann will perform. Niemann's hits include “Blue Bandana,” “Drink to That All Night” and “Lover, Lover.”

Just make sure you don't really drink to that all night, because Saturday is the final day of the show and your last opportunity to see everything that makes it great.

Don't forget, there's also plenty to do outside the show. Indianapolis is a fun and accommodating city with dozens of museums, entertainment venues and shopping opportunities, along with hundreds of restaurants within walking distance of the convention center. And with 4,700 guest rooms connected to the Indiana Convention Center via covered and heated skyways, weather won't be an issue.

The 2016 WWETT Show will be held Feb. 17-20 at the Indiana Convention Center in downtown Indianapolis. You can view the complete schedule of events along with an exhibitor list, floor plan, travel information and everything else you'll need to plan your trip to Indy at www.wwettshow.com. ♦



Duluth Public Works and Utilities operator Chris Anderson watches the gauges on a Vactor 2100 while cleaning a sewer main. (Photography by Matthew Moses)

TAKING CONTROL OF OVERFLOWS

Duluth tackles serious inflow and overflow problems and completes consent decree requirements ahead of schedule

By Jim Force

“Without them, nothing would have happened.”

That’s Todd Carlson, program coordinator in the engineering office of the Duluth, Minnesota, Department of Public Works and Utilities, talking about his city’s successful program to eliminate wet weather overflows and meet the terms of a consent decree a year ahead of the deadline.

By “them,” he’s not referring to consultants, contractors, regulators or city officials. He means the public.

“The public was a critical part of this project,” Carlson says. “Sixty percent of our sewer system is on private property. Without the cooperation of our property owners in our city, we’d still be fighting the problem.”

“We needed to eliminate wet weather overflows at the source. Every gallon we removed was one less gallon to overflow or overwhelm the treatment plant. In that first year, we got some really good things done.”

— Todd Carlson

Wet weather issues

Age and topography have had a lot to do with wet weather overflows in Duluth. The infrastructure is old, with many sewers consisting of 8-inch clay lines dating to the late 1800s. Plus, homes and businesses are situated on a steep ridge that drops about 800 feet to the shore of Lake Superior.

In a previous *Municipal Sewer & Water* article on the utility, John Center, project coordinator for sanitary sewer overflows, described how flows come straight downhill at 40 mph to T-connec-

tions at the interceptors. “We’ve had data loggers in manholes simply washed away,” he reported.

Through the interceptors, Duluth contributes an average daily flow of about 10 mgd to the regional Western Lake Superior Sanitary District Plant.

Even more problematic are the foundation drains, common to homes and buildings constructed before 1970. These drains come to a center manhole in the basement, connected to a 6-inch iron pipe. “Eighty percent of our build-

(continued)



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PROFILE:

Utility Operations Division,
Department of Public Works
and Utilities, Duluth,
Minnesota

ESTABLISHED:

1999 through merger of water and gas departments; city utility dates to the 1898 purchase of Duluth Water and Gas Company

POPULATION SERVED:

86,000

AREA:

87 square miles

INFRASTRUCTURE:

400 miles of sewer mains,
52 lift stations, 400 miles of storm
sewers, 100 miles of storm ditches

STAFF:

45

ANNUAL BUDGET:

\$4.2 million

WEBSITE:

www.duluthmn.gov



Clockwise from left: Erick Fronden removes a manhole lid to investigate a potential I&I issue as Todd Carlson looks on; Chris Anderson checks the controls of the Vactor 2100 while cleaning a sewer line with Erick Fronden and Brice Aikin; a look down the manhole with the jetter hose inside the sewer line.

ings had that," Carlson explains. The design caused frequent hydraulic overflows and basement backups, contributing both to wet weather overflows and citizen complaints.

Leaky sewer laterals, averaging about 60 feet

"Our I&I reduction project really started in the early 1990s," Carlson says. "Our city staff recognized the need to separate the foundation drains and install sump pumps in the basements."

"Sixty percent of our sewer system is on private property. Without the cooperation of our property owners in our city, we'd still be fighting the problem."

– Todd Carlson

from home to street, contributed even more to storm flows in the system. Carlson estimates that between 1995 and 2004, Duluth averaged 30 overflows per year, amounting to 47 million gallons all told. Many were in the downtown business and hotel district.

Fixing the problems

Duluth's program to eliminate the overflows is not new, although the consent decree, signed in 2009, gave the effort a big boost.

In 1994, largely through the efforts of Steve Lipinski, manager of utility operations, Duluth was able to get the state Legislature to pass legislation that allowed public money to be used on private property. That move paved the way for the city to help property owners disconnect their foundation drains and install sump pumps, as well as improve landscaping and steer downspouts away from foundations.

"We needed to eliminate wet weather overflows at the source," Carlson says. "Every gallon
(continued)

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A crew from the Duluth Utility Operations Division recontours a ditch for stormwater conveyance.

“By mail, we invited homeowners to public meetings where we could show the videos. We used the videos to teach and to convince property owners they had a problem. TV has been a great tool for us.”

– Todd Carlson

we removed was one less gallon to overflow or overwhelm the treatment plant. In that first year, we got some really good things done.”

Still, the city experienced occasional overflows, with every incident resulting in a violation. Then in 2003, excessive rain and snow produced an abnormally wet year, with numerous releases coupled with power outages. That, according to Carlson, brought a cease and desist order from state and federal agencies in 2004 and galvanized public awareness. “We knew we needed to get this fixed,” Carlson recalls.

As negotiations leading to the consent decree commenced in 2004, Duluth redoubled efforts to eliminate overflows, focusing on leaky laterals and the basement foundation drains. “We continued to push,” Carlson says. “That carrot at the end of the stick (consent decree) really helped.

“The key was to work upstream in the basins with the most inflow and infiltration,” Carlson says. “It was critical to know what was coming into the system.”

Divide and conquer

Based on seven designated consent decree overflow points around the system, Duluth had divided the city into 30 sub-basins, with one additional basin added later on. Extensive flow monitoring was conducted in each basin, using Teledyne Isco 4150 Series flow loggers and 2100 Series flow modules, which have a temperature reading feature that enables the team to measure runoff from the spring snowmelt because of the temperature change of the water.

The goal was to search out 250 homes and identify at least 175 candidates a year for lateral

replacement. Crews used an Explorer mainline pan-and-tilt camera from UEMSI to inspect block-to-block during wet weather. In addition, manholes were opened during rain events to visually monitor flow. “We worked in those basins where we saw the most water,” Carlson says. “We used city crews for the work, rather than an outside contractor.”

Lateral connections were televised from the city mains. When the inspections revealed problems, the videos were shown to homeowners. “By mail, we invited homeowners to public meetings where we could show the videos,” Carlson explains. “We used the videos to teach and to convince property owners they had a problem. TV has been a great tool for us.”

Duluth also initiated a demonstration program showing how laterals could be lined with CIPP technology instead of open cuts.

The city sweetened the deal by providing grants to fund a large portion of the sump pump and lateral replacement programs. Up to \$2,150 was available as a grant for disconnection of the footing drain, removal of the house trap, and the

CAPTURING OVERFLOW

Duluth has spent a lot of time and money on the private side of its sewer system in an effort to eliminate wet weather sewer overflows. Overflow storage tanks were another important part of the city's remediation effort.

Seven overflow storage tanks, with a combined capacity of about 16.5 million gallons, have been built along the city's lakeshore. The tanks are designed to harmonize with their surroundings, built belowground with

landscaping on top.

The city needed the tanks because of the deadlines it faced, says John Center, project coordinator for sanitary sewer overflows. Now that compliance with the consent decree has been reached, the tanks are serving as a safety net and will also allow the city to control the flow it delivers to the regional treatment plant.

installation of a sump pump to reroute the water outside. Plus, the city paid 80 percent of the first \$5,000 required to replace or rehabilitate (CIPP lining) a failing lateral.

Carlson says the lateral reimbursement funds come from a clean-water fee on the utility bill implemented in 2009. Funds to install sump pumps came from a rate increase of 10 to 15 percent enacted during the mid-1990s. "That was the biggest bang for the buck — installing the sumps and getting the storm flows outside the house and away from the foundation," Carlson says.

The clean-water surcharge fee is used to fund the lateral grant program and capital improvement costs related to the wastewater storage tanks; this funding will sunset in 2018.

Once a property owner agreed to remediate the issue, the city continued to engage and support. "We gave the property owners the control," Carlson says. "It was not us as city employees making the decisions. We allowed them to pick the contractor. We could send the grant money directly to the contractor, or to the homeowner who could then pay the contractor when the work was completed to their satisfaction. We held their hand through the whole process."

The extra efforts to create a partnership with customers have paid off handsomely. Not only has the consent decree deadline been met with time to spare, Carlson estimates the overflow prevention program is removing an average of 29 million gallons per rain event. "Except for severe flooding in 2012, we haven't had an overflow since 2010," he says.

"With the help of the public, we've taken control of the system, rather than the system controlling us." ♦

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Education Day Sessions

Wednesday, February 17, 2016

NAWT

National Association of Wastewater Technicians

Rooms 234-236

- 8 a.m. Basics of Septic System Control Panels
- 9:30 a.m. Using Septic Control Panels to Troubleshoot Systems
- 11 a.m. Inspecting Concrete Sewage Tanks
- 1:30 p.m. An Exercise in Septic System Troubleshooting
- 3 p.m. The Basics of Inspecting Drip Systems
- 4:30 p.m. NAWT Ask the Experts Panel Discussion

SSPMA

Sump and Sewage Pump Manufacturers Association

Rooms 133-135

- 8 a.m. Understanding Pumps and Common Pumping Issues
- 9:30 a.m. Evaluation and Installation of Backup Pump Systems
- 11 a.m. Best Installation Practices for Trouble-Free Pump Controls
- 1:30 p.m. Troubleshooting Pumps, Panels and Switches with Digital Multimeters
- 3 p.m. Sizing Guidelines for Sump, Sewage and Grinder Pumps
- 4:30 p.m. SSPMA Ask the Experts Panel Discussion

Business Strategies

Rooms 140-142

- 8 a.m. How Much Should I Charge?
- 9:30 a.m. Business Game Changers: Top 5 Secret Strategies for Massive Growth in Your Service Business
- 11 a.m. The Un-Business Plan — Making Your Business Less Complicated But More Profitable
- 1:30 p.m. How to Use Superior Customer Service to Increase Sales
- 3 p.m. Reward the Right Stuff: Finding, Training and Keeping Great Team Members
- 4:30 p.m. Is Your Business Prepared for a Crisis?

Industry Safety

Rooms 237-239

- 8 a.m. Pre-Engineered Shoring Systems for Cross-Trench Utility Challenges
- 9:30 a.m. Excavation Safety
- 11 a.m. OSHA Confined Space, Air Monitoring and Fall Protection Explained

SSCSC

Southern Section Collection Systems Committee

Rooms 231-233

- 8 a.m. Positioning Yourself for Promotion and Succession Planning
- 9:30 a.m. Step Up Your Game! Taking Current CCTV Inspection Technology to the Next Level
- 11 a.m. Trailer Jetting — Getting the Most Out of Your Equipment
- 1:30 p.m. Vacuuming: the Other Half of the Combination Unit
- 3 p.m. Sewer System Maintenance — Challenges and Solutions
- 4:30 p.m. SSCSC Ask the Experts Panel Discussion

NOWRA

National Onsite Wastewater Recycling Association

Rooms 240-242

- 8 a.m. Introduction to Soils
- 9:30 a.m. Onsite Septic System Loading Rates and Site Layout
- 11 a.m. Making Infiltration Decisions — Understanding Soil Surface Design
- 1:30 p.m. Soil Dispersal Comparison
- 3 p.m. Introduction to the Elements of Onsite System Design and Regulations
- 4:30 p.m. Onsite Septic System Hydraulics and Pump Design

Portable Sanitation

Rooms 136-138

- 1:30 p.m. Marketing Basics: How to Effectively and Efficiently Grow Your Portable Sanitation Sales
- 3 p.m. Trust — How to Build it and Use it to Grow Your Portable Sanitation Business
- 4:30 p.m. Portable Sanitation Forum: Current and Future Critical Issues Affecting the Industry Discussion

NASSCO

National Association of Sewer Service Companies

Rooms 130-132

- 8 a.m. Cleaning Nozzle Technology
- 9:30 a.m. Large vs. Small-Diameter Pipe Cleaning
- 11 a.m. The Lower Lateral — The New Frontier in Sewer Rehab
- 1:30 p.m. Chemical Grouting Technologies
- 3 p.m. The Growth of the UV Cured CIPP Process
- 4:30 p.m. NASSCO Ask the Experts Panel Discussion

Treatment Plant Operator

Rooms 243-245

- 8 a.m. Effective Strategies for Collections System Management
- 9:30 a.m. Sustainable Innovation in Biosolids Management
- 11 a.m. Pretreatment and Wastewater Lagoon Management
- 1:30 p.m. Septage Collection and Treatment
- 3 p.m. Large Scale FOG/Septage Receiving Station — Lantern Environmental Project Case History
- 4:30 p.m. Progress in Electrochemical Water Treatment in Last Century

WJTA-IMCA

Water Jet Technology Assoc. - Industrial Municipal Cleaning Assoc.

Rooms 237-239

- 1:30 p.m. Proper Industrial Truck Maintenance Can More Than Pay for Itself in Productivity and Safety
- 3 p.m. Air Conveyance Through an Industrial Vacuum Truck
- 4:30 p.m. Vacuum Excavation Applications and Opportunities

Women in Business

Rooms 136-138

- 8 a.m. Marketing to Women
- 9:30 a.m. Women of Wastewater: Building a Community of Allies
- 11 a.m. Women in Wastewater Roundtable

Vacuum Truck Equipment and Operation Training

presented by **NAWT** National Association of Wastewater Technicians

Rooms 109-110 8 a.m. - 5 p.m.

This day-long session will discuss in detail the equipment on vacuum trucks and how to operate them. Pumping terms will be covered, as will safety principles, materials often encountered on the job and government regulations.



WWETT Education Sessions

Thursday, February 18, 2016

Liquid Waste Treatment & Disposal

Rooms 130-132

- 8 a.m. Analysis of Drainfield Failures and Restoration Methods
- 9:30 a.m. Cash In on Community System Operations and Maintenance
- 11 a.m. Ultra-Efficient Inspection Technique to Locate Leaks on Septic Systems

SSCSC Sewer & Drain Cleaning Course

Rooms 231-233

- 8 a.m. Hands-On Nozzle Technology
- 10 a.m. Hands-On Jetter Hose Maintenance — Care and Repair

Sewer & Pipe Rehabilitation, Relining & Repair

Rooms 234-236

- 8 a.m. Take Control of Inflow and Infiltration in Manholes
- 9:30 a.m. When Things Go Wrong on a Lining Job
- 11 a.m. Taking Small-Diameter Drain Lining Inside Infrastructure

Sewer & Drain Cleaning, Inspection & Repair

Rooms 133-135

- 8 a.m. Using the Clean Water Act to Grow Profits
- 9:30 a.m. Winning Trench Warfare — Finding Profitability in Sewer/Septic Work
- 11 a.m. Your Best Shot at Sewer Success — How to Get the Most From Inspection Technology

Onsite Septic Installation, Repair & Design

Rooms 237-239

- 8 a.m. Overview of Application, Design, Installation and Operation of Drip Dispersal Systems
- 9:30 a.m. Onsite System Pump Design Made Easy
- 11 a.m. The Onsite Wastewater Industry and Our Carbon Footprint

Treatment Plant Operator

Rooms 243-245

- 8 a.m. Smart Water Technology in Theory and Practice
- 9:30 a.m. Dissolved Ozone in Municipal Collection, Treatment and Disposal
- 11 a.m. Municipal Biological Waste Treatment

Business Strategies

Rooms 136-138

- 8 a.m. How Self-Employed People Can Make More Money
- 9:30 a.m. Growing Your Business in a Tough Economy
- 11 a.m. Staying in Front of Your Customer

NOWRA Design Course

Rooms 240-242

- 8 a.m. Mound and At-Grade Design
- 9:30 a.m. Low-Pressure Pipe in Drainfield Distribution
- 11 a.m. Subsurface Drip Irrigation

Municipal Sewer & Water

Rooms 140-142

- 8 a.m. How to Recover Non-Revenue Water
- 9:30 a.m. Phased Assessment Strategy for Sewers - Understanding Sewer Condition Quicker with Fewer Resources
- 11 a.m. The Science of Pipe Cleaning — Flow and Pressure



Many states approve WWETT education sessions toward fulfilling required certified education units or professional development hours.

See wwettshow.com for a list of approved states and courses.

Friday, February 19, 2016

Liquid Waste Treatment & Disposal

Rooms 130-132

- 8 a.m. | Fact vs. Fiction: The Top Ten Septic Myths
- 9:30 a.m. | All About Facultative Bacteria
- 11 a.m. | Brown Grease Recovery From Grease Trap Waste: Science and Economics

Industry Safety

Rooms 140-142

- 8 a.m. | Identifying and Managing Risk in a Septic or Sewer Business
- 9:30 a.m. | How Well Do You Know Your Cleaning Hose?
- 11 a.m. | Pathogen Exposures to Workers in the Onsite Industry

Business Strategies

Rooms 240-242

- 8 a.m. | Creating a Data-Driven Strategic Marketing Plan
- 9:30 a.m. | What Every Sewer and Drain Contractor Needs to Know About Asset Protection, Tax Reduction and Estate Planning

Municipal Sewer & Water

Rooms 240-242

- 11 a.m. | GIS: Empowering Water, Wastewater and Waste Removal Organizations

Sewer & Drain Cleaning, Inspection & Repair

Rooms 133-135

- 8 a.m. | Advanced Pipe Bursting
- 9:30 a.m. | Low-Latency, High-Definition Video Over Coaxial Cable for Remote Inspection
- 11 a.m. | Plumbers vs. Technicians: The Slow Decline of the Tradesman

Municipal Sewer & Water

Rooms 231-233

- 8 a.m. | Using Acoustic Inspection to Prioritize Sewer Cleaning
- 9:30 a.m. | Evaluation of Automatic Filters for Nozzle Protection in Recycled Water Applications
- 11 a.m. | Flow Monitoring — How to Make Your Program Successful

Treatment Plant Operator

Rooms 243-245

- 8 a.m. | Insights into Ozone Water Treatment Plants
- 9:30 a.m. | Wastewater Microbiology
- 11 a.m. | How to Ensure Gold is the Result — Choosing the Right Dewatering Equipment



Business Software & Technology

Rooms 136-138

- 8 a.m. | Know the State of Your Business Using Business Charts and Reports
- 9:30 a.m. | Using Software to Save Time and Increase Profits
- 11 a.m. | Using Mobile Devices for Business

Sewer & Pipe Rehabilitation, Relining & Repair

Rooms 234-236

- 8 a.m. | Buying Back Capacity
- 9:30 a.m. | Successful Reduction of I&I Using the Holistic Approach to Sewer Rehabilitation
- 11 a.m. | Large Scale Centrifugally Cast Concrete Pipe Culvert Rehab in CO Dept. of Transportation Region 1

COLE Publishing's Onsite Installer Course

Rooms 237-239 8 a.m. - 5 p.m.

This day-long session will walk professionals through an introduction to proper installation practices for the sustainable use of onsite treatment systems

Detailed session information available at:
www.wwettshow.com



A YEAR OF GROWTH

Accomplishments of the past year lead to more opportunities for NASSCO members

By Ted DeBoda, P.E.

As I look back on 2015, I am humbled by NASSCO's accomplishments and the significant goals achieved thanks to our committed members and dedicated board of directors.

These people are all incredibly busy, and even though they have their own jobs and responsibilities, they find time in their hectic schedules to make significant change for our industry through their involvement with NASSCO. The one thing that draws them all together is a common commitment to further NASSCO's mission to set standards for the assessment and rehabilitation of underground infrastructure and to ensure the continued acceptance and growth of trenchless technologies.

In 2015 alone, these individuals along with NASSCO's professional staff worked together to deliver these tangible results:

PACP Version 7.0

After months of hard work, the improved, more user-friendly Pipeline Assessment Certification Program (PACP) Version 7.0 was released. The new version went through an intensive peer review by 65 collections professionals who evaluated technical updates, educational benefits and other enhanced features, and developed two new appendices including risk management and pipe shapes and materials.

Webinars

NASSCO partnered with the Water Environment Federation and a leading industry magazine to share industry knowledge with the widest audiences possible via webinars focusing on the release of PACP Version 7.0, rehabilitation specifications, lateral rehabilitation and injection grouting.

ITCP training

The Inspector Training Certification Program was enhanced with updates to the CIPP course and the ongoing development of the upcoming pipe bursting

course, which will soon join the established course subjects of CIPP and manhole rehabilitation technologies.

Annual Conference / Technical Day

Technical Day was restructured into two tracks, designed to ensure relevancy for all NASSCO members attending the annual conference. The first 2015 track covered safety, risk assessment and municipal issues; the second covered collections system inspection, maintenance and rehabilitation.

Industry partnerships

NASSCO continued to work with partner associations such as WEF, CUIRE, Oklahoma State University, and The Trenchless Technology Center at Louisiana Tech University to identify areas for mutual industry growth, including workshops, the WEF Operations Challenge, research and an ongoing exchange of knowledge.

Apprenticeship program

The greatest hope for the future of our industry is in the attraction of talented professionals and our ability to prepare and train them for career growth and development. To this end, NASSCO is launching an apprenticeship program. The appropriate paperwork has been submitted to the Department of Labor to create a new concentration, Sewer Inspection and Rehabilitation, under the existing occupational title "Construction Craft Laborer."

Even though 2015 is over, our work is not. In fact, the accomplishments listed above have created even more opportunities for industry advancements, and will propel us well into 2016 with an abundance of activity to come. If you are not yet a NASSCO member and would like to have a voice through one (or more) of our many influential committees, divisions and ongoing industry initiatives, visit nassco.org, call us at 410/442-7473, or email info@nassco.org. ♦

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

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PACP TRAINING

January 5-7

Antioch, CA

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Recertifications Welcome

Trainer: Eric Sullivan

Contact Ashley Groves for more information or to register:

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

January 11

Northville, MI

1 Day Recertification Course

Trainer: Brandon Conley

Contact Ashley Groves for more information or to register:

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

January 11-13

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

January 12-14

Northville, MI

Includes Manholes and Laterals!

Trainer: Brandon Conley

Contact Ashley Groves for more information or to register:

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

January 12-14

Hollywood, FL

Includes Manholes and Laterals!

PACP Re-Certification seats available.

Contact Paul Booth for more information or to register:

304-647-0757 or email woodsidescheduling@gmail.com

January 19

Marriottsville, MD

PACP User Recertification

Trainer: Ted DeBoda

Contact Dawn Jaworski for more information or to register:

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

January 19-21

Ontario, CA

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

January 19-21

Joliet, IL

Includes Manholes and Laterals!

Recertifications Welcome

Trainer: Brandon Conley

Contact Ashley Groves for more information or to register:

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

January 20-21

Seattle, WA

Includes Manholes and Laterals!

PACP Re-Certification seats available.

Contact John Jurgens for more information or to register:

425-487-3325 or email nodig@aol.com

January 26-28

East Lansing, MI

Includes Manholes and Laterals!

Recertifications Welcome

Trainer: Brandon Conley

Contact Ashley Groves for more information or to register:

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

February 8-9

Honolulu, HI

PACP Only

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

ITCP TRAINING (CIPP and Manhole)

January 12-14

Kansas City, MO

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

Courses can be taken individually.

Contact Tim Back for more information:

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

Courses can be taken individually or together in 3 days!

February 1-2

Atlanta, GA (UCT)

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ELIMINATING DANGER

Robotic waterjetting system from Stutes removes operator from dangerous high pressures

By Craig Mandli

Operator safety is paramount when waterjetting and hydroexcavating. With more municipal service companies wishing to remove their operators from possible harm from high-pressure sources and caustic chemicals, automated systems are becoming more common.

The HydraX Xtream Pad Dragon, from Stutes Enterprise Systems, introduced to the water and wastewater industry at the 2015 Water & Wastewater Equipment, Treatment & Transport (WWETT) Show, is just such a product. The innovative robotic waterjetting and hydroexcavation system allows operators to manipulate the variable-speed rotating nozzles as an extension of their bodies.

"What we essentially did with this product was took a compact excavator and added a tail whip that swivels back and forth and doesn't pinch or puncture the high-pressure hose," says Tryan Stutes, the president and owner of Stutes Enterprise Systems. "Our blasting head comes in a small package while offering a wide range of motion."

The head rotates 180 degrees left and right, and 180 degrees up and down, allowing the operator to reach small crevices and cracks far out of arm's reach. It can blast water at pressures up to 20,000 psi at 43 gpm. The Pad Dragon's intelligent hydraulic system controls the speed of the nozzle's spin rotation and other functions from the comfort of the climate-controlled cab. It's also efficient, as there's no need to idle-up the engine to power the hydraulic controls.

"Operator safety is the biggest factor with the design of this unit," says Stutes. "It allows for less wear and tear on the operator, a faster clean, less downtime, and less cost for protective equipment, as the operator can stay in the comfort of the cab."

Multiple tools are available with the blasting head, with a quick-change system that allows the operator to make adjustments in minutes. While the target market is service workers and companies that work in refinery and utility pipe cleaning and blasting, Stutes says that several municipalities have also purchased units. The unit can also be hooked to a trailer jettter to give it full hydroexcavation capability.

"We designed this unit to be a fit across multiple industries," Stutes says. "Now it's a matter of getting the name out there and letting municipalities



Tryan Stutes, right, the owner and president of Stutes Enterprise Systems, discusses the features of the waterblasting head on his HydraX Xtream Pad Dragon robotic waterjetting system with an attendee at WWETT 2015. The system offers pressures up to 20,000 psi at 43 gpm, while keeping the operator away from potential harm. (Photo by Craig Mandli)

and contractors know that there is a different, safer option out there for what they're trying to do."

"There was a lot of education on this product at the WWETT Show, and once people learned about it, they wanted to know more."

– Tryan Stutes

The 2015 WWETT Show was Stutes' first as an exhibitor, and overall he was enthused by the excitement surrounding his unit — after first explaining what it is and what it's capable of.

"I think a lot of people in the industry have a vision of what a waterjetting system looks like, and this is something

that, looks-wise, is completely different," Stutes says. "There was a lot of education on this product at the WWETT Show, and once people learned about it, they wanted to know more. The feedback I've gotten from those who have units in the field indicates they don't want to do anything without it."

Stutes says he's excited to see where the market for the unit goes in the coming year. Based on the feedback he received at the show, the unit's hydroexcavation functionality could potentially be an even bigger selling point.

"Just being at the WWETT Show for the week, we gained a ton of knowledge on this industry," he says. "I'm confident that this waterblasting unit is a great fit, and I look forward to working with this industry even more." 866/362-9332; www.aquablasters.com. ♦

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PIPELINE REHABILITATION AND RELINING

By Craig Mandli



CIPP/Joint REPAIR/LININGS

ACE DuraFlo Systems ePIPE

The **ePIPE** pipe lining system from **ACE DuraFlo Systems** is aimed at restoring pipes in place. It is a fast-curing epoxy coating approved for small-diameter pressurized pipe systems. It uses existing access points to clean failing or aged pipes, then coats the interior of the pipes with a protective epoxy. In as little as two hours, this epoxy cures to form a strong barrier to prevent pinhole leaks, corrosion, discolored water, and lead and copper leaching. Lead-contaminated pipes can be brought into compliance in a matter of a few hours. The method rehabilitates service lines, mains, horizontal lines and vertical lines without having to dig up streets, sidewalks or landscaping. **800/359-6369; www.restoremypipes.com.**

2 Agru America Sure-Grip

Sure-Grip concrete liners from **Agru America** extend the life of tanks, pipes and other structures by combining the flexibility and chemical resistance of thermoplastics with the strength of concrete. It is ideal for new cast-in-place construction, rehabilitation projects and prefabricated elements such as concrete pipes and manholes. Its V-shaped 13 mm tall Ultra Grip anchors are designed for concrete structures subject to high groundwater backpressure, and Sure-Grip with 19 mm tall anchors is designed for rehabilitation of structures where a thicker layer of grout is required. It is available in a variety of resins (including HDPE, PP, PVDF and ECTFE), thicknesses and sheet/roll dimensions, and with an anti-skid surface for floors, a coextruded signal layer for damage detection and a self-cleaning surface for reduced sedimentation in pipe inverts. **800/373-2478; www.agruamerica.com.**

3 Applied Felts AquaCure

AquaCure RP CIPP liner from **Applied Felts** combines fiberglass reinforcement with a felt liner design and construction specially designed for pressure sewer pipes and other non-potable water applications. AquaCure PW is suited for potable water applications and designed to incorporate

quality liners with an NSF-certified system. The liners' 28-stage testing system is done in one location. **276/656-1904; www.appliedfelts.com.**

4 Aries Industries Anaconda UV Curing System

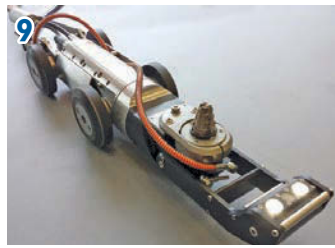
The **Anaconda UV Curing System** from **Aries Industries** provides consistent lining installation with short curing time. A vehicle-mounted system provides a professional platform for lining pipe with diameters from 6 to 60 inches. The system uses an ultraviolet light train that is pulled through the flexible, resin-impregnated liner. The light cures and hardens the liner, forming a new tight-fitting, joint-free pipe. A computer monitors and controls the speed, temperature and pressure in the inflated liner. **800/234-7205; www.ariesindustries.com.**

5 Avanti International AV-100

AV-100 acrylamide from **Avanti International** is an ultra-low-viscosity, chemically reactive gel that has a similar viscosity to water. It can permeate anywhere water can travel and has adjustable cure times from five seconds to more than 10 hours. It is used to rehabilitate and sustain sanitary collections systems by eliminating infiltration in manholes, sewer mainlines, joints, laterals, and before and after various forms of CIPP lining. It can be used to reinstate laterals, creating an effective, long-lasting water barrier while providing soil stabilization. **800/877-2570; www.avantigrout.com.**

6 CIPP Services Catalyst Blending Unit

The UL-approved **Catalyst Blending Unit** from **CIPP Services** can be used in cured-in-place pipe lining wet-out facilities. The unit is designed to use Perkadox 26 catalyst as a replacement for Perkadox 16, meeting new chemical regulation compliance and allowing for a 40 percent reduction in catalyst costs. Controlled by a touch-screen computer, the unit automatically warms a set amount of styrene to allow the Perkadox 26 to safely dissolve into solution without triggering an unwanted chemical reaction. The UL approval meets OSHA standards 1910.303 and 1910.399 for worker safety. **815/712-8708; www.cipp-services.com.**



7 Cretex Specialty Products HydraTite

HydraTite internal joint seals from **Cretex Specialty Products** are a mechanical, trenchless remediation for leaking pipe joints, consisting of a rubber seal that spans the joint and is held in place by stainless steel retaining bands on either side of the joint. The retaining bands are hydraulically expanded and locked in place using a wedge lock design that forms an airtight seal around the joint, eliminating all possibilities of infiltration or exfiltration. The system is a recognized method of joint repair by AWWA manual M28, and has been widely accepted and approved by engineers, municipalities and DOTs. It has a 50-year design life, does not require excavation, and has a low profile that ensures minimal flow loss. **800/345-3764; www.cretexseals.com.**

8 HammerHead Trenchless Equipment RS MaxPatch

RS MaxPatch, a fast, trenchless, selective point repair system for pipes 3 to 48 inches in diameter from **HammerHead Trenchless Equipment**, has a long working time and a short cure time. It allows for an ambient cure, as heat or other accelerators are not required for optimal performance. It is appropriate for use with a wide variety of pipe material, including concrete, reinforced concrete, vitrified clay, PVC and asbestos cement. The composite system consists of a specially designed glass-reinforced fabric and two-part ambient-cure silicate resin mixture. It exceeds the structural requirements of ASTM F1216. **800/331-6653; www.hammerheadtrenchless.com.**

9 ID-TEC SR-SERIES

The modular **SR-SERIES** multifunctional sewer rehabilitation system from **ID-TEC** is available as a portable unit or vehicle-installed system. Both have a base robot with twist-and-lock equipment for inspecting, root control, high-pressure precision jetting, packer/carrier placement, lateral reinstatement, and calcium and concrete removal. The robot can be equipped with two types of grinding, milling and cutting equipment. The HA165 and HA195 models can be used with an 8.2 hp piston motor or 3.4 hp turbine motor driven by high-pressure water. **503/504-8474; www.sr-series.com.**

10 Infrastructure Repair Systems Trenchless 90-Degree Elbow Spot Repair

The **Trenchless 90-Degree Elbow Spot Repair** from **Infrastructure Repair Systems** was developed to seal joints, cracks or missing sections inside the 90-degree curve of any 4- to 6-inch pipe. It has a low-cost setup and is performed without bunching or wrinkling due to the liner's flexible center and strong fiberglass design that expands on the outside and contracts to the pipe's inner portion to ensure smooth, unobstructed curves. **877/327-4216; www.irsi.net.**

11 Inliner STX

UV-cured **STX** combines a reinforced liner and alternative catalyst system, resulting in reduced wall thicknesses and a long shelf life of the impregnated liner. It complies with ASTM F2019 requirements and is a viable solution for pipe diameters up to 60 inches when the supply and use of water is a concern, and when a stronger reinforced material is required. **812/723-0704; www.inlinerstx.com.**

12 IPEX NovaForm PVC Liner

NovaForm PVC Liner from **IPEX** helps municipalities rehabilitate aging sewer and water infrastructure. It brings the benefits of factory-made PVC pipe to the North American trenchless pipe rehabilitation industry, and is available in 6- to 30-inch sizes and industry-standard dimension ratios DR 35 and DR 41. **800/463-9572; www.ipexamerica.com.**

13 LMK Technologies T-Liner

The **T-Liner** is a one-piece homogenous main and lateral CIPP connection liner from **LMK Technologies**. It is ASTM F2561 compliant, has a uniform wall thickness and incorporates compressible lining material at the upstream and downstream ends, creating a smooth tapered transition to the host pipe. Both the mainline and lateral sections are formed as a structural cylinder that renews 18 inches and 360 degrees of the mainline and extends up the lateral pipe as one continuous lining. Its compression gasket-sealing technology provides a verifiable non-leaking system. These compression gaskets are embedded between the host pipe and the T-Liner, and are compatible with all pipe types, including polyethylene. A permanent lateral identification indicia is placed on the mainline lining, and includes the building address and other pertinent information regarding the raw materials and other manufacturing details. **815/433-1275; www.lmk-technologies.com.**

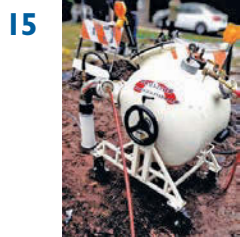
14 Logiball Sectional Liner Carrier

Logiball manufactures a complete line of carriers used in the installation of sectional liners (CIPP or mechanical sleeves). Sizes are available for 3-inch up to 36-inch pipes up to 25 feet long. All carriers can be re-sleeved at the factory. **800/246-5988; www.logiball.com/en.**

15 Perma-Liner Industries Perma-Lateral System

The **Perma-Lateral System** from **Perma-Liner Industries** is designed for 2- to 8-inch-diameter pipe and can be installed through clean-outs or

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20

open-end pipes, as only one access point is required. The liner can be ambient cured in three hours or steam cured in as little as 20 minutes. Pipe diameters of 2 to 4 inches can be rehabilitated up to 120 feet in length, while 5- to 8-inch pipes can be rehabilitated up to 600 feet in length. Listings include Uniform Plumbing Code, ICC-ES PMG, International Residential Code, International Plumbing Code, IAPMO Classified Marking, and the NSF/ANSI Standard 14 Certification and Quality Assurance Program. It is third-party tested and certified environmentally safe with odorless materials. **866/336-2568; www.perma-liner.com.**

16 Petersen Products Multi-Flex CIPP Packer

Multi-Flex CIPP Packers from **Petersen Products** are available for virtually any diameter and length using ambient, hot water, and steam cure. These packers can easily navigate through small openings and around bends, and are available with or without a flow-through bypass. They have a fixed inflated diameter independent of the pipeline and will bridge across broken sections of pipe for a continuous smooth pipe I.D. The small deflated diameter, lightweight, and flexibility allow for easy installation and removal through a small opening or manhole. **800/769-4973; www.petersenproducts.com.**

17 Quadex GeoKrete

GeoKrete geopolymer from **Quadex** is a corrosion-resistant structural repair mortar for the trenchless restoration industry. It can be used for rehabilitating deteriorated stormwater and sanitary sewer structures, helping restore structural integrity to corroded and deteriorated manholes and pipes and other underground structures via spray applying or centrifugally cast application processes. It is synthesized mostly of recycled industrial byproducts and cures via polymerization instead of hydration, yielding a strong quick-setting repair mortar with chemical resistance. **870/688-7100; www.quadexonline.com.**

18 Raven Lining Systems Raven 405

Raven 405 from **Raven Lining Systems** is a solvent-free, 100 percent solids, ultra-high-build epoxy coating formulated with high physical strengths and broad range chemical resistance. It exhibits superior bond to concrete, steel, masonry, fiberglass and other surfaces. Designed for operating temperatures up to 200 degrees, its ultra-high-build ability allows it to be spray applied on vertical and overhead surfaces. Its surface tolerance and high physical strength allow it to be designed as a structural lining in manholes, pipelines, tanks and other deteriorated structures. **800/324-2810; www.ravenlining.com.**

19 Reline America Quality-Tracker System

The **Quality-Tracker System** from **Reline America** lets technicians electronically monitor, control and record all critical aspects of the Alpha-liner installation process. The system allows for seamless and continuous control and documentation throughout the installation process, including pulling forces, curing parameters, UV lamp intensity, CCTV inspection of the entire installed liner before curing begins, start and end of the curing process, liner's inner air pressure in psi, curing speed in feet per minute, and resin reaction temperatures. The entire curing process is controlled electronically and optically using TV cameras and infrared sensors, and all of the measured data is logged and documented in a tamper-proof computer. **866/998-0808; www.relineamerica.com.**

20 Sauereisen SewerGard No. 210X

SewerGard No. 210X from **Sauereisen** exhibits compressive strength exceeding 15,000 psi and elongation of 12.9 percent. Wherever extreme corrosive conditions exist, it can be used as a stand-alone, high-strength lining that enables high-build capabilities, while providing a chemical-resistant barrier for concrete, masonry, brick and steel substrates. As a 100 percent solids epoxy polymer, it is specified to protect infrastructure throughout the wastewater industry, including manholes, lift stations, tankage, structural steel, and secondary containment. Installation is easily completed using airless spray equipment, plural component spray equipment or hand-applied with a roller. **412/963-0303; www.sauereisen.com.**

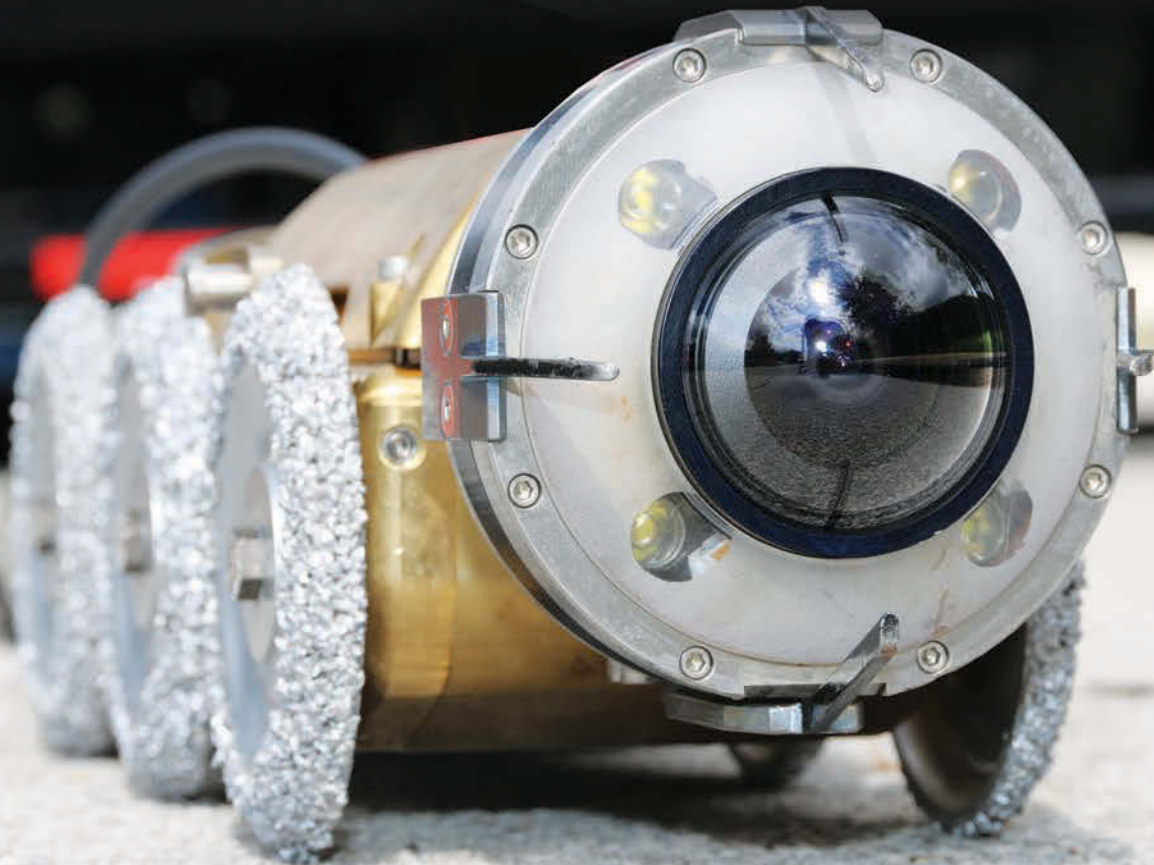
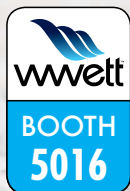
21 Sprayroq SprayWall

SprayWall from **Sprayroq** is a structural spray-applied polyurethane for sewer, stormwater and potable water infrastructure rehabilitation and protection. The 100 percent VOC-free self-priming corrosion- and abrasion-resistant spray-applied polyurethane coating reinstates structural integrity and provides infiltration control and chemical resistance for concrete, steel, masonry, fiberglass and other surfaces. It is designed for applications on surfaces exposed to acids, corrosives and other caustic elements. Environmental and climatic factors such as freeze/thaw cycling, high humidity or shrinking and swelling soil conditions have minimal effect. It can be applied at any desired thickness in a single mobilization. Its quick curing time allows newly protected structures to be returned to service quickly. It has been extensively third-party tested and provides exceptional ROI with a 50-year design life. **205/957-0020; www.sprayroq.com.**

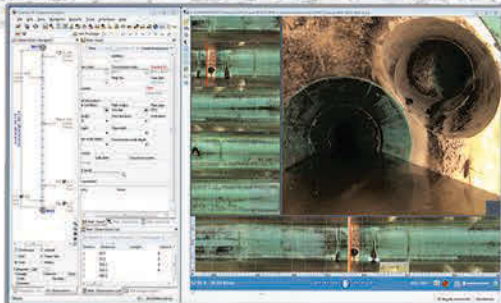
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22 The Strong Company Strong-Seal Storm Seal

Strong-Seal Storm Seal from **The Strong Company** is a specially formulated, fiber-reinforced, cementitious mixture designed for lining the interior of corrugated metal pipes, culverts, concrete pipes, catch basins and other stormwater structures. It is centrifugally cast using the Strong-Seal System mixer, pump and spinner, which are electronically controlled for consistent product and thickness of application. It may also be sprayed manually. 800/982-8009; www.strongseal.com.

23 Trelleborg Pipe Seals Milford Drainplus 2.0

The **Drainplus 2.0** liner from **Trelleborg Pipe Seals Milford** is designed for rehabilitation of pipes with variations in internal diameter and bends. It has the ability to negotiate multiple 90-degree bends and overcome changes in internal diameter, while maintaining the required minimum 3 mm wall thickness. The silicone provides high temperature resistance, and when used in combination with Trelleborg's range of epoxy resins, can be steam cured without the need for calibration hoses. This allows fast processing time so the installer can achieve maximum productivity. 800/626-2180; www.trelleborg.com/pipe-seals.

EXCAVATION EQUIPMENT

24 Ditch Witch FX65

The **FX65** vacuum excavator from **Ditch Witch** was designed with the same standard features as the FX60, but enhanced to maximize operator efficiency and productivity. It has advanced airflow at 1,215 cfm and is powered by a 74 hp turbocharged Deutz diesel engine. It comes with 500-, 800- or 1,200-gallon vacuum tanks and 200-, 300- or 500-gallon water tanks. It has an advanced, three-stage filtration system with a cyclonic filter that cleans the air prior to reaching the filter. 800/654-6481; www.ditchwitch.com.

25 Hyundai Construction Equipment Americas HX220L

The 25-ton **HX220L** hydraulic excavator from **Hyundai Construction Equipment Americas** has a Tier 4 Final-compliant, 173 hp Cummins QSB6.7 diesel engine, and provides maximum dig depth of 22 feet 1 inch, bucket digging force of 32,550 pounds, and maximum reach at ground level of 32 feet 3 inches. It includes a Boom Float mode for improved grading control, Fine Swing mode for improved load control when swinging, up to 13 percent faster cycle speeds than the previous models, Intelligent Power Control for computer-aided power optimization based on load demand, and Eco

Breaker mode for selectable pump flow and improved fuel consumption when working with hydraulic breakers and other attachments. Its All Around Viewing Monitor System provides a 360-degree virtual operating view, which displays on an 8-inch interactive, adjustable, touch-screen cluster monitor with haptic remote control for all major functions. The Intelligent Moving Object Detection System senses and warns the operator when objects come within 16 1/2 feet of the machine. 678/823-7777; www.hceamericas.com.

26 John Deere 300G LC

The **300G LC** excavator from **John Deere** has a large hood for improved engine access. Handrails help maintain contact when climbing the upper structure to service the engine, improving service accessibility and security. A single-side ground-level fluid filter service moves the engine oil, fuel and hydraulic pilot oil filters to ground level on the right side of the machine and adds a service door for easy access to change filters. 800/503-3373; www.johndeere.com.

27 Petrofield Industries Tornado F4 Slope

The **Tornado F4 Slope** hydroexcavator from **Petrofield Industries** features a 13-cubic-yard mud tank and 2,100-gallon freshwater tank, with a boiler for hot water and a positive-displacement blower (4,000 to 6,300 cfm) to pull the spoils to the tank. The boom has a 342-degree rotation and a 26-foot reach. All of the critical components are housed in an insulated and heated aluminum van body. Because of the sloped floor design, operators do not hoist the tank to empty it, eliminating the dangers of overhead power lines and dumping on uneven ground. 877/340-8141; www.tornadotrucks.com.

28 Ring-O-Matic 550

The **Ring-O-Matic 550** dual-pump combination sewer line jetter and vacuum excavator gives contractors and municipalities the advantages of a dedicated combination jetter/vacuum truck in the more versatile footprint of a compact trailer unit. It fits into spaces too confined for truck-mounted combo rigs, yet it can clean sewer lines up to 20 inches in diameter. Powered by an 81 hp CAT turbo diesel, it has a 1,000 cfm blower and can deliver 27 gpm at 2,700 psi up to 400 feet with its 3/4-inch jetter hose. The trailer's axles are rated to 16,000 pounds, allowing the 550-gallon spoils tank and 500-gallon freshwater tank to be easily pulled behind a suitably equipped 3/4- or 1-ton truck. 800/544-2518; www.ring-o-matic.com.

29 Vacall AllExcavate

Vacall AllExcavate hydroexcavation models have three boom and intake hose or tube options, including a boom design using a heavy-duty

(continued)



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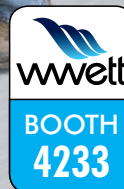
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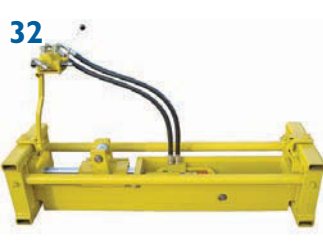
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HORIZONTAL DIRECTIONAL DRILLING

30 LaValley Industries TONGHAND

The **TONGHAND** exit-side wrench attachment from **LaValley Industries** provides horizontal directional drillers with a safe, efficient way to torque up and break pipe joints, reamers and subs. The hydraulic attachment's rotation arms, gull wing design and integral TongVise are controlled by a single operator inside a 30-ton excavator. An in-cab display allows the operator to monitor and adjust all functions, including the specified torque value. It works with pipe tool joints ranging in size from 6.5 to 10 inches. The rotation arms allow the operator to thread and unthread drill pipe connections with precision. At the same time, the gull wing design makes it easy for the operator to move the arms out of the way to make and break reamers. The 120,000 ft-lb torque capability on its vise, and the precision pipe control design, allow workers to remain safely away from drilling components. 218/444-3030; www.lavalleyindustries.com.

31 McLaughlin McL-10

McL-10 pit launch drills from **McLaughlin** are available in two models. The 5-foot model can be used on limited-access job sites and smaller entry pits, such as downtown areas that cannot be accessed with traditional surface-launch directional drills. The 7-foot model is suited for projects with more access, and offers enhanced productivity with less making and breaking of rods. Both have 1,030 ft-lbs of torque and 13,250 pounds of pullback. They use a standard locator transmitter beacon, HDD drill head and HDD tooling. A mud-mixing system and hydraulic power pack accessories are available. 800/435-9340; www.mclaughlinunderground.com.

PIPE BURSTING TOOLS

32 Pow-r Mole Sales PD-7

The **PD-7** static pipe bursting machine from **Pow-r Mole Sales** is designed to replace existing underground water, sewer or gas lines. It will operate from a pit only 72 inches long. Despite its small size, it has a pulling force of 112,000 pounds at 3,000 psi, and a maximum pull rate of 7 feet per minute. This system uses a 2-inch-diameter rod with a tapered quick-connect thread in a length of 2 1/2 feet. It can be powered by a hydraulic power unit or from an auxiliary circuit on a backhoe. It can burst and install up to 12-inch I.D. pipe in most compressible soils. 800/344-6653; www.powrmole.com.

33 Spartan Tool UnderTaker

The **UnderTaker** pipe bursting system from **Spartan Tool** can help replace existing sewer laterals with new, seamless, high-flow HDPE pipe from 2 to 6 inches in diameter. The system sets up quickly, without any tools, and handles up to three 45-degree bends in the existing pipe. No component weighs over 70 pounds, so it's easy to quickly position for any job, with minimal disruption to the customer's yard or business, allowing the customer full use of their facilities quickly. 800/435-3866; www.spartantool.com.

34 TT Technologies Mini 400G Grundoburst

The **Mini 400G Grundoburst** static pipe bursting system from **TT Technologies** is designed for tight working conditions and incorporates a specially designed bracing system for manhole applications. The system is capable of bursting and replacing ductile iron and steel pipes. Pulled by a hydraulic bursting unit, the cutter head's cutting wheels split the host pipe. An attached expander spreads and displaces the split pipe into the surrounding soil while simultaneously pulling in the new pipe. Quicklock bursting rods are linked together, not threaded, which saves time, prevents twisting and extends the life of the cutter head. 800/533-2078; www.tttechnologies.com.

35 US Saws VEX400

The **VEX400** from **US Saws** is a battery-operated, portable and powerful valve-exercising machine that has variable torque settings ranging up to 400 ft-lbs. It has the power of a truck-mounted system with the ease of a hand-held power tool. It has extensions allowing it to reach depths from 8 to 108 inches. Accessories include a hydrant key and outside stem and yoke adapters for hydrants and post indicator valves. It is compact enough to fit inside most vehicles and requires only one person to operate. 866/987-7297; www.ussaws.com.

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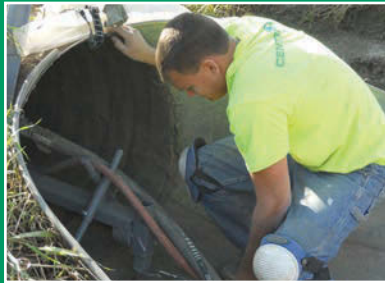


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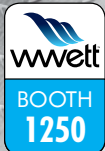
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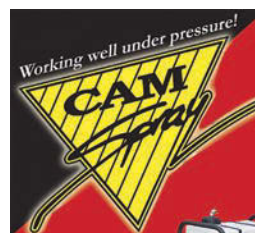


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PIPE CUTTERS

36 Exact Pipe Tools PipeCut 360E

The **PipeCut 360E** from **Exact Pipe Tools** can be used for cutting a range of large-diameter cast iron, multi-layer, steel, stainless steel, copper, and plastic pipes. It has two-stage motor speed control, constant torque, soft start and automatic overload protection. This large-diameter pipe saw can cut 3- to 14-inch-diameter pipes with wall thicknesses ranging from 0.4 to 1.7 inches. It's a lightweight 31 pounds, making it easily transportable, and can be used in a variety of applications including water and wastewater systems, power generation, refinery and chemical plants, hospitals and facilities, home building and renovation, ship building, pulp and paper, heating and cooling systems, gas installations, and maintenance and repair. **844/392-2800; www.exacttools.com.**

37 TRY TEK Trydent 80

The **Trydent 80** small-pipe cutting system from **TRY TEK Machine Works** allows reinstatement of interior or exterior relined pipes from 3 to 6 inches in diameter. Operators can access pipe systems through clean-out ports or rooftop vent pipes. Buildings where tenants or operations cannot be disturbed are ideal prospects. It can be used to reinstate an entire vertical waste pipe from a single access point. Its small, powerful cutting head can maneuver around 90- and 45-degree elbows and navigate multiple bends and turns. Its reach extends up to 100 feet and its narrow 23-inch width enables easy access through doorways. It can be used to reinstate lateral waste pipes connected to the sewer main at ground or basement level. **717/428-1477; www.trytek.com.**

PIPE FUSION

38 McElroy Manufacturing TracStar 1200

The **TracStar 1200** self-propelled, track-mounted fusion machine from **McElroy Manufacturing** has an advanced emission control engine that burns ultra-low-sulfur diesel to meet the EPA's latest Tier 4 standards. The cowl has been redesigned so that technicians have better and quicker access to the engine for maintenance. It butt fuses pipe from 16 to 48 inches O.D. and can traverse most any terrain, including mud, loose soil, snow and grades up to 30 percent. It is self-contained with an onboard generator for powering the hydraulic pivoting heater and facer. The three- or four-jaw convertible carriage is easily removable for in-ditch use. It comes with hydraulic outriggers for machine stability and leveling, an ergonomic operator platform and remote engine stop/start capabilities. **918/836-8611; www.mcelroy.com.**

SHORING

39 American Shoring Slide Rail Shoring System

The **Slide Rail Shoring System** from **American Shoring** can be used in a number of configurations, including for bore pits under roadways, streams or other obstacles. The sheeting system can be used at depths up to 30 feet and is installed with an excavator with no need for special equipment. The system can also be equipped with a doghouse panel to accommodate the casing pipe. **800/407-4674; www.americanshoring.com.**

40 Efficiency Production Build-A-Box Sheeting Guide Frame

The **Build-A-Box Sheeting Guide Frame** from **Efficiency Production** uses lightweight corrugated sheets of aluminum to shore closely around existing cross-trench utilities. The sheets can be installed by hand, and the guide frame panel integrates seamlessly into any Build-A-Box configured system. The result is a safe, maintained trench or pit that allows workers to access existing utilities. **800/552-8800; www.efficiencyproduction.com.**

41 Prospan Manufacturing PRO-Lite Series 3650

The **PRO-Lite Series 3650** lightweight aluminum trench shield from **Prospan Manufacturing Company** is 100 percent OSHA compliant and stands 3 feet tall and 5 feet long, weighing 125 pounds. They are stackable to a depth of 12 feet in C-60 soil. Stacking tubes, adjustable leg kits, lifting slings and a selection of spreader bars are available. They can be easily transported in the back of a pickup, eliminating the need for a shoring trailer. **888/413-8100; www.prospanshoring.com.** ♦

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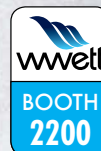
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Large culvert rehabilitation project saves money and maintains traffic flow



Problem:

An annual inspection in Grottoes, Virginia, uncovered serious problems with the town's stormwater system. A large set of elliptical CMP culverts did not pass inspection. There was severe corrosion, and individual sections were failing and misaligned. The town's consultants recommended

replacement. Complicating the issue, the failing pipes were four parallel culverts that were all quite large — 70 by 44 inches — running directly underneath Dogwood Avenue, one of Grottoes' two main thoroughfares.

Solution:

The town initially obtained cost estimates for replacing the culverts. The price was high and the plan called for significant and lengthy traffic disruptions. Fortunately, Grottoes Town Manager Jeff Nicely had seen a process called **CentriPipe** at a Rural Water Association conference and thought it could be useful in this situation. The process is based on spincasting technology developed by **AP/M Permaform**. The spincaster is pulled back through failing pipes while spraying strong, highly adhesive, fiber-reinforced cementitious grout onto the pipe in thin layers. As the layers build up, they form a new, structurally sound concrete pipe within the old pipe. Sewer flow capacity is minimally affected and no annular space is left between the old and new pipes.

RESULT:

CentriPipe provided a trenchless solution that was 15 percent less expensive than open-cut replacement and provided significant benefits by eliminating the hassles of traffic disruption. The new culverts are smooth, seamless, watertight and structurally strong, with a long projected service life. **800/662-6465; www.centripipe.com.**

Contractor uses CIPP to repair leaky Pentagon roof drain



Problem:

U.S. government building maintenance personnel from the Pentagon in Washington, D.C., were dealing with a cast iron roof drainpipe that was leaking into the ceiling below whenever it rained or snow melted. The roof drain was a 3-inch vertical line and included three 90-degree fittings in the first 7 feet. Replacement was not an option due to the cost and disruption to occupied office spaces in the Pentagon.

Solution:

Using **Flow-Liner Systems** technology, a certified installer prepared and installed the **Flow-Liner Cured-In-Place Pipe Lining**

System using a specialized procedure. The drainline was successfully lined in one day without excavation or disruption to the occupied office spaces.

RESULT:

The Pentagon's services coordinator, B3 Enterprises, was pleased with the results, commenting that the pipe lining crew was very professional and courteous. The lining saved Pentagon personnel from having to dig up and replace the piping, which would have been costly and inconvenient. **800/348-0020; www.flow-liner.com.**

Lateral lining system used to repair collapsed drain



Problem:

A warehouse facility housing three businesses in San Diego, had a problem. The 4-inch common sewer drain buried under the floor of the warehouse was collapsing, and one section had already collapsed. Multiple contractors recommended cleaning 960 feet of pipe and replacing the

remaining 140 feet of collapsed pipe.

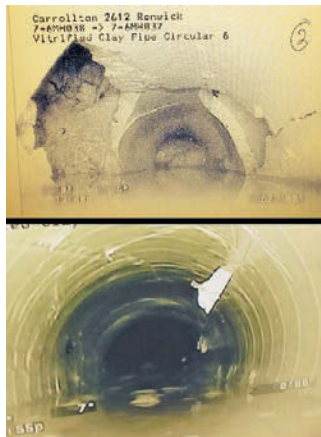
Solution:

The owner didn't like that solution and asked Brink Services to look at the situation and see if it could solve the problem without disrupting day-to-day operations of the warehouse. The bottom was missing on the entire length of the 1,100-foot cast iron pipe, but it was still round except for the collapsed section. There was a lack of access points, with the shortest line segment being 70 feet, then 289, 141, 140, 220 and 240 feet. Brink Services determined it could employ the **Quik Shot** lateral lining inversion system from **Quik-Lining Systems** to make the long lengths between pits, with a 240-foot blind installation at the end. Epoxy resin was chosen to eliminate toxic fumes, and a 60-minute resin hardener was chosen to expedite the project.

RESULT:

The project was completed with no issues, on budget and faster than anticipated. The warehouse was able to continue operations uninterrupted. **605/695-6778; www.quiklining.com.**

Pipeline rehabilitated in residential driveway results in cost and time savings



Problem:

A 6-inch vitrified clay pipeline in Carrollton, Texas, had significant damage, causing heavy inflow and infiltration. The pipeline was buried 10 feet deep in an alleyway and through a resident's driveway. Open-cut replacement would cost between \$10,000 and \$12,000, require at least three days of labor, and the alley would need to be closed during the repair. In addition to the expense to the city, it would be an inconvenience to the homeowner and neighborhood.

Solution:

Hoping to avoid an expensive and time-

(continued)

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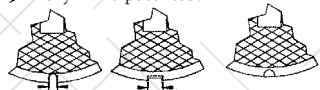
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CASE STUDIES PIPELINE REHABILITATION AND RELINING

consuming excavation, the city turned to **Source One Environmental** to provide a trenchless pipe rehabilitation solution. Rehabilitating the pipeline with a CIPP method would restore the pipeline's structural integrity and improve the overall performance, at a fraction of the cost and time. The company installed the **PipePatch** point repair system 10 feet deep to cure the 6-inch broken pipeline.

RESULT:

PipePatch eliminated the need for digging by creating a pipe within a pipe with minimal change to the original diameter, improving the overall flow capacity. The repair was significantly less expensive than the original estimate and took less than three hours to complete. Not only was the residential area virtually undisturbed, the rehabilitation added decades of additional service life to the pipeline, ensuring that the residents would not encounter this again. **877/450-3701; www.sleonline.com.**

Small pneumatic head assists in tricky pipe bursting project



Problem:

General contractor Bay Pacific Pipelines, working on the Central Contra Costa Sanitary District's sanitary sewer overflow rehabilitation program, discovered that steeply sloping pipeline runs prevent typical pneumatic pipe bursting methods. One East Bay portion ran 200 feet from a manhole

on a hillside to the roadway below. The job called for upsizing 6-inch vitrified clay pipe to 8-inch SDR17 HDPE. Without ready access at either end, the hammer unit was too long to negotiate entry. With the winch unable to be situated on the hill, the upgrade pull option was also eliminated.

Solution:

Bay Pacific leased an M50 pipe bursting system (usually for easements and laterals) from **TRIC Tools**, which it situated behind the manhole base. Removing the manhole cylinder stack, it stabilized the M50 pulling unit by driving an I-beam into the ground and placing heavy timbers against the manhole base. A **TRIC Unified Force** bursting head was brought in. The UF head employs a small (4-inch-diameter), light, faster-acting hammer, along with far greater cable tension than that of constant-tension winches used with larger pneumatic moles. The smaller hammer releases the stored energy of a much larger cable under load, while the UF head is considerably lighter and more maneuverable than larger counterparts. The 350 cfm air compressor on site had to be throttled down, since the UF hammer requires only 75 cfm at 100 psi to operate efficiently. At the manhole, the M50 maintained optimal cable tension, powered by a TRIC Hi-Flow 14/7 gpm, 5,000 psi hydraulic pump. The UF head and new pipe slid beneath stabilizing road plates up the embankment.

RESULT:

The crew pulled at an average 25 tons of tension — just half the capacity of the M50 — letting the rapid-fire hammer catch up to the load. The pull stayed in the 20- to 30-ton range while remaining on track within the 6-inch-diameter pipe path. At an average rate of 5 feet per minute, total bursting time was well under an hour. **510/865-8742; www.trictools.com.** ♦

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Product Spotlight

Source One flexible couplings designed for pipe bursting, ramming applications

By Luke LeNoble

The SilverBack XL heavy-duty, extended flexible coupling from Source One Environmental is designed for the connection of common sewer pipe materials used in pipe bursting and ramming applications.

The coupling's longer gasket, high-torque clamps, wide stainless steel shields and increased socket depth work together to provide greater support at the pipe joints.

"The SilverBack XL creates permanent, strong pipe connections," says Tony Dipzinski, product development manager. "The coupling allows contractors to connect pipes without having to worry about soil conditions or tensile stress altering the structural integrity of the pipe."

The coupling is available in 4- to 12-inch sizes for clay-to-plastic and plastic-to-plastic connections. Source One Environmental also offers custom sizes for all common sewer pipe materials and diameters.



Made of flexible PVC, the coupling is able to fix pipe alignment problems and withstand heavy earth loads and shear forces. It also helps protect the pipe from thermal expansion, contraction and unstable ground conditions.

The product includes a gasket manufactured to exceed the material and performance requirements of ASTM C 1173 and CSA B602. It features a heavy-duty shear ring and six 316 stainless steel, high-torque clamps for corrosion resistance, increased sealing and greater protection against groundwater infiltration and sewer exfiltration.

Couplings are also environmentally friendly. Ninety percent of the PVC used in the couplings is recycled from scrap, and 85 percent of the steel used in the clamps is made from recycled steel. All components in the couplings are 100 percent recyclable. **877/412-4740; www.s1eonline.com.**



1 Water Cannon pressure washer/jetter

The 17HJ39 pressure washer/jetter package from Water Cannon has a Honda GX 630 electric-start engine with battery and 15-gallon long-run fuel tank. Roll-cage protected, it features V-belt drive, General HP Series triplex plunger pump (5.5 gpm, 3,500 psi), jetter/pulse valve on demand, 350-foot, 3/8-inch-capacity hose reel, ball valve, hose, wand and four nozzles. **800/333-9274; www.watercannon.com.**

2 Gorman-Rupp horizontal end suction centrifugal pumps

The 6500 Series of horizontal end suction centrifugal pumps from Gorman-Rupp Company are designed to handle water and up to 4-inch solids. Sizes range from 3 to 16 inches, flows to 15,000 gpm and total dynamic head to 530 feet. Features include oversized bearings, atmospheric vent, side access inspection port (solids-handling models) and indexable Smart Scroll discharge locator. **419/755-1011; www.grpumps.com.**

3 Advanced Pressure Systems fluid end pump parts

Fluid end precision-machined pump parts from Advanced Pressure Systems are designed for industrial cleaning contractors, resellers, and petrochemical companies and refineries that have on-site waterjetting capabilities. Type 4200 and 3600 fluid ends are engineered for 150 to 325 hp and flows from 62.9 gpm at 5,000 psi to 25.2 gpm at 20,000 psi. **877/290-4277; www.waterblast.pro.**

4 MetroTel noise-suppression receiver

The Cable Hound receiver with digital signal processing (DSP) noise suppression from MetroTel Corp. filters most unwanted noise while locating irrigation control wires and valves, buried cable, gas and water pipes, tracer wires and tapes. The kit contains a transmitter, digital receiver, headphones, tone probe, ground rod and carrying case. **402/426-3789; www.metrotelcorp.com.**



5 Crescent quick-convert nut driver set

The quick-convert nut driver set from Crescent Tools, part of the Apex Tool Group, provides the speed of a straight-handle driver with the torque of a T-handle driver in one tool. The set includes seven color-coded drivers for easy identification. The universal socket design fits six fastener types (hex, square, 12-point and E-Torx, partially rounded hex and spline) in both SAE and metric sizes. **919/362-1670; www.crescenttool.com.**

6 McLaughlin truck-mounted vacuum excavator

The MEGA VX200 truck-mounted vacuum excavator from McLaughlin features a spoils tank capacity from 1,200 to 3,000 gallons and the option of 800 gallons of water. The excavator has a 6-inch hose diameter with a 3,200 cfm blower at 18 inches Hg. The tank, power pack and water system have a modular design, enabling the contractor to mount the unit on a new or repurposed chassis. Powered by a 200 hp John Deere Tier 3 engine, the unit has a three-stage cyclonic filtration system that allows for wet and dry vacuum excavation. A cam-over hydraulic door provides a 360-degree positive seal. **800/435-9661; www.mclaughlinunderground.com.**

7 Doosan small-body light towers

LSV6 and LSV8 small-body portable light towers from Doosan Portable Power feature a compact design and mast for greater maneuverability and ease of transport. Both towers have a vertical mast that manually extends to 25 feet 6 inches and have four 1,000-watt metal halide lamps (hydraulic tower available). The towers are 99.1 inches long and 49 inches wide with a travel position height of 99 inches. The LSV6 is powered by a Tier 4 Final Kubota D1005BG diesel engine with Mecc Alte 6 kW alternator. The LSV8 has a Tier 4 Final Kubota D1105 engine and Mecc Alte 8 kW alternator. **800/633-5206; www.doosanportablepower.com.**

8 Ford Meter Box sewer saddle

The sewer saddle from the Ford Meter Box Company is designed to provide a secure connection for tapping sewer mains. Available in three sizes with 4- to 6-inch branch outlets, the saddles feature an adjustable stainless steel strap, Burna-N (NBR) gasket and fully passivated 304 stainless steel band. **800/826-3487; www.fordmeterbox.com.**

9 New Holland compact wheel loaders

C Series compact wheel loaders from New Holland Construction

feature Z-bar linkage on models W50C, W80C and W80C HS for increased breakout force, digging and lifting power. The parallel lift path of the W50C TC eliminates the need for manual correction. Designed to scrape, grade, push, rake and haul, all four models are powered by Tier 4 engines. Options include high-flow hydraulics (W80C only) that deliver 34 gpm at 2,900 psi, auto ride control, creep speed for applications that require slow and steady control, high-speed (W80C only), and return-to-dig that returns the bucket to the dig position after dumping with the push of a button. **630/260-4000; www.newhollandconstruction.com.**

10 Snap-on gas meter wrench

The gas meter wrench from Snap-on Industrial Brands, designed in partnership with the University of Wisconsin-Milwaukee Consortium for Advanced Research in Gas Industries, is made to reduce the risk of injury to utility workers while improving productivity when servicing or replacing gas meters. The 3 1/2-pound wrench has five interchangeable heads for versatility, 19-inch handle and Flank Drive wrenching system to grab fasteners on the flats for increased torque. **800/446-7404; www.snaponindustrialbrands.com.**

11 Electric Eel pipeline inspection camera

The ACE 2 pipeline inspection camera system from Electric Eel Mfg. Co. features one-touch USB recording, on-screen footage counter, wheel kit for easy transport and heavy-duty screen cover. The inspection system has a stainless-steel-housed 1.68-inch-diameter color camera with sapphire lens, 20 LED light ring and high-resolution CCD element (optional self-leveling color camera), 200 feet of Kevlar braided 1/2-inch-diameter pushrod, 512 Hz sonde and 5.4-inch LCD monitor with AR film for optimal viewing in sunlight. **800/833-1212; www.electriceel.com.**

12 Larson Electronics explosion-proof adjustable LED light

The EPL-24BS-5FT-1X150LED-100 portable, explosion-proof LED light from Larson Electronics features a 150-watt light head that produces 13,000 lumens mounted atop a non-sparking aluminum base stand. The lamp can be adjusted up or down 90 degrees and locked into position by loosening two hand screws on the side of the light head. **800/369-6671; www.magnalight.com.**

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15



13 KOHLER diesel-powered mobile generator

The 55REOZT4 diesel-powered mobile generator from KOHLER Power Systems is EPA emission-certified for non-road use. Mounted on a DOT-certified trailer, it is compatible with KOHLER's Mobile Paralleling Box. Features include a KDI 3404 Tier 4 Final engine that does not require a diesel particulate filter, fuel tanks sized for 24-hour runtime, external emergency stop, stainless steel door latches and hinges, cold-weather package that includes block and battery heater, single-point lifting eye, sound-attenuating housing (69 dBA at 23 feet), voltage, current, frequency and power monitoring, analog inputs, and warning and fault monitoring. **800/544-2444; www.kohlerpower.com.**

14 Mr. Manhole Gold Series Six Shooter manhole cutter

The Gold Series Six Shooter from Mr. Manhole is an upgrade to the company's premier manhole cutter, which features enhanced power, speed and durability. Attached to a skid-steer, the manhole cutter features improved cutting surfaces, a heavier frame, Quick Adjust variable cutting diameter that ranges from 28 inches to 72 inches, and custom heavy-duty auger drive. A minimum flow of 30 gpm and 2,500-pound minimum lifting capacity is required. **419/741-9075; www.mrmanhole.com.**

15 Exact Pipe Tools six-speed saw

The PipeCut 170E pipe cutting saw with six-speed control and constant torque from Exact Pipe Tools cuts 0.6- through 6.7-inch-diameter pipe from 0.31 (steel) to 0.55 inches thick (plastic). The interchangeable Diamond X Cermet (for cutting stainless steel) and TCT blades are fully concealed and create no sparks or dust for ultimate safety. A battery-powered version of the 5.7-pound saw is available. **844/392-2800; www.exacttools.com.** ♦

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News?**

Newsworthy items may include business expansion, honors and awards, new contract announcements, employee promotions, executive hires and new services.

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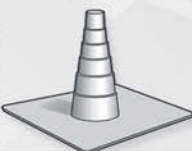


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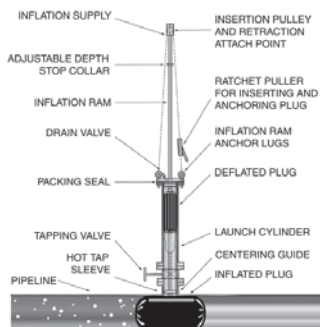
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HOBAS Pipe updates product brochure

HOBAS Pipe USA issued an updated 72-page product brochure covering its centrifugally cast, fiberglass-reinforced, polymer mortar pipe. It includes guide specifications, joint details, the manufacturing process and more. Updated charts and design guidelines are also now included for HOBAS 126-inch pipe.

JWC Environmental to acquire IPEC Consultants

JWC Environmental has entered into an agreement to acquire IPEC Consultants Ltd., a manufacturer of solids/liquid separation products for wastewater and specialty industrial process liquids. As part of the acquisition, Bert Irwin, founder and owner of IPEC, will join the JWC executive team to support the ongoing business.

Red Valve names sales, customer support manager

Red Valve Company named Lynn Richards inside sales and customer support manager. She was employed for 27 years as business development manager at Development Dimensions International.

Endress+Hauser announces training courses

Endress+Hauser has announced its winter and spring 2016 schedule of instrumentation training courses. For information on all E+H training schools, visit www.us.endress.com/training-schedule.

Dwyer Group welcomes new CFO and general counsel

Dwyer Group Inc., one of the world's largest franchising companies of trade service brands, has announced that Jon Shell has joined the company as CFO and Grayson Brown has joined the company as general counsel, effective immediately.



Jon Shell



Grayson Brown

Endress+Hauser announces new representation in Wisconsin, northern Michigan

Foberg Scientific Inc. is now Endress+Hauser's exclusive representative for all markets and industries across the Wisconsin and Northern Michigan market. Industries include food and beverage, chemical, water/wastewater, life sciences, power and energy, oil and gas, and primaries and metals to its customers.

InfoSense hires Western regional sales manager

InfoSense, manufacturer of the Sewer Line Rapid Assessment Tool (SL-RAT), has announced that Heath Kelsey has joined the company as Western regional sales manager. Kelsey has over 20 years of experience in the water and wastewater industry, including work with corrosion-control products as a general engineering contractor, and has served in various distributor and OEM sales management roles.



Heath Kelsey

Smith Flow Control USA appoints international business development manager

Valve safety specialist Smith Flow Control USA has promoted Sander van den Bos to international business development manager. In his new role, van den Bos will develop new market, product and application opportunities and will also direct the SFC international sales team and distributor networks. Van den Bos, who joined SFC in 2010, has over 18 years of international sales experience and will continue to manage the company's sales and technical support teams.



Sander van den Bos

ePIPE earns French certification

ePIPE potable water epoxy, which is manufactured by Pipe Restoration Technologies, has received the Certificate of Sanitary Conformity in France. The Attestation de Conformite Sanitaire (ACS) certificate applies to materials in contact with water intended for human consumption. The epoxy has been approved for application to all sizes of water pipes.

Brown and Caldwell honored by National Safety Council

Brown and Caldwell has been recognized as an industry leader by the National Safety Council for achieving the best safety performance within its industry for the fourth consecutive year. In August 2015, Brown and Caldwell hit the milestone of working 12 million hours without an occupational injury or illness that resulted in days away from work.

Hanson Building Products purchases Cretex Concrete Products

Hanson Building Products, a manufacturer of a diversified range of concrete and clay building products, announced that its North American concrete pipe and precast business has finalized the purchase of Cretex Concrete Products, which is headquartered in Maple Grove, Minnesota. CCP has a network of 17 manufacturing facilities and 850 employees across 11 states.

JMS announces relocation, expansion

Citing continued growth, Jim Myers & Sons (JMS) has announced a relocation of its Charlotte, North Carolina, headquarters to a new, larger facility. The move has increased available plant and office space.



Jim Myers & Sons

Ovivo partners with Microdyn-Nadir

Ovivo USA signed a multi-year agreement with Microdyn-Nadir to service the membrane bioreactor market. The agreement secures access to BIO-CEL membrane technology and includes a collaborative venture to build private-label membrane equipment. The partnership is expected to drive innovation, increase quality, reduce costs and improve delivery times.

(continued)

classifieds

see photos in color at www.mswmag.com

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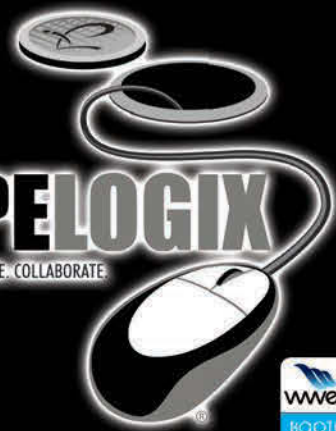
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Aerzen USA names new president

Tony Morris has been named president of Aerzen USA. Morris takes over for longtime president Pierre Noack. Morris assumed his post at Aerzen in September 2015. His background includes international business development in the United States, Asia and Europe. He has a degree in engineering and a Master of Business Administration.



Pierre Noack and Tony Morris

Envirosight opens new marketing office

Envirosight opened a new office in Portland, Oregon, on Sept. 15. The 1,200-square-foot office space is located on Northeast Killingsworth Street. It will primarily house the company's marketing and public relations department.

Yaskawa celebrates 100-year anniversary

Yaskawa Electric Corporation, a worldwide leader in industrial robotics, electrical drives and frequency converters, celebrated its 100th anniversary this past year. The company arranged special events worldwide to mark the milestone.

FVOP hires 7 new employees

Fleis & VandenBrink Operations and Resource Management (FVOP) has hired seven new employees for its expanding operations. Three senior project managers with F-1 water licenses — George Regan, Jay Ouzts and Stewart Beach — joined the firm, as did operations specialists Donald Bicknell, Michael Prout, Eric Barnowski and Rob Pearson.

HammerHead Trenchless names president

Charles Machine Works appointed Kevin Smith president of HammerHead Trenchless Equipment. He had been serving as president of MTI Equipment, a Charles Machine Works company. Smith previously served as director of product definition and research, product planning manager, business manager and salesman for Ditch Witch, another Charles Machine Works company.



Kevin Smith

WWEMA member survey reflects market growth

The Water and Wastewater Equipment Manufacturers Association has released the results of its 2015 Member Market Indicators Survey. Results show an upward trend in the market with 70 percent of respondents indicating they saw domestic sales improve from September 2014 to August 2015. The full report is available to WWEMA members at www.wwema.org.

Environmental Dynamics International celebrates 40 years

Environmental Dynamics International recently celebrated 40 years of service to the water and wastewater industry. Founded in 1975 by Charles "Chuck" Tharp, EDI has grown from a company with a few employees and annual sales of \$27,000, to a multinational company with more than 105 employees and sales of over \$27 million.

Grundfos appoints new leadership

Grundfos has named Thomas Morrison vice president of service and Rob Montenegro vice president of municipal sales. Morrison joined Grundfos in 2007 and will report to Duncan Cooper, regional managing director. He will oversee the company's service group across all business units and sectors, as well as factory service centers. Montenegro, who has more than 20 years of experience leading commercial teams in the U.S. municipal market, will lead water utility sales.



Thomas Morrison Rob Montenegro

American Water employees log thousands of hours of service

More than 2,000 American Water employees participated in 113 different volunteer projects throughout 16 states and Canada as part of AmeriCANs in Action!, a companywide volunteer event held in September. It marked the fifth year of the event and set a record for participation and results — more than 5,500 volunteer hours were logged. Projects included a beach cleanup, a diaper drive, a wildlife refuge cleanup and volunteering at the Special Olympics.

Ovivo awarded large infrastructure contracts

Ovivo has been awarded two major contracts in the U.S. municipal market worth a combined \$13 million. The first contract is for the supply of seven 160-foot-diameter clarifiers in duplex stainless steel to Miami-Dade County, Florida. The second contract is for a new wastewater treatment plant in DeKalb County, Georgia, for which Ovivo will supply equipment and control systems.

Envirosight offers free CCTV crawler wheel configuration poster

To help crawler operators select the best wheels for a given pipe, Envirosight has created a complimentary inspection crawler wheels setup poster. The poster illustrates wheel configurations most appropriate to various combinations of pipe diameters, materials and conditions. Residents in the United States and Canada can request a free 18- by 24-inch poster by mail, or download a PDF file at www.envirosight.com/wheelguide. ♦

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PEOPLE/AWARDS

The American Public Works Association announced that the following people were selected to take part in the Emerging Leaders Academy Program for 2015-16:

- Britt Elmore, Civil Engineer, City of Chattanooga, Tennessee
- Samantha Hayden, Civil Engineer II, City of Ankeny, Iowa
- Jose M. Leon Jr., Director of Public Works, City of Roeland Park, Kansas
- Michael Wodalski, Deputy Director of Public Works, Village of Weston, Wisconsin

LEARNING OPPORTUNITIES

American Public Works Association

The APWA is offering a Measuring the Total Value of Your Public Works Investment seminar via audio/Web broadcast on Jan. 21. Visit www.apwa.net.

American Society of Agricultural and Biological Engineers

The ASABE is offering a Young Professionals Development workshop April 8-9 in Lexington, Kentucky. Visit www.asabe.org.

American Society of Civil Engineers

The ASCE is offering:

- Jan. 7 – Pumping Systems Design for Civil Engineers, Charleston, South Carolina
- Feb. 3 – Curve Number and Vegetative Techniques to Manage Stormwater Runoff Sustainably, online
- Feb. 19 – The Importance of Adequate Construction Oversight for Stormwater BMPs and Stream Restoration: Examples of the Pitfalls of Limited Oversight Budget, online
- Feb. 25 – Project Management, Lombard, Illinois
- March 2 – Cold-Weather Stormwater BMPs That Work, online
- March 10 – Pumping Systems Design for Civil Engineers, St. Louis, Missouri

Visit www.asce.org.

Wisconsin

The University of Wisconsin Department of Engineering-Professional Development is offering Using WinSLAMM v.10.2: Meeting Urban Stormwater Management Goals R324 on May 5-6 in Madison. Visit www.epdweb.engr.wisc.edu. ♦

CALENDAR

Feb. 14-17

American Society of Civil Engineers Geotechnical and Structural Engineering Congress 2016, Sheraton Phoenix Downtown Hotel, Phoenix, Arizona. Visit www.asce.org.

March 10-12

National Utility Contractors Association Convention, El Conquistador Resort, Fajardo, Puerto Rico. Visit www.nuca.com.

April 25-27

American Water Resources Association Spring Conference, Sheraton Anchorage, Anchorage, Alaska. Visit www.awra.org.

May 22-25

American Public Works Association North American Snow Conference, Connecticut Convention Center, Hartford, Connecticut. Visit www.apwa.net.

May 23-26

National Utility Contractors Association Annual Washington Summit, Embassy Suites Washington, D.C., Convention Center, Washington, D.C. Visit www.nuca.com.

June 20-22

American Water Works Association Annual Conference and Exposition, McCormick Place, Chicago, Illinois. Visit www.awwa.org.

July 11-13

American Water Resources Association Summer Specialty Conference: GIS and Water Resources, Hilton Sacramento Arden West, Sacramento, California. Visit www.awra.org.

July 17-20

American Society of Agricultural and Biological Engineers 2016 Annual International Meeting, Orlando, Florida. Visit www.asabe.org.

Aug. 22-25

StormCon, Indiana Convention Center, Indianapolis, Indiana. Visit www.stormcon.com.

Aug. 28-31

American Public Works Association International Public Works Congress and Exposition, Minneapolis Convention Center, Minneapolis, Minnesota. Visit www.apwa.net.

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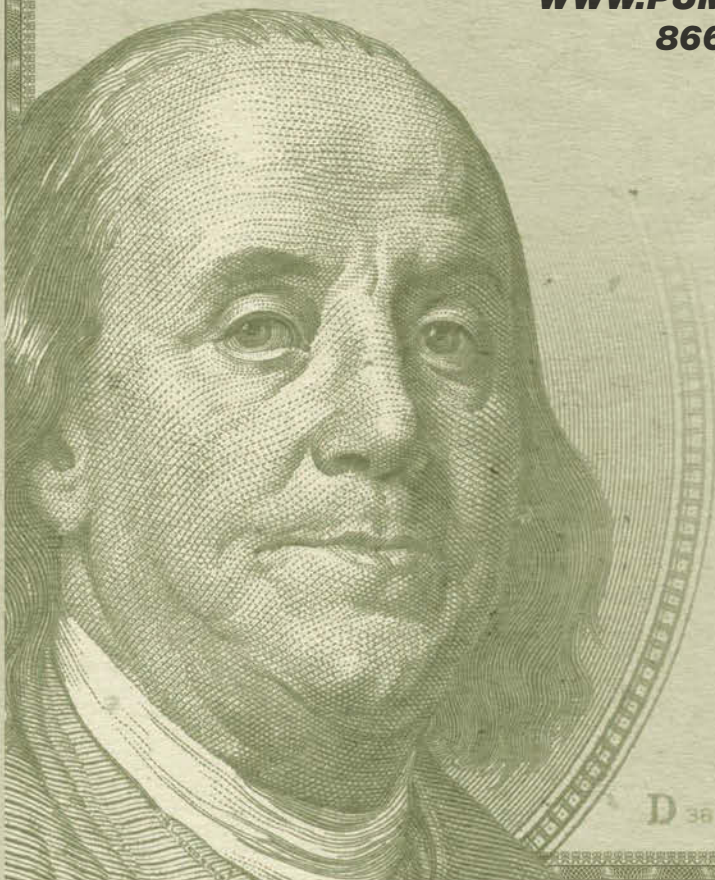


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