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March 2014
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Karl Imlig
Engineering Manager
Pierce County, Wash.

PUMPER & CLEANER ENVIRONMENTAL EXPO INTERNATIONAL

EXPO ISSUE

SYSTEM DEVELOPMENT

Pierce County's push for greater efficiency is a team effort

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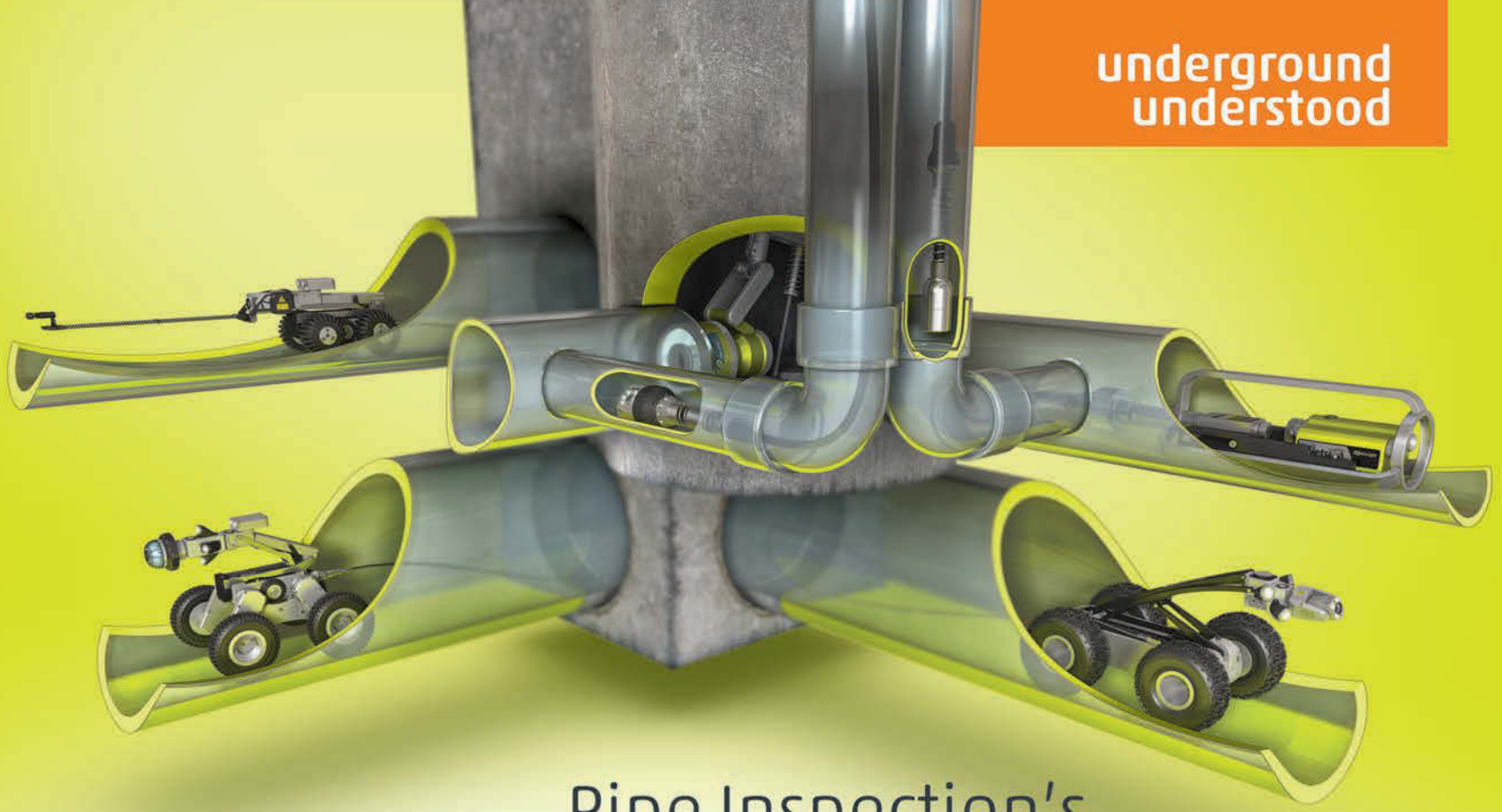
underground understood



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Engineering Manager Karl Imlig stands next to a project in the shadow of Mount Rainier near the headquarters of the Pierce County Public Works and Utilities sewer division in University Place, Wash. A strong asset management program has been the backbone of the utility's success. (Photography by Mark Mulligan)

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Chimney: US SN 11/286,652; US SN 12/571,707

ADVERTISER INDEX

MUNICIPAL SEWER & WATER

FOR SANITARY, STORM AND WATER SYSTEM MAINTENANCE PROFESSIONALS

Published monthly by:

COLEpublishing

1720 Maple Lake Dam Rd., PO Box 220,
Three Lakes WI 54562

www.mswmag.com

In U.S. or Canada call toll free 800-257-7222
Elsewhere call 715-546-3346
Email: info@mswmag.com / Fax: 715-546-3786

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

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

REPRINTS AND BACK ISSUES: Visit www.mswmag.com for options and pricing. To order reprints, call Jeff Lane at 800-257-7222 (715-546-3346) or email jeffl@colepublishing.com. To order back issues, call Nicole at 800-257-7222 (715-546-3346) or email nicolel@colepublishing.com.

CIRCULATION: 2013 average circulation was 40,000 copies per month (U.S. and international distribution).

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TALKING THE TALK

Getting to know best and brightest water and wastewater operators has been a great education

FROM THE EDITOR

Luke Laggis

I didn't take over the editorial reins of this magazine with a vast background in the water and wastewater industry. I took over with a little knowledge and the curiosity that drives all journalists, and I've spent the past two years learning everything I can about your jobs, the issues you face, and the ways in which you're going about making your systems and communities stronger.

One of the things I really like about this industry is the people I meet. The operators and supervisors I talk to, in places like Plainfield, N.J, and Pierce County, Wash., both featured in this issue of *MSW*, have been a big part of my education. You all deal with a common pool of issues. For some utilities the focus is I&I and CSOs, for others it's hydrogen sulfide corrosion and manhole rehabilitation. In Plainfield, Robert Villee has made it his mission to find a solution to the increasing volume of "flushable" wipes that clog the collections system.

Talking with all these people gives me an inside look at the problems their utilities are facing, but more important, it gives me insight into how they're going about solving those problems. It's easy to understand how flushable wipes that don't dissolve could present a myriad of problems in a collections system, but talking with Villee about his experiences and the efforts he has made in conjunction with others to address the manufacturers and find a solution gave the issue a real context. I met him at the Water Environment Federation Technical Exhibition and Conference in Chicago last October, and I came away with a much better understanding of the issue and the real ways in which it's impacting utilities across the country.

It's easy to understand how flushable wipes that don't dissolve could present a myriad of problems in a collections system, but talking with Villee about his experiences and the efforts he has made in conjunction with others to address the manufacturers and find a solution gave the issue a real context.

I like to see and understand how you're solving problems. That's a big focus in this magazine. We like to highlight your resolve and ingenuity and use your successes as an example for the rest of the industry.

The profile on Pierce County, Wash., in this issue provides a look at how a collections system was born from water-quality problems and how the utility's collaborative, progressive approach to maintenance and rehabilitation has helped it stay ahead of any serious problems. We print lots of stories touting the value of this type of approach, but Pierce County is really a great example of how and why it works. Talking to Terry Soden and Karl Imlig gave me a better understanding of what it takes to keep a system in top operating condition. They didn't wait until they were besieged with problems to find a better approach; they are constantly evaluating their approach and adjusting as they go to ensure their system stays in great shape, and that's a great value for customers.

Expo time

The 2014 Pumper & Cleaner Environmental Expo has finally arrived. If you're here in Indy reading this, I hope you'll flag me down if you see me and introduce yourself. I'm always interested in hearing about the work you're doing, and I'm always looking for a good story to share with our readers.

If you weren't able to make it to this year's Expo, start planning for 2015. You won't be disappointed.

Enjoy this month's issue. ✦

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TOP HEAVY

A Tale of Bridges and High Loads

Unfortunately, bridge strikes are not uncommon. For instance, one downtown bridge in Indianapolis has been hit 70 times in roughly seven years. But the good news is using the proper GPS unit could prevent such accidents. Learn about new standards for commercial-driver GPS units, and see how simple updates can prevent high-load accidents.

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Top 5 Truck Care Tips

Regular maintenance on any high-ticket item, especially your work truck, is a good idea. You'll extend the life of your truck, lower repair costs and keep everything shiny and new for much, much longer. Find out which simple maintenance tips can keep you in the field and out of the service shop.

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SOCIAL LESSON

Top 10 Utilities on Facebook

How's your social media plan? Take a look at how these 10 utilities are using Facebook for public education, customer service and crisis communication. After all, we're in this together. Let's learn from each other and discover how social media can work for the water and wastewater industry.

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Water & Wastewater Equipment, Treatment & Transport Show

CHANGING WITH THE TIMES

The industry is growing and evolving, and so is your trade show

By Bob Kendall

Bob Kendall, Expo co-founder

During late winter 1981, the first annual Liquid Waste Hauler's Equipment & Trade Show was held in Nashville, Tenn. The show was promoted to the 12,000-some readers of the recently launched *Midwest Pumper*. That very first show was a huge success — lauded by the couple hundred people who attended and a few dozen exhibitors.

The following year, the Liquid Waste Hauler's Equipment & Trade Show would see its first name change. The change was subtle: we only added one word — "International." Because, after all, we didn't want to shun our friends from Canada.

In 1984, COLE Publishing launched an additional title — *Cleaner* — aimed squarely at sewer and drain cleaning contractors. This meant the show had now become more than just a liquid waste event. It would take more than a decade, but in the mid-1990s the International Liquid Waste Hauler's show again changed its name. This time, we would fully encompass everything we stood for — The Pumper & Cleaner Environmental Expo International. May no man, woman, child, country or profession ever be excluded again! So we thought.

The event would continue to grow, eventually hundreds of attendees became thousands, and dozens of exhibitors became hundreds. The Expo hopped through several cities — Nashville, Biloxi, New Orleans, Dallas, Fort Worth and Louisville. We even tried a few western destinations and visited Las Vegas, Palm Springs, Phoenix and Long Beach.

Now, after more than 20 years, it is time to make another name change. We're not just a show for "pumpers and cleaners" — we've grown and evolved into so much more, and so have you.

Now, after more than 20 years, it is time to make another name change. We're not just a show for "pumpers and cleaners" — we've grown and evolved into so much more, and so have you. The industry and profession has surpassed what many of us could have ever imagined way back in 1979, when *Pumper* was delivered to mailboxes across a few Midwestern states.

In 2015, the Pumper & Cleaner Environmental Expo International will become **WWETT — the Water and Wastewater Equipment, Treatment & Transport show.** A little better snapshot of what we have become and where we are heading. It's a show for an entire industry of hard-working people who maintain the flow in our sewer and water infrastructure, properly treat and dispose of wastewater, keep water safe, and our environment healthy.

We haven't forgotten our roots, we just planted them a little deeper — and thanks to you they'll always have water. See you at WWETT 2015. ✦

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SYSTEM DEVELOPMENT

Pierce County's collaborative approach to planning and maintenance ensures quality service and cost-effective solutions

By Luke Laggis

In the early 1970s, local lakes in Pierce County, Wash., began experiencing water-quality problems. The area faced a moratorium on building, but it never reached that point.

The first Utility Local Improvement Districts were put in place across the country in 1970, with funding available through the Clean Water Act. Eventually, ULID 73.1 was passed, which paved the way for the first segments of the municipal sanitary sewer system and a wastewater treatment plant in Pierce County.

"A lot of improvements were made at that time," says Sewer and Water Utility Maintenance and Operations Manager Terry Soden. "We had some initial systems that were put in. They were constructed as concrete sewer mains, and the flow was actually directed to the City of Tacoma."

Construction ramped up and carried into the early 1980s. The plant was completed in 1984, and most of the pipe work on the origi-

OPPOSITE PAGE: Pierce County Public Works and Utilities employees Rocky Feller, left, maintenance specialist; James Wilkinson, maintenance worker; and Ryan Hall, maintenance technician, work together to bring debris out of a manhole that they have just cleaned from a sewer line. RIGHT: The Pierce County Public Works and Utilities treatment plant sits along the Puget Sound in University Place, Wash. (Photography by Mark Mulligan)

nal 300 miles of the system was done in 1986.

Before the early phases of the collections system were completed, local residents were all on private septic systems. Due to local geology — with rocky glacial outwash and areas of till — wastewater from many of these systems eventually made its way to local groundwater-fed lakes, which created the water-quality issues.

"Our current SSO rate per 100 miles is less than one, so on average we probably experience about six SSOs per year. So we've demonstrated that we've been pretty effective, at least given the numbers that our brethren post around here, sometimes in the double digits per 100 miles."

Terry Soden

Taking shape

The county currently serves a population of over 250,000, with more than 60,000 customer accounts. About 2,700 of those accounts are commercial.

The initial sections of the system were built with concrete pipe, but it wasn't long before plastics came on the scene and the county shifted to PVC and HDPE pipe. Today, about 80 percent of the system is comprised of those two materials. The rest of the system is concrete, lined ductile iron and some fiberglass pipe.

In the early 1990s, growth management became an issue. Eastern portions of the county were opening up to development, so the county partnered with developers to run a trunk line off the existing collections system and extend it east. It began a trend of continued development stretching the system farther from the treatment plant.

The current plant is permitted for 28.7 mgd, but additional capacity is available through a reciprocal agreement with the City of Tacoma, which allows the county to send excess flow to the city's treatment plant as well.

In 2006, work began on a satellite system in the Bonney Lake Plateau, which will have a decentralized wastewater treatment plant and will provide infrastructure for additional growth. Work is scheduled for completion by 2016. The plant will be a membrane bioreactor, using reclaimed water and ground discharge instead of discharging into a body of water.

An eye on the system

The county tracks the condition of its collections system with a homegrown asset management system tied to its Computerized Asset Management System from Infor. Currently, about 94 percent of the system is classified as excellent, which Soden partially attributes to its relatively young age. Still, the utility's collaborative, progressive approach to maintenance and rehabilitation plays a big role.

Maintaining and repairing some of the older interceptors made of unlined concrete pipe has been a big focus for the utility.

"Concrete has been our biggest issue — especially the pipes that have been in since the beginning," says Karl Imlig, P.E., the utility's engineering manager. "We're now going through some aggressive programs to line some of our concrete pipe."

Seven pump station crews and two line crews regularly clean and maintain the system. Two crews clean parts of the system almost daily. One crew is dedicated to what the utility classifies as "problem lines," and the other is out working on the rest of the system on a basin-by-basin approach. The process is pretty simple.

Ryan Hall sets up to clean a sanitary sewer main.

PROFILE: Pierce County (Wash.) Sewer and Water Utility

ESTABLISHED:
1973

CUSTOMERS SERVED:
60,000

INFRASTRUCTURE:
700 miles of sewer line, plus 230 miles of private mains; 15,385 manholes, plus 7,200 in private systems; 101 pump stations; 824 residential grinder pumps

ANNUAL BUDGET:
$7.3 million

WEBSITE:
www.co.pierce.wa.us

The utility's newest jet rodder truck (Vactor) has a shorter wheelbase that allows for easier turning in congested neighborhoods.

PARSA crew members Ryan Hall, left, Rocky Feller and James Wilkinson.

"We have two high-velocity trucks, and that's all they do. We just use sand traps to collect the debris, and then we use basin scoops on poles to pull it out from section to section. It's just a lot faster," Soden says, noting his staff helped design the trucks. "They hold 1,500 gallons of water. They have a short wheelbase. They're very maneuverable in cul-de-sacs."

Soden says with this type of setup, nozzle selection is really important. He says spinning nozzles have been a big help in lines affected by FOG. They also use standard ferret nozzles in some instances, and rely on larger sled-type nozzles on interceptor lines.

Soden says they take the Goldilocks approach to their cleaning strategy, trying to find just the right cleaning frequency. Currently, crews take about 4 1/2 years to complete a full cleaning cycle through the entire system, moving from one basin to the next as work is completed.

"Our current sanitary sewer overflow rate per 100 miles is less than one, so on average we probably experience about six SSOs per year," Soden says. "So we've demonstrated that we've been pretty effective, at least given the numbers that our brethren post around here, sometimes in the double digits per 100 miles."

The utility collects debris data in its Computerized Maintenance Management System as lines are cleaned, recording the volume of material removed. From there, they can evaluate patterns and try to determine where the debris comes from. They've also been testing pole cameras to find one that suits their needs. Soden says that will let them quickly and easily inspect certain lines when necessary and avoid cleaning lines that don't require it.

"Those are opportunities to optimize what we do," Soden says. "But clearly the current cleaning method works pretty well, given our blockage rate."

The county used to use the same basin-by-basin approach with CCTV inspection, but it took too long to get through the system and generate meaningful information. They have since moved toward a criticality-based inspection method.

"As part of our asset management plan we developed a risk model, so we were able to look at the likelihood and consequence of each line segment and get an overall risk score. We call it the 'level of equivalent risk,' so we have lines in

different categories," Soden says. "Instead of TVing everything, we decided to TV the lines that are most critical first, and then get that condition assessment information back as well as some additional information. The next phase of this process is taking a look at the rest of the system, and doing more what I would consider analysis on like types of pipe and do a representative sampling. When we get down into the least risky, we'll just use statistical analysis to assume these like pipes are in the same condition as the rest."

> **"One of the things we like to do is base our decisions on least life cycle costing, so that it may not be the cheapest to install, but if you look out 30, 50, 100 years, you have a savings over time."**
>
> **Terry Soden**

From high to low

Pierce County is unique because its elevation starts at sea level and then climbs to the highest point in the lower 48 states, the top of Mt. Rainier. The varied terrain requires many pump stations — 101 — but the treatment plant is on Puget Sound, at an elevation of only 30 to 50 feet. This allows the county to maximize gravity flow.

"For the most part our system is gravity from one end to the other," Soden says. "Most of the pump stations we have are to support other smaller developments that can't get in with gravity."

Imlig adds that flow into the plant is gravity-fed, which is an advantage over many municipal systems and helps lower costs.

On one of the county's current projects, the B Street Interceptor project, about 6,000 feet of 30-inch pipe and 3,000 feet of 8-inch collector pipe will be installed to serve new neighborhoods. This is the third phase of the project, which is currently in the design stage. The pipe will be buried as deep as 25 feet. Installing pipe that deep is a big expense upfront, but Soden notes it will allow gravity flow and reduce costs over time through savings on pump stations and pump station maintenance.

"We try to serve as many of our basins as we can by gravity. By making it that deep we can extend farther — in this case — south, and serve the largest area possible," Soden says. "One of the things we like to do is base our decisions on least life cycle costing, so that it may not be the cheapest to install, but if you look out 30, 50, 100 years, you have a savings over time. In most of our cases we're recouping costs within the 20-year time frame."

Shedding I&I

The county is also looking at a different approach to its inflow and infiltration abatement program, incorporating CCTV to find potential problems.

"First off, most of the time people wait for a leak to avail itself inside an interceptor," Soden says. "We actually take our grout-packing unit and pump the joint to see if it holds air regardless of whether the joint is actually leaking water that you can see. If it isn't holding air, more than likely in the high groundwater table time of year it will leak. So we go ahead and grout pack those as needed.

"The other part of the program is our I&I abatement crew that was established in 1996," he continues. "Those resources were applied just to looking for I&I. We've done that through smoke testing and TV inspection, and we found that we weren't turning up as much work as we used to. So the level of effort, let's say for smoke testing, wasn't yielding any inflow connections. So we're kind of regrouping a little bit, working with our engineering team to take a look at our current placement of flowmeters and looking for opportunities to put a little more granularity in the amount of flowmeters we have out there — a little more strategic — to do a better job of pinpointing it. It's kind of what I call the tip of the spear approach as opposed to the shotgun blast approach we've been using."

Soden says it costs $175,000 per year to have that crew out working, and they're not finding the volume of repair work to justify the expense. He says that's partially a result of the system being in much better shape now than it was when the crew was established.

Imlig also notes that the county has changed its inspection procedures

for new residential construction. They do more air testing and vacuum testing of manholes, and inspectors spend more time monitoring construction projects, which has helped improve the way things are done.

"We monitor every connection to our system so hopefully we can catch these things before we have a customer connected to it," Imlig says.

I&I has also not been a big issue with manholes. About two thirds of the system's manholes have composite precast bases from Predl Systems. Most are unlined concrete above the base. Some are also lined. Liners are used in areas that are prone to hydrogen sulfide, like in the interceptors. Hydrogen sulfide is a bigger issue in the early years on new interceptors until more connections are added and flow increases.

The precast bases have an incorporated bell and spigot, and the pipes just connect into it, as opposed to the old days where some of the bases were constructed in the field and those field connections had problems.

"I think the fact that we have factory connections in manholes, given the system we chose, has reduced the risk of I&I entering our system," Imlig says.

The three-legged stool

Soden's tenure with the county — 28 years — spans almost as much time as the collections system itself. He has seen the system evolve and has a good perspective on what has kept the system functioning smoothly.

"The difference I think that sets us apart, is even if we had an older system, our sewer utility has made a very strong commitment to preservation. We always have," Soden says, noting that the longevity of the materials being used today is also far better.

"The other piece I would add, is since I've been here, we have always used a computerized maintenance management system, not a 3x5 card file index … Not only do we have an inventory, we have work orders, we can track history and usage, we can look at failure modes. I can look at how much corrective maintenance we do over planned maintenance. There's quite a bit of information we have, and I'm pretty proud of the system we've set up. I see a lot of people struggling today in other agencies trying to get a computerized maintenance management system off the ground, and from my vantage point, I don't get it."

Soden likens his department's success to a three-legged stool, where all three legs carry equal weight.

"We've got maintenance and operations working with engineering and inspections, all collaborating to try to turn out a good product. If you don't have a good maintenance plan, kick that leg out from the stool and the stool will not stand," he says. "On the engineering side, if you don't design it well and call out the proper specifications, you kick that leg out and nothing good will come of that. And last but not least, if you don't have a good inspection program with a quality assurance effort, making sure that the specifications are adhered to in the field, you kick that leg out and nothing will stand.

"So I think we have a good culture here where all three groups work together in collaboration with one another. That's probably the biggest success story over my 28 years of being here." ✦

PIERCE COUNTY FOLLOWS THE FLOW


Terry Soden

There are about 18 permanent flow monitors scattered around the Pierce County collections system right now.

"The initial effort was really more to model flow to make sure we had the right amount of capacity or to develop strategies for engineering purposes to make sure we had enough capacity in the system as we're issuing permits," says Maintenance and Operations Manager Terry Soden. "That was really the main goal, but we've been taking that data and that information and trying to use it to do a better job on I&I abatement. Where they're placed right now is not necessarily where they need to be in the realm of strategic efforts for I&I."

Soden says he envisions keeping those meters, whether they're in their existing locations or more strategically located for I&I purposes, and then taking advantage of a whole host of opportunities for portable flow metering. And if the permanent flowmeters are in the best places to serve both purposes, the information can be better used to pinpoint I&I sources.

"Infiltration occurs over a long period of time. Inflow in our area is kind of transient in nature. So you almost have to know when its happening in real time to be able to get out there and find it," Soden says. "So we'll be trending information off of what we consider our permanent flowmeters and then out of that we'll develop strategies using portables. As we move into an area that is a targeted area, we'll put some strategic flowmeters upstream of the permanent meter. Once the problem has been identified and corrected or at least logged as a work order, we can move those to other places for better benefit. That way you're not tying up permanent flowmeters everywhere."

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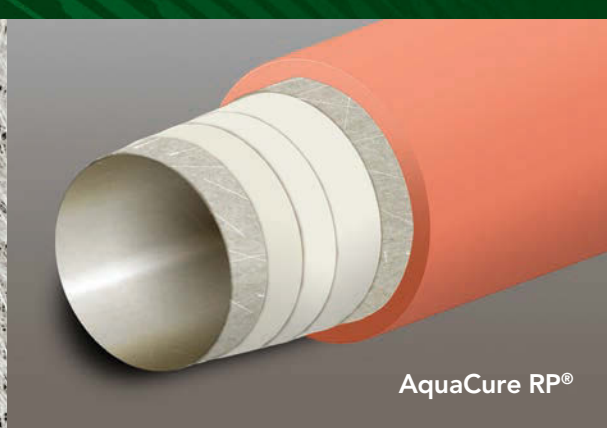

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STOP THE TIME-SUCK

Overwhelmed by email, texts and other distractions? Here's how to keep your weekly work on track for maximum productivity

By Ken Wysocky

Odds are that if you're reading this at work, you're going to be interrupted before you finish the article. As surely as rainwater infiltrates a leaky manhole or lateral, your cellphone will ring, a text alert will sound, an email will arrive (flagged "urgent," no doubt), a colleague will duck into your office or truck to chat or a supervisor will call an impromptu meeting.

Let's face it: Getting things done at work is an increasingly daunting task — especially if your organization faces the double whammy of short-staffing coupled with increased workloads. And more often than not, the culprit is advanced communication technologies that leave us endlessly accessible and continually distracted. Ironically enough, the very technologies that prognosticators jubilantly predicted would make our lives easier and more efficient have backfired. It's enough to make you LOL — if you had the time.

Take email, for instance. A 2012 report from the McKinsey Global Institute, a well-known consulting firm, estimates that the average worker spends about 28 percent of each work week managing email. Do the math and it gets even scarier: That means we're spending almost 45 hours a month opening, digesting and deleting emails.

"We're connected 24/7," says consultant Hugh Culver (www.hughculver.com), a time-management consultant and the author of *Give Me a Break: The Art of Making Time Work for You*. "I read somewhere that people on average use 13 different ways to keep track of their work days, between apps, shared work calendars, journals, personal calendars, Post-its, smartphone notes and so forth. When we come out of a meeting, we literally don't know where to record the information or what we need to do."

Since adding more hours to the 24-hour day isn't an option, something must change. So what's a time-challenged supervisor or employee to do? Culver suggests a multi-pronged approach that centers on a weekly "flight plan" that makes achieving core objectives the ultimate priority, along with taking an honest look at whether your direct reports can pick up some of the slack.

"I encourage people to plan like a pilot because pilots are great project managers," he explains. "They develop a flight plan, take off, fly the plane, land safely and they're done. So you need to ask yourself, 'What is my flight plan for the week — where do I need to be by Friday?' When you start thinking in that increment of time, you're more tuned into what's important and what to get rid of."

Then it's time to assess how you can delegate work to others, provided they're properly trained, empowered and held accountable. Look around and see which employees are what Culver calls "under-employed," in that they always seem to have time to take breaks or are joined at the hip with social media. Or if certain employees need constant hand-holding to do their work, get them better training; self-sufficient employees can free up your time.

In addition, Culver says supervisors can both coach employees and make them more self-sufficient by using a technique he calls leading with questions. In other words, when employees ask questions, don't automatically provide the answer, even though you think it's faster and easier to do so.

"The ultimate goal is for employees to own their jobs," he says. "To do that, you need to develop a habit of pausing when they ask a question and ask them what they think. If an employee just cleaned a sewer line and asks you how it looks, ask him or her how it looks to them. Then you become a coach instead of an instructor, and push accountability back on that person. In the long run, that, in turn, frees up more time for you to do other things. Moreover, more often than not, you'll pull some pretty good ideas out of your employees."

Hugh Culver

distractions at work — especially email — invites us on what Culver calls an ongoing path of least resistance that, in the end, distracts us from our flight plan. Think of it this way: How can you achieve any of your core objectives, such as staff scheduling or coaching employees, when you're distracted by voice mails, emails and the like?

"If an employee just cleaned a sewer line and asks you how it looks, ask him or her how it looks to them. Then you become a coach instead of an instructor, and push accountability back on that person."

Hugh Culver

A third component is decidedly simple but more difficult, as any dieter knows: Summon up self-discipline. Too often, the plethora of

"Say you have a sewer-inspection report to finish, but you first decide to answer emails for a few minutes," Culver says. "Then 15 minutes later, you're still at it. That's because answering emails is easier than the actual work we're supposed to do. But no one gets an award for answering the most emails or being the most distracted employee. We get rewarded for getting stuff done."

The fourth aspect of this time-management plan is establishing in your mind a tangible reward that will keep you motivated to stay on track.

"People do things if there's a reward," he explains. "That's why email is so addictive; it gives you an immediate reward and feeling of accomplishment. But there's no immediate reward for staff scheduling or strategic planning or coaching an employee. In fact, some of those tasks may make you uncomfortable. So the only way to change the pattern is to understand that there's a bigger reward for the new strategy than what you received from old one."

For some people, a good motivator might be a better work/life balance, achieved through higher productivity at work that reduces, say, a 55-hour workweek to 45 hours.

Of course, if all of this was easy to do, we wouldn't be so crunched for time. "It's human nature," Culver suggests. "People have a hard time changing because it involves making decisions, and it's much easier to be reactive than proactive. Or they think that by buying a book or attending a conference, their life will change. But along with the information, they need the motivation … understand the payoff."

Culver says that after two weeks of using these techniques and ingraining new habits, most people can gain as much as an hour a day. "I've seen it work," he notes.

And as you gain even more time, you'll be amazed at how your new tactics and strategies allow you to pay attention to otherwise-neglected areas. Maybe coach up one of your employees a little more. Finish a report on time — for once. Actually do some strategic planning, instead of winging it every day.

Or maybe even finish this article without any interruptions. ✦

FOCUS: STORM/SEWER

FIRST TO BURST

Billings expands its successes in pipe bursting to a two-pronged in-house program targeting both water and sewer systems while slashing utility budgets

By Peter Kenter

In 2005, the city of Billings, Mt., got its first taste of pipe bursting technology. The early success of that effort has resulted in the creation of two in-house pipe bursting teams, one dedicated to sewer bursting and another to water.

The concept is simple. Construction crews dig an entry pit providing access to sewer or water lines. A bursting device is sent through the line requiring replacement. As it passes through, the device splits and bursts the existing pipe, while drawing new high-density polyethylene or polyvinyl chloride pipe behind it. The equipment can be divided into two major types. In pneumatic bursting, a soil displacing pneumatic hammer provides the force. In static pipe bursting, a cone-shaped head is pulled through the existing pipe with a pull rod assembly or cable. The equipment is then retrieved through an exit pit, or sewer manhole.

Billings is the largest city in the state, with just over 100,000 residents. The population is growing as a result of the city's high-tech medical sector and proximity to the Bakken shale play to the east. Upsizing service to a growing city is now driving many pipe bursting projects.

The city's water infrastructure is currently made of PVC, cast iron

Cord Albrecht tightens the bolts on the HammerHead HB100 pneumatic pipe-bursting head. (Photography by Kelvin Pinney)

and ductile iron, with the oldest pipe dating back to the 1890s.

"The bulk of the system is in pretty good shape compared to other cities," says Scott Emerick, superintendent of the Public Works Department Distribution and Collection Division. "We've stayed ahead of the curve by maintaining an assertive repair and replacement program since 1980. We had upwards of 200 leaks annually about 20 years ago. That's now down to somewhere between 50 and 70."

The sewer system is also in reasonable shape. However, flat terrain forces engineers to locate the pipes deep underground to create gravity flow. Some of the pipes are buried as far as 30 feet underground, making open-cut replacement a chore.

First efforts

"The first sewer pipe bursting job we did on our own was on 360 feet of 10-inch HDPE pipe replacing a 10-inch clay sewer," recalls Emerick. "We rented the equipment from Vermeer Rocky Mountain in town. It took us about 24 hours to complete. Looking back, we saw our mistakes. One of the first lessons of pipe bursting is that when you start pulling the pipe through, you keep pulling until you're finished. We stopped at the manhole when there were still a couple of feet left because the manhole wasn't completely prepped. Starting back up was a challenge. We also didn't use the right-sized air compressor to run the pipe bursting hammer."

Even with the learning curve, Emerick estimated the cost of sewer installation at around $45 a foot, considerably cheaper than contracting work to outside firms. The cost of water pipe bursting was estimated at $40 to $140 a foot, depending on the level of service restoration, compared to contractor pricing of $200 to $300 per foot.

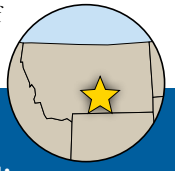
"The equipment vendor at Vermeer Rocky Mountain mentioned he could sell us a static HydroBurst HB100 system by HammerHead Trenchless Equipment," says Emerick. "We pulled some numbers together and gave it to our utility director. We explained that as our crews got more practice, the costs would go down. When we presented our preliminary numbers to city council, they amended our budget and we got approval to purchase our pipe bursting rig and a HammerHead Mole pneumatic piercing tool in 2006."

Emerick notes that utilities considering such an investment should budget for additional equipment beyond the basic tools. The Billings order included a HammerHead winch and power pack, a McElroy Manufacturing 412 fusion machine, an Ingersoll Rand air compressor and a Kiefer Manufacturing telescoping trailer, capable of delivering 40-foot pipe lengths to work sites. A mini-excavator and pipe testing equipment rounded out the buy.

Cutting its teeth on water

The utility cut its teeth on water pipe bursting in 2007 after farming out a few projects to Mr. Pipetech, a contractor located in Miles City. The job: a 300-foot pull, replacing 4-inch cast iron with 6-inch HDPE pipe.

"Again, we learned a lesson," says Emerick. "HDPE takes a different type of water fitting than



PROFILE:
City of Billings Public Works, Distribution & Collection Division, Billings, Mt.

YEAR UTILITY ESTABLISHED:
1915

CUSTOMERS SERVED:
29,000 water connections and 32,000 wastewater connections

AREA SERVED:
43.5 square miles

DEPARTMENT STAFF:
26 employees

INFRASTRUCTURE:
460 miles of water mains; 460 miles of sanitary sewer lines

ANNUAL DEPARTMENT BUDGET (2014):
Water: $42 million operating/ $27 million capital; Wastewater: $15 million operating/$6.5 million capital

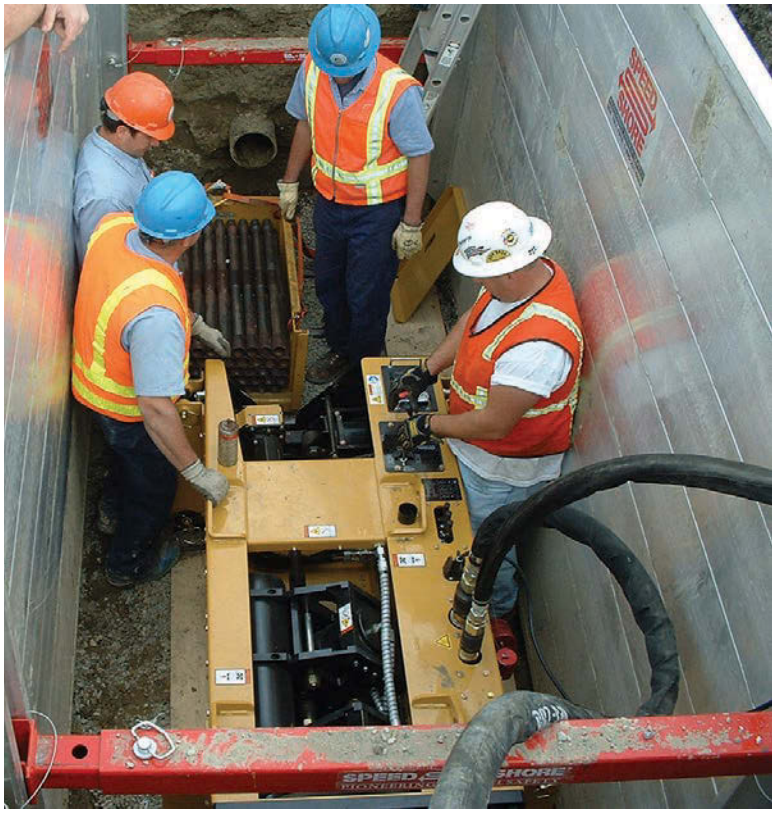
ASSOCIATIONS:
American Water Works Association

WEBSITE:
http://ci.billings.mt.us/index.aspx?nid=215

"We've stayed ahead of the curve by maintaining an assertive repair and replacement program since 1980. We had upwards of 200 leaks annually about 20 years ago. That's now down to somewhere between 50 and 70."

Scott Emerick

Billings Public Works crew members set up the pulling ram in a shored trench at the start of a pipe bursting job.



THINK GLOBALLY, BUY LOCALLY

The City of Billings, Mt., searches the world for new technologies to apply to sewer and water line installation and rehabilitation. However, when it came to selecting pipe bursting equipment, the city actively sought a local supplier.

"We wanted to have access to local expertise, parts and repair services," says Scott Emerick, the city's Public Works Department Distribution and Collection Division superintendent. "You can also build up a strong relationship with a local dealer."

However, Ditch Witch purchased HammerHead in 2010, so the in-town supplier was no longer a dealer for the company. Still, when one of the hydraulic cylinders on the HammerHead HB100 burster went out of commission in the middle of a recent pipe bursting job, the company's new sales and support network continued to provide the same type of localized service.

"HammerHead's northwest regional sales manager, Jim Moore, bent over backwards for us," says Emerick. "We were quickly provided with a loaner to complete the job, something that would have been difficult or impossible with a supplier from halfway across the country, even if they were motivated to help."

Scott Emerick, superintendent of the Public Works Department Distribution and Collection Division.

A backhoe operator holds a new section of fusible PVC in position as it's pulled into place.

A new section of HDPE pipe is pulled through the existing PVC.

fusible PVC, which was compatible with our system. Working with HDPE on water would require us to stock a whole new set of fittings and taps than we were using for our existing bell and spigot PVC pipe. HDPE is still great for sewer work."

In 2008, the department targeted 520 feet of 8-inch cast-iron water pipe for replacement and upsizing to 12-inch. Instead of HDPE, Billings went with Fusible C-900 PVC pipe from Underground Solutions Inc. of Poway, Calif.

"For a lot of people who do water pipe bursting, this pipe brand is the ticket," says Emerick. "However, if you install their product, they require you to undergo company training and become a licensed installer. You need to record each pipe fusion and give them a copy of the work for their records to ensure quality control."

Initially, all bursting equipment was placed under the supervision of now-retired foreman Jim Burnham. Sewer maintenance supervisor Scott White recalls that the work team would concentrate on one job at a time.

"Jim would pound in the water pipes and replace them, while we would follow and restore services and other connections," he says. "However, under that approach, the sewer bursting equipment would sit idle while we worked on water."

"Jim would pound in the water pipes and replace them, while we would follow and restore services and other connections. However, under that approach, the sewer bursting equipment would sit idle while we worked on water."

Scott White

Two new teams

White recommended that the department divide pipe bursting duties between two dedicated teams of four, including a supervisor. That happened in 2010 with White now heading up the sewer pipe bursting team, while maintenance supervisor J.R. Fox leads the water pipe bursting team. Outfitting both teams required the purchase of an additional pickup truck, mini-excavator, skid steer and trenchboxes, but resulted in greater efficiency.

The utility has found that project schedules work out best when entry and exit pits are excavated as much as a week in advance. Replacement pipe is fused as much as a day before the bursting project. Pushrods are also assembled prior to water line bursting projects.

Fox advises first-time pipe bursters to carve out an adequate staging area prior to commencing the job.

"Watch your footprint when you're bringing in a stack of 40-foot pipes," he says. "Finding the room to place everything on site can be a burden, although customers are often willing to work with us."

Fox notes that pre-digging holes to reinstate water service provided no additional project benefits. "We found that pulling the pipe through tended to cave in the holes we had just dug," he says. "We were digging the same hole twice."

White recommends that utilities concentrate on project design and adequate preparation. "The burst is really the easy part," he says. Pipe projects are usually handled in 400-foot increments, which require about 90 minutes to pull.

Sewer projects are extensively televised prior to bursting, using an RapidView IBAK sewer camera. Customer sewers remain live during the pull, so lateral services are quickly restored, then televised again.

Leveraging in-house expertise

All aspects of the projects are handled in-house, except for the provision of temporary water services to residents and businesses. An outside contractor lays out 20-inch PVC pipe to provide the temporary service.

Once the new water line has been pulled, the utility conducts a two-hour pressure test, followed by water sampling at 24 and 48 hours before water service is restored.

The utility has recently begun to push the limits of water pipe bursting technology by stepping out of its comfort zone of installing 8-inch replacement pipe.

"We experimented with 12-inch pipe in an industrial area, but had some issues with the fusion of the PVC pipe," says Emerick. "The 12-inch line pushes the fusion machine to its limits. The work was slow, but results were good. If we work on a similar project, we'd likely buy a McElroy 618 fusion machine designed to handle larger pipe."

Prime time for pipe bursting in Billings is spring, summer and early fall. When Montana's frigid winters approach in November, pipe bursting is suspended.

"It's not easy to get through the asphalt in the winter where the first 2 feet of ground is frozen," say Emerick. "As winter progresses, that expands to 3 to 4 feet deep. Winter is also not a good time to provide temporary water lines to customers. At 20 degrees below zero this is just not going to happen."

Maintenance time

During downtime, crews perform equipment maintenance, checking hydraulic systems and greasing moving parts. The utility also plans ahead, submitting construction drawings of proposed pipe bursting projects to the Montana Department of Environmental Quality, so work can begin immediately following spring thaw.

This year, the utility replaced about 2,000 feet of water pipe and 7,000 feet of sewer pipe, a total that fell a little below average due to the technical difficulties encountered during the 12-inch industrial water project.

While city bean counters remain appreciative of the in-house effort, most customers remain unaware of the technology being used.

"The real pay-off for customers occurs when they're waiting for the excavator to tear up their streets and properties," says Fox. "There's a lot of relief when they realize they can get in and out of their driveways with ease." ✦

Ryan Skillestad runs the McElroy 412 fusion machine.

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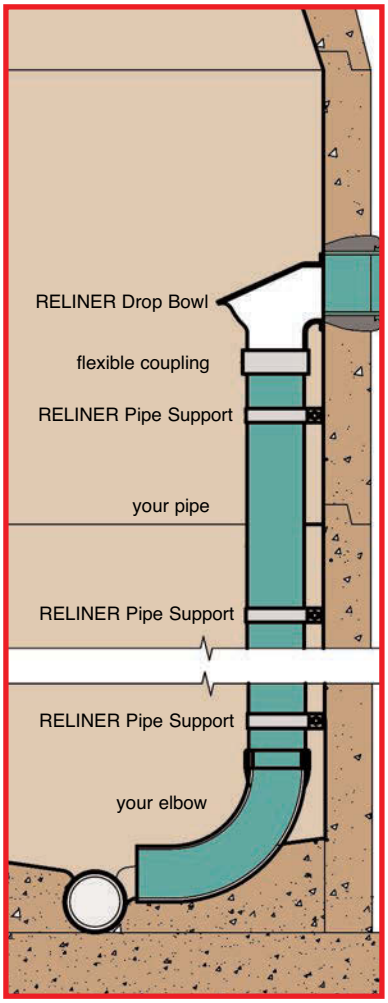

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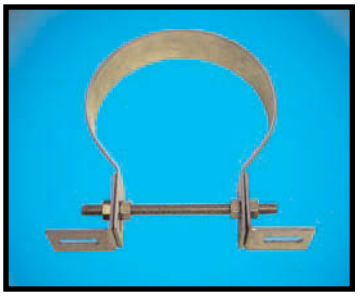

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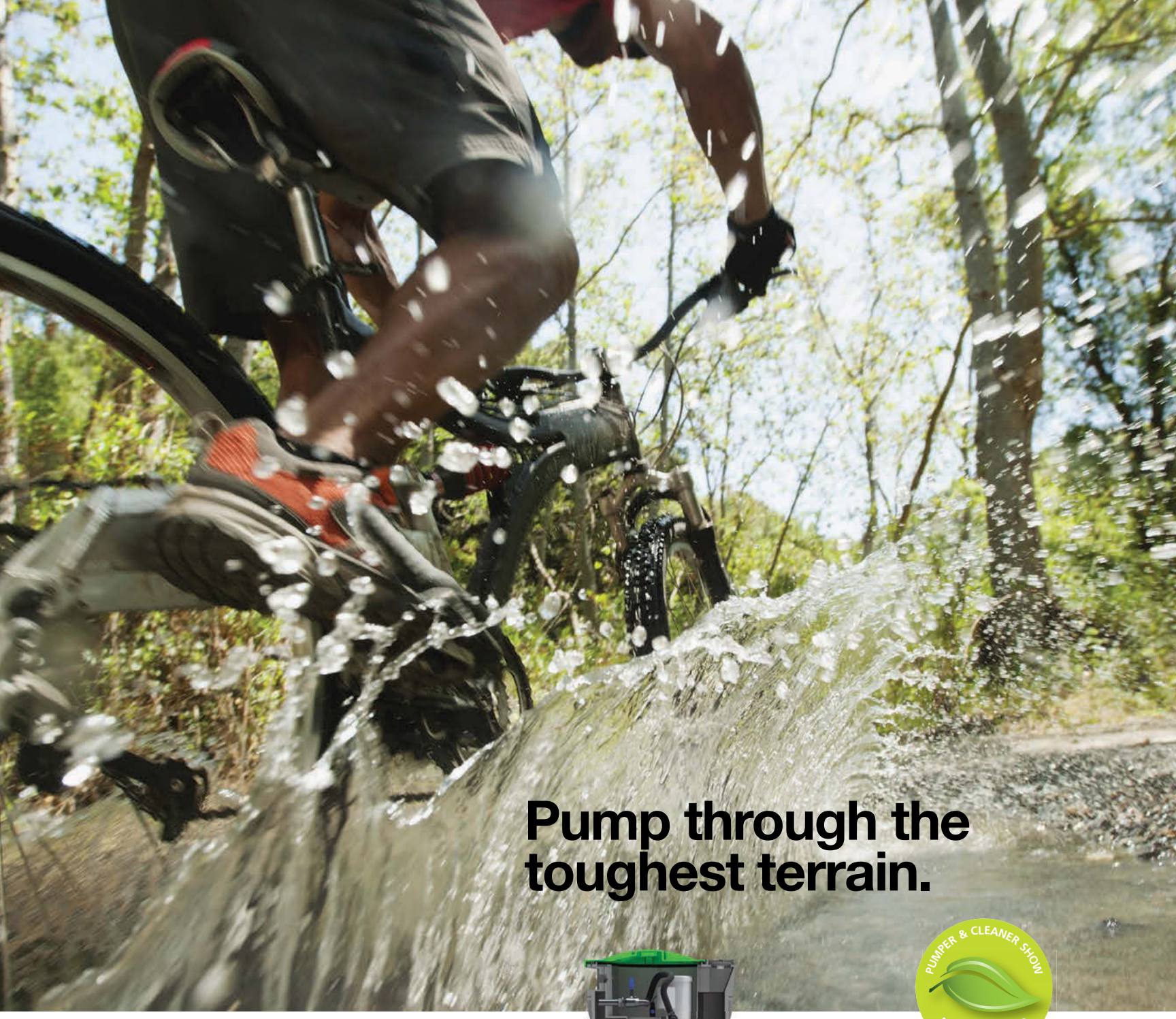

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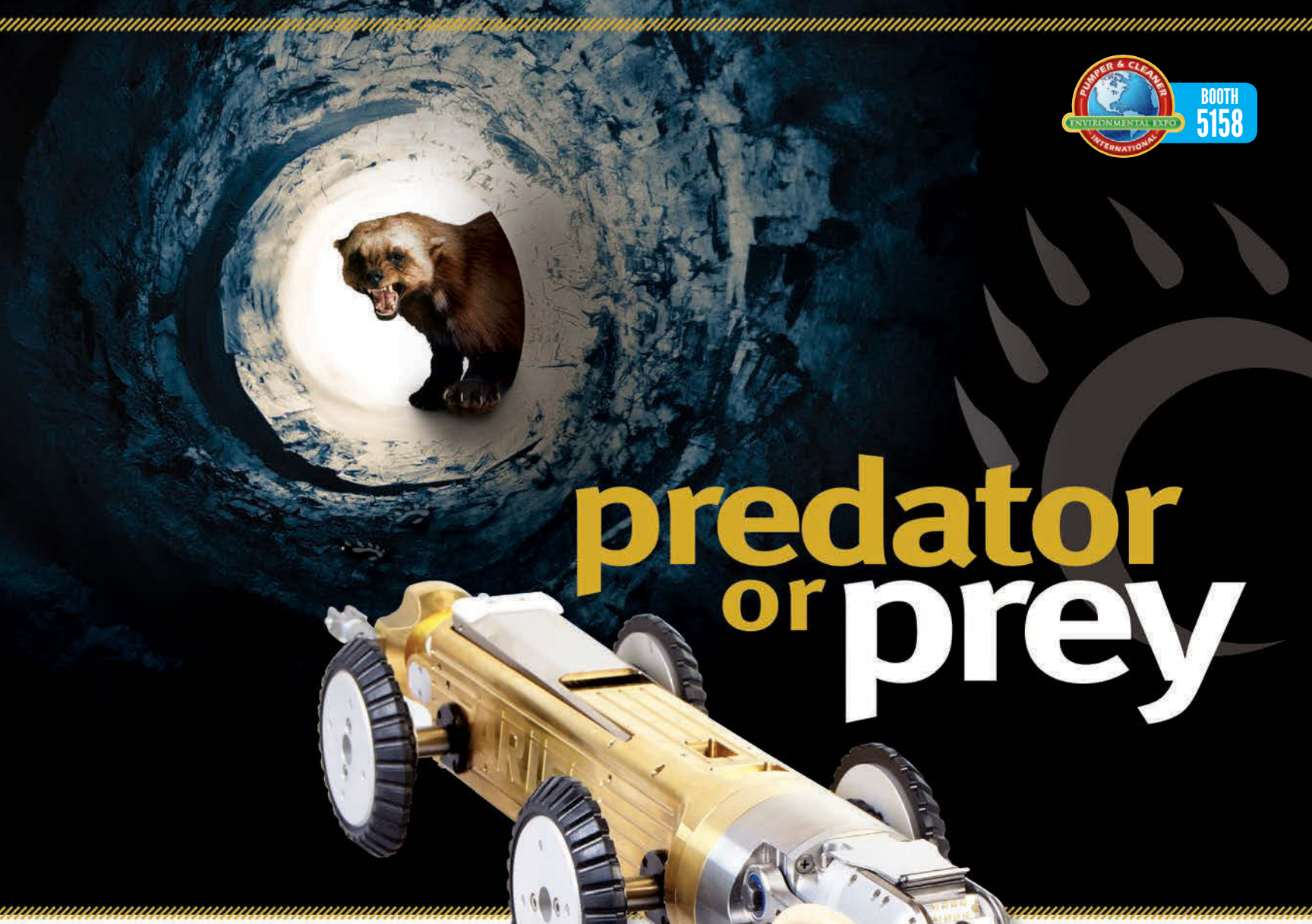

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CLEANING WITH VISION

JetScan allows users to gather high-definition imagery with low-tech simplicity

By Gil Longwell

Successfully jetting 2,500 to 3,500 linear feet of sewer line day-in and day-out requires focus, attention to detail and sound decision-making on a work site that prevents direct operator observation.

An experienced jetter operator can often reach informed conclusions from the debris he sees collecting in the manhole, but not always. Sometimes there is no substitute for seeing the work site firsthand. One option is to stop jetting and wait for a camera truck and support crew to arrive for a look down the line. Envirosight's JetScan equips the jetter crew with an onboard alternative they carry to every work site.

Easily carried onboard a jetter truck, the JetScan does not need a sophisticated support truck or a second crew. The jetter operator can quickly deploy and retrieve a hi-def video capture device. The imagery, in turn, enables informed decision-making and a better overall line cleaning result.

On a windy late-November day with temperatures unexpectedly in the low teens, the JetScan was demonstrated in Beaver Falls, Pa. This small city — Joe Namath's hometown — is about 40 miles northwest of Pittsburgh. Two Street Department crew members, Pat Burdine, an operator, and Bob Justisin, a helper, were asked to demonstrate the JetScan. Jake Wells, Envirosight's marketing manager, and Jim Ahlborn, A&H Equipment's territory manager, were also on hand. A&H is the local Envirosight dealer, and the company sold the city the Vactor the men used.

The JetScan is ready for deployment. The hose guard protects the jetter hose from chafing as it enters the potentially rough-edged sewer pipe. (Photography by Gil Longwell)

While somewhat unfamiliar with the JetScan, Burdine and Justisin had no difficulty mounting, deploying and retrieving it in a variety of municipal sewer lines. Ahlborn supplied the JetScan and Wells provided a laptop computer and an iPad to view the captured video.

Walk-around

The JetScan is a water-propelled and waterproof forward-looking digital video capture device mounted on a self-leveling stainless steel frame or sled. The "camera body" has two forward-facing LED lights mounted on either side of a fixed-focus lens with a 130-degree field of view. A single on/off button controls the camera's operation. Video is saved to a standard SD card. The charging port for the internal battery, the SD card slot and a secondary camera-enable switch are grouped together. A waterproof screw-on cover engages the enable switch while covering the SD card and charging jack. The cap also creates a waterproof seal.

Without the cap fully secured,

With the waterproof cap removed, the SD card, charging connector (bottom) and record enable switch (red, at top) are all visible.

The six rearward facing jets are used to propel the JetScan (shown on truck step) down the line.

TECHNOLOGY TEST DRIVE

EQUIPMENT:
JetScan video nozzle

MANUFACTURER:
Envirosight
866/936-8476
www.envirosight.com
(Nozzle manufactured by StoneAge Tools)

LOCATION OF DEMO:
Beaver Falls, Pa.

DEMONSTRATED BY:
Pat Burdine and
Bob Justisin, Beaver Falls Street Department

LIST PRICE AS DEMONSTRATED:
$12,750

Beaver Falls Street Department crew members Bob Justisin (foreground) and Pat Burdine prepare to introduce the JetScan into the manhole.

The JetScan's receiver is secured to the Jetter hose. The large diameter receiver allows sufficient "hand tightening" without the need for tools.

the device will not respond to the primary on/off button. This fail-safe feature assures that the device is never deployed in a less than waterproof configuration.

The basic sled system is designed for use in pipes from 8 to 15 inches in diameter. An available, albeit not shown, wheel set, when attached to the three sled runners, enables use in pipes ranging from 15 to 24 inches in diameter.

The JetScan is propelled forward by jetter-supplied high-pressure water delivered through a hose that connects to the sled via a 1-inch threaded male hose fitting. Water forced through as many as six rear-facing nozzles on the sled drives the entire system. The delivered force is sufficient to propel the JetScan to the full length of available hose. The jetter's powered hose reel retrieves the extended hose with the JetScan firmly attached. An operative footage counter for the hose reel is essential.

The only user action needed to initiate or end video capture mode is to push the on/off button.

Operation

After the Vactor's jetter hose reel was positioned over the entrance manhole and with work zone traffic control established, the jetter's hose was screwed into the receiver on the back of the JetScan. Because of the receiver fitting's palm-filling diameter, sufficient torque was developed and no hand tools were necessary to secure the JetScan to the hose.

The on button was pushed, and following a simple lights-on/device-on check, deployment began. Introducing the JetScan into the line to be inspected required no special skills or tools for this experienced jetting crew. As the water pressure was turned up, the sled began its travel through the line. The familiar unrestrained fine spray billowed from the open manhole, along with a quickly dissipating fog. The fog was caused by the interaction of the cold air being drawn over the warm water in the sewer line.

With no real-time imagery to watch, the image capture process continued in a traditional jetting mode. At the end of the run, customary retrieval practices came into play.

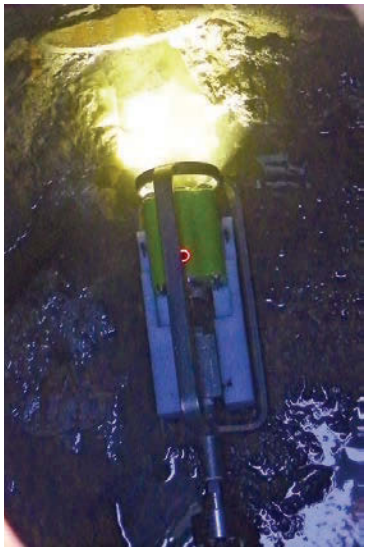
After retrieval, the JetScan was positioned on the ground while the jetter hose's residual water bled off, illustrating the six streams that, underground and at much higher pressure, provide the propulsion. Burdine took care to position the discharging water jets in a direction that minimized the potential for bodily contact and injury.

When disconnected, the JetScan was placed on a handy truck step and turned off. There, Wells screwed off the waterproof cap and removed the SD card. He popped the card into an appropriate port on his laptop and after a quick data transfer, the video was available for review. The imagery was also ported to an iPad Mini, which Burdine and Justisin used to get a better look at what was encountered in the pipe.

The transferred data can be sent via email, FTP connection, copied to any storage device with adequate capacity and also archived on a hard drive or server.

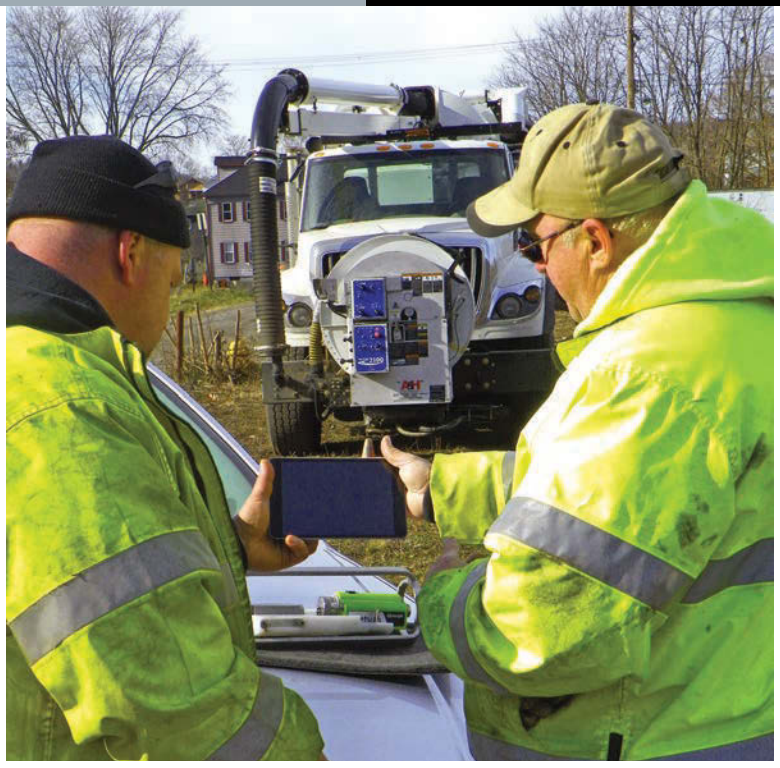
Owner's comments

Because of this crew's limited experience with the JetScan, Steve Holzinger, an experienced maintenance technician in northern New Jersey, was contacted for firsthand user feedback. Holzinger works for the Franklin Township Sewerage Authority and has used the JetScan for about a year. "The JetScan has always met our needs," he says. "We use it to verify our jetting work." The township's jetting program is intense, as every line is jetted annually. Holzinger's crew cleans between 2,500 and 3,500 linear feet daily.



The JetScan is positioned in the pipe and ready to advance.

"We carry an iPad on the truck so we can watch the video as soon



Pat Burdine (left) and Bob Justisin review inspection footage on a tablet computer.

as the SD card is available," says Holzinger. "The JetScan is handy. We have an aggressive program and we typically use it about three times a week," he explained.

By keeping track of the readings on the footage counter, Holzinger is able to have a good idea of how far down the line the JetScan has traveled, should it encounter an impassable obstacle.

Back in Beaver Falls, Public Works Superintendent Bruno Gratteri is planning to add a JetScan to the city's resources in "the very near future."

Observer's comments

The ease of one-button operation, the waterproof fail-safe cap and the simplicity of jetter hose to receiver connection puts mastery of the JetScan operation within every employee's reach. High-definition imagery is obtained with low-tech simplicity.

The absence of a cleanup/disinfection protocol in the user's manual is a significant omission, but municipalities usually determine their own hygiene protocols.

Manufacturer's comments

"JetScan is an accessory no cleaning truck should be without," says Envirosight's Jake Wells. "It's a quick, affordable way to understand pipe condition so you can pick the right nozzle, identify safety concerns and document the success of cleaning work."

"Not meant to perform full inspections, the JetScan simply gathers footage of pipe conditions to make cleaning safer, faster and more effective.

"Saving the time and expense of calling in a TV truck makes the JetScan a real money saver," Wells concludes. ✦

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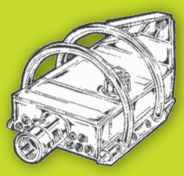
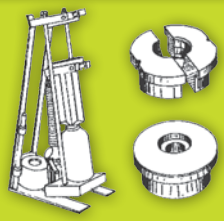
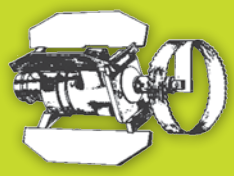
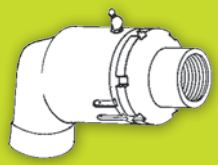

Floor/Bottom Cleaner


Hose Mending/ Swaging Machines


Clamps

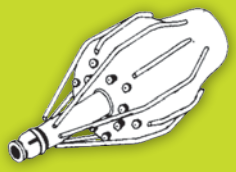

Root Cutter Assemblies

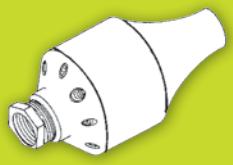

Saw Blades


Swivel Joints


Vacuum Tubes


Sewer Hoses


Shark

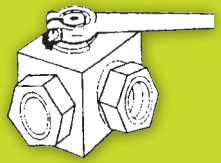

Aluminum Sand

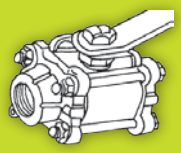

Radial Bullet


Pipe & Sewer Plugs

Warthog Nozzles


Confined Space Entry Systems


Hycon® Valves


Ball Valves

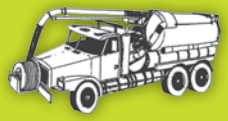

Aluminum Grease


Steel Sand


Truder


Penetrators


HD Washdown Gun

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The PARSA team includes, from left, Steve Grosso, assistant operations manager; John Martens, operations manager; Frank Kunz, assistant operations manager; and Robert Villée, executive director. (Photography by Jeffrey Herring)

THE SMELL OF SUCCESS

Efficiency and forward thinking transform Plainfield from one of the worst collections systems on the East Coast to one of the best

By Jim Force

In the bad old days around Plainfield, N.J., sewers leaked, moratoriums halted community development, and one particularly odorous location along the system was labeled "One of the Stinkiest Places in New Jersey."

That's all changed, thanks to the creation of the Plainfield Area Regional Sewerage Authority and the efforts of PARSA executive director Robert Villée and his lean, hard-working team of just five operators.

"We're the middlemen," Villée says of the PARSA staff. "We are responsible for the interceptor that connects all eight PARSA member communities to the area's wastewater treatment plant."

While their focus is on the interceptor, they're generous with their time. "Frequently," says Villée, "we're called upon to help one of the member communities with a particular issue. We're glad to help. And we don't charge anything extra."

PARSA owns a CCTV truck, combination jet with numerous nozzles, lateral camera and portable flowmeters to assist the member towns and act as a backstop when the problem is unable to be handled by the town's staff. Just within the last year, PARSA provided a licensed operator to work with a member town's staff and resolve issues that had placed the town on the New Jersey DEP watch list.

The attitude and accomplishments of PARSA haven't gone unnoticed in the profession. Villée received the Collection System Award from the Water Environment Federation (WEF) at its annual conference in 2013, and PARSA's operators have racked up two Operator Ingenuity Awards for collection systems innovations.

PARSA

PARSA was formed in 1995, as part of a settlement agreement to an earlier lawsuit against the former public operating agency, the Plainfield Joint Meeting (PJM). PJM had operated the sewers in the area since 1913 and a treatment plant until the late 1950s when the Middlesex County

Utilities Authority opened its Sayreville treatment plant.

Unfortunately, after the PJM plant shut down, the sewer system fell into disrepair, leading to sewer moratoriums, and ultimately the lawsuit by the customer towns served by the system. As a result, the PJM was disbanded in favor of a new regional sewerage authority with all eight towns having equal voting rights.

Today, PARSA serves the townships of Dunellen, Fanwood, Watchung, and North and South Plainfield, as well as the city of Plainfield, Green Brook Township and the township of Scotch Plains. The total population served is about 135,000.

The interceptor averages 12.5 million gallons a day (capacity is 35 mgd) and runs for 26 miles, ranging in diameter from 10 to 54 inches. When PARSA took over in 1996, one third of the line was over 100 years old and the overall average pipe age was more than 65 years. Much of the sewer system is cast-in-place concrete.

Some of the issues PARSA inherited included frequent sanitary sewer overflows, pipe collapses, cash flow and employee morale issues, and the odorous location given the stinky name by a local radio program.

Riding shotgun on the interceptor is Villée, and his team of five operators, all licensed and mostly hand-picked by him from other treatment and collections operations. "It's a talented staff, and they are the keys to our success," he says.

Villée notes with pride that that some of his staff members have advanced to higher positions either within or beyond his organization. One has received the Outstanding Young Professional Award and another the Collection System Award, both from the New Jersey Water Environment Association.

"Frequently, we're called upon to help one of the member communities with a particular issue. We're glad to help. And we don't charge anything extra."

Robert Villée

Making it better

PARSA has made numerous improvements, and continues to implement more.

Billing is better now. And more fair. "The original billing system was based on percentage of flow," explains Villée. "It assumed that everyone had the same quality of sewage." Yet one community was home to several large industries with high BOD and TSS loadings. Surcharges from the WWTP could be hefty, often exceeding $500,000.

"We went back in and redid the service contracts and installed composite samplers on our bigger users, samplers on smaller ones," he says.

Rob Villée proudly displays some of the numerous awards PARSA has earned.

Steve Grosso takes a 24-hour composite sample at a meter chamber.

"We now measure for BOD and TSS [twice a week for large users, weekly for smaller ones] and send the samples out to a contract lab."

Inflow and infiltration was another headache — or one of the many issues that in the beginning, Villée says, "kept me up at night." But his team has managed to reduce flow in the interceptor by some 300

PROFILE:
Plainfield Area Regional Sewerage Authority (PARSA), Middlesex, N.J.

FOUNDED: 1995

POPULATION SERVED: 135,000

SERVICE AREA: Boroughs of Dunellen, Fanwood, North Plainfield, South Plainfield, Watchung, City of Plainfield, Township of Scotch Plains, Green Brook Township

INFRASTRUCTURE: 26 miles of interceptor sewers

NUMBER OF EMPLOYEES: 6

OPERATIONS STAFF: John Martens, operations manager (C-4 License); Frank Kunz, assistant operations manager (C-4 License); Bob Snyder Jr., assistant operations manager (C-4 License); Steve Grosso, assistant operations manager (C-3 License); Jack Ricker, sampling supervisor (C-4 & S-4 Licenses)

ANNUAL OPERATING BUDGET: $2.1 million

WEBSITE: www.parsa-nj.org

John Martens and Frank Kunz monitor the PARSA-developed flow bench, used for calibrating flowmeters. The flow bench won the WEF award for ingenuity.

million gallons a year by tightening up the system.

Villée says his team has concentrated on repairing defective manholes to prevent SSOs, which have dropped to nothing from a high of 30 in 1997.

"We have our own small grouting machine from Avanti, so we can do the manhole repair work ourselves," he says. "We mostly make sure the area around the top of the manhole is watertight."

Since a majority of the manholes are located in flood ways, the PARSA staff makes sure the covers, gaskets and bars are functional and in place, and that the manhole frames are attached and sealed by butyl to the concrete. Villée says his team customarily does manhole tightening work, such as grouting, flow monitoring and installing manhole inserts for member communities who need it, at no charge. "Our thought is, any excess water out of the system is good," Villée says.

Slip-lining defective pipe sections has also helped reduce I&I and overall flow.

"In 2004, we relined 12,500 linear feet with profile wall PVC pipe [Lamson-Vylon]," Villée says. "We used nine access points. The segmented sliplining process uses 13-foot sections of 36-inch PVC pipe that were dropped in the existing 42-inch concrete pipe, then pushed together."

At one access pit, they were able to install over 2,500 feet of pipe by pushing both directions.

"We took out a box culvert and cleared a couple hundred feet of accumulated debris from the siphon — about 200 cubic yards of material," Villée explains. "As a result, the velocity in the sewer increased by about 3/4 of a foot per second. A side benefit was that it increased the velocity in the sewer and reduced the sulfide control chemical usage by $100,000 per year."

When segmented sliplining isn't feasible, PARSA has used direct burial and directional drilling.

"We've used direct bury on two big sections of interceptor," Villée says. "And when I got here, three siphons on what used to be the plant outfall were in bad shape and scheduled for rehabilitation. By looking at several segments as a whole we

LORD OF THE WIPES

If you enter the PARSA office in Middlesex, N.J. and ask to see the "Lord of the Wipes," they'll direct you immediately to Executive Director Rob Villée.

That's because Villée has taken it upon himself to campaign against the use of "flushable wipes" that really aren't flushable. They remain intact in water and can cause major problems — like clogging pumps — when they're flushed down the toilet and into the community's sewer system.

"Many of the national brands say they're flushable but they don't lose their wet strength even after they've been submerged for over an hour," Villée says. "Some of them are so robust they don't fall apart for as long as three weeks."

He says it's a major issue all across the country, and he's trying to educate both the public and the manufacturers — locally and nationally.

"People don't understand. If a wipe gets soiled, they flush it down the toilet, even if it's not flushable."

Public education is really needed on this issue, he feels, but he's also active with manufacturers, pointing out that he recently visited one plant where they had developed a water soluble binder that he calls "wastewater friendly." While he was impressed, he also notes that the process is proprietary, so if other manufacturers are willing to address the issue, they'll have to develop their own substrates and binders.

Still, he's encouraged. "We're gradually getting the profession to recognize the problem," he says, referring to his own collections system operator award from the Water Environment Federation in 2013. "And we hit a home run last summer when we got coverage by the Associated Press, and the story was picked up by major TV stations in New York, Chicago and Los Angeles."

So … don't be surprised if you see the "Lord of the Wipes" one of these nights on your local news.

Rob Villée

were able to lower another section of sewer that was scheduled for replacement due to sulfide damage by 3 feet while increasing the diameter to accommodate the additional flow being added further upstream."

This was accomplished by directionally drilling an 800-foot-long twin barrel HDPE siphon (24- and 36-inch tubes) under a stream known as Greenbrook, eliminating the three old siphons and several miles of sewers in the flood plain. Plus, it improved hydraulics and saved more than a million dollars in construction costs, Villée says.

In conjunction with an Army Corps flood control project in Bound Brook, PARSA negotiated having their pipes removed from under the proposed levees. Instead, 2,000 feet of 54-inch PVC gravity sewer as well as a HDPE siphon (42- and 54-inch) were run under the internal drainage pipes in the flood project. This included micro-tunneling a 400-foot section of gravity sewer under a series of railroad tracks.

The profile wall PVC has been PARSA's pipe of choice for both sliplining and direct burial, Villée says.

Villée's crew has also dealt with maintenance issues by building a valved clean-out chamber on a particularly troublesome 2,500-foot-long siphon originally put online in 1913. The modification allows the crew to flush the siphon tubes into a 10-foot-diameter clean-out chamber and has prevented buildup of solids that were restricting flow and contributing to the backup problems.

"The system lets us communicate with all our different flowmeters, lets us know in real time what's happening around the system. Our operators can monitor the system on their individual laptops or phones rather than having to manually go out into the field."

Robert Villée

Odor solution

PARSA has dealt successfully with odors and has shed the smelly reputation it used to have.

To control odors throughout the system, PARSA uses Bioxide (Evoqua Water Technologies [formerly Siemens Water Technologies]). "We add the chemical at the head of the system and let it work its way to the other end," Villée explains. "We use hydrogen peroxide about 15 minutes upstream of the release point to remove any remaining sulfides.

At the spot that used to have the smelly reputation, changes in piping and the use of hydrogen peroxide have solved the problem. As Villée explains it, an old pipe that connected to an outfall sewer extension dropped 10 vertical feet over 100 linear feet with the drop occurring right next to a busy roadway. "Hydrogen sulfide built up in that section of pipe and escaped into the air at levels of up to 500 parts per million," Villée says. "Odor complaints used to fill up the answering machine on a weekend."

Emissions at the site are now averaging less than 10 ppm, and often are as low as 1 ppm. The system feed rates are managed wirelessly by the Evoqua VersaDose Controller and H_2S data is received via wireless data-loggers.

Some of the other highlights of the PARSA improvement program:

- Establishing a Capital Improvement Plan (CIP).
- Establishing an effective preventive maintenance plan for the interceptor system.
- 18 years without a lost-time accident.
- 2000 WEF George Burke Facility Safety Award.
- 2000 Environmental Quality Award from the USEPA, Region 2.
- Wave Awards for Best Management Practices (Segmented sliplining and wireless data acquisition) from the New Jersey Association of Environmental Authorities.
- Winners of the 2000 WEF Operations Challenge, Collection System Event (Division 2).

Good communications

One of the reasons PARSA is able to run the interceptor system and assist member communities with a relatively small staff is its wireless cellular communications system (Telog). *(continued)*

"The system lets us communicate with all our different flowmeters, lets us know in real time what's happening around the system," Villée says. "Our operators can monitor the system on their individual laptops or phones rather than having to manually go out into the field.

"While it's not a control system, it pushes data out every 15 minutes. If levels are going up, we can see that. The system sends us a text message."

Villée says the cellular system not only helps his team respond to emergencies, but also earmarks specific maintenance needs, helping schedule both regular and special maintenance tasks. It recently alerted the staff to a pending backup in one of the member communities. The town staff was notified and cleared the problem before a backup happened.

"It's a talented staff, and they are the keys to our success."

Robert Villée

Staff innovations

While Villée — who has 36 years in the clean-water business and has been with PARSA basically from its inception — is proud of his Collection System honor from the Water Environment Federation, he is even more proud of awards that have been earned by the PARSA staff.

Twice, the group has been honored with the Operator Ingenuity Award from WEF for innovations that are helping the collections system function better and more cost-effectively.

One example is a flow bench to calibrate flowmeters before they are installed in the field. Flowmeters are the critical element in PARSA's collections system, and they must work perfectly. Yet trying to calibrate them in-situ is awkward if not inaccurate.

"The guys used a 15-foot section of 8-inch pipe and cut out a section in the top," Villée explains. "They have a variety of brackets so they can mount a flowmeter on the flow bench and run water through the pipe at various velocities and depths so the meter is calibrated correctly."

The other innovation involves PARSA and Villée's passion for flushable wipes (see sidebar). The staff created the "PARSA Potty" — a flushability testing stand consisting of a scaffold and toilet that checks out the claims of various "flushable" products. It's an important tool, Villée says, noting that one product that claimed to break apart during the flushing cycle survived the flush test intact 100 times.

Although they haven't received an award for it yet, the staff built a replica of the manufacturers' association "slosh box," which suppliers use to determine whether a wipe will disintegrate. The slosh box has allowed Villée to independently run tests and gather data that the manufacturers wouldn't share.

"We're using this in discussions with the wipe manufacturers," Villée says. He jokes that the original mockup utilized a fish tank and a mini-bike fork, among other parts pulled from the scrap bin. "The finished version still has the mini-bike fork in it," he says. ✦

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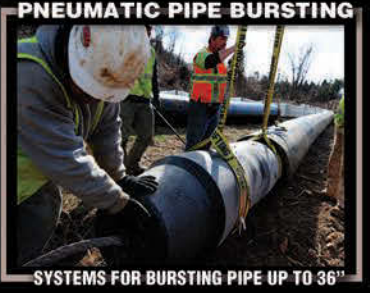

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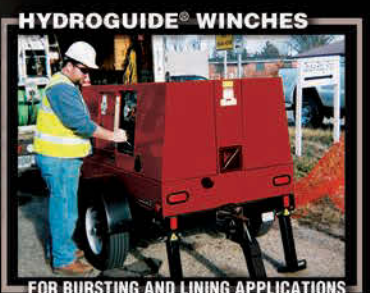

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PIPELINES AND INFRASTRUCTURE

By Craig Mandli

Pipe, valves and pipe components make up the backbone of municipal sewer systems. Here are various types of pipe, pipe parts, components, fittings and valves designed to transport water and wastewater safely and efficiently.

Pipe

Double containment vinyl piping system

Double-See from **GF Piping Systems** is a pressure-rated double containment vinyl piping system for transporting hazardous liquids. It offers an easy installation method, a closure coupling design that allows conformance to the ASME B31.3 test inspection requirements, and a 3-D thermal expansion compensation feature. With this system, both primary and secondary pipes are cut to the same length and can be joined simultaneously, saving significant time and preventing potential mistakes caused by staggered pipe-cut measurement errors. It offers assembled and tested fittings and a pipe cut-length guidance system that simplifies installation. The system offers pipe, fittings, leak detection and access tees, closure couplings and termination fittings. It is available in PVC and CPVC; either material may be primary or secondary, with clear PVC an option for the containment pipe. System size options range from 1/2- by 2-inch to 6- by 10-inch. **800/854-4090; www.gfpiping.com.**

Semi-rigid water pipe

Combining the strength of steel with the corrosion resistance and durability of concrete, bar-wrapped **B-303** pipe from **Hanson Pressure Pipe** is a stiff, strong, semi-rigid water pipe. It is manufactured using a welded steel cylinder lined with mortar or concrete, with a mild steel reinforcing bar helically wound around the outside of the cylinder and coated with dense Portland cement mortar for physical and corrosion protection. It is easily modified in the field, including outlets, service taps and simple repairs. It is available in 10- to 72-inch diameters and 20- to 35-foot lengths. **972/262-3600; www.hansonpressurepipe.com.**

Polymer mortar pipe

Centrifugally cast, fiberglass-reinforced, polymer mortar **HOBAS Pipe** is inherently corrosion resistant and lasts 100 years or more, providing a very low life cycle cost. Key applications are sanitary and storm sewers, corrosive environments and potable water. It features leak-free, push-together joints that reduce installation time and costs. Benefits include superior hydraulics, light weight, high strength and long maintenance-free service life. Installation methods include open cut, sliplining, jacking, microtunneling, two-pass tunnel, casing carrier and above ground. Sizes range from 18 to 126 inches for both pressure and gravity applications. **800/856-7473; www.hobaspipe.com.**

High-density polyethylene pipe

High-performance high-density polyethylene (HDPE) **pipe** from **WL Plastics Corporation** is durable, offering more than 100 years of life in most applications. It's a fused, leak-free and self-restrained joint, along with being corrosion free and chemically resistant. **682/831-2726; www.wlplastics.com.**

Pipe Parts/Fittings

Brass coupling

The **Cambridge Coupling** from **Cambridge Brass** connects any two pipes of varying sizes and materials. It can attach to any pipe material through a wide range of sizes, which reduces repair time and required inventory. Installation is simple and requires minimal tools. It connects to a variety of pipe styles and sizes. **800/724-3906; www.cambridgebrass.com.**

Gravity pipe restraint

The **Gravity Sewer Pipe Restraint** from **Ford Meter Box** accommodates a new casing spacer that can easily fit both large and small casings. The casing spacer's design offers two settings set with a slot and tab connection, allowing the casing spacer diameter to be adjusted based on the casing size. In addition, the slides have an extremely slick surface, enabling the pipe to glide easily within the casing. The combined location of the connecting lug and clamping pad reduces stress on the pipe wall by eliminating the forces that cause the ring to pivot and squeeze the pipe. The fastener location facilitates optimization of the cross section thickness, resulting in an easy-to-handle and easy-to-install restraint. **260/563-3171; www.fordmeterbox.com.**

Pipe supports

Pipe supports from **RELINER/Duran** are easily installed adjustable clamping pipe brackets made of noncorrosive 11-gauge 304 Stainless. They securely attach pipes to manhole walls and other surfaces with no protruding hardware, and are fully adjustable to fit irregular surfaces. Often used with the RELINER Inside Drop Bowl to eliminate outside drops in sanitary sewers or stormwater drops, they attach to the wall with 3/8-inch stainless steel bolts in noncorrosive shields. A wide range of clamp sizes from 1.5 to 30 inches for SDR 35, Schedule 40, C900, CIOD, etc., are kept in stock. Other sizes are available. **800/508-6001; www.reliner.com.**

Components

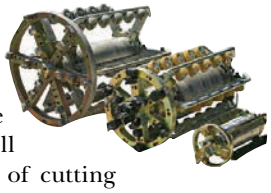
SDWA-compliant fire hydrant

WaterMaster BR250 and **CD250** fire hydrants from **EJ** are compliant with federal Safe Drinking Water Act (SDWA) guidelines. Voluntary performance testing was conducted and all requirements were met per NSF 372 and NSF 61 specifications. Hydrants are also approved to NSF standards through UL. They comply with the requirements of the Reduction of Lead in Drinking Water Act of 2011. State and local jurisdictions may have additional limitations or requirements regarding the use or sale and distribution of products that contain lead. Customers can contact their local or state plumbing or drinking water authority to learn more. **800/626-4653; www.ejco.com.**

Locking manhole frame

The **Lifespan System** from **Hamilton Kent** is a watertight, corrosion-proof, locking, rubber manhole frame with a cast-iron or composite cover that prevents rain-derived inflow from entering sanitary sewer systems and underground structures through the top of the manhole. The system has been tested to withstand 15 psi of water pressure and performs well when manhole covers sit under standing water. It has also been AASHTO H-25 load tested, making it suited for heavy traffic areas. Installation crews can easily handle it in easements or environmentally sensitive areas, as the 24-inch frame weighs only 55 pounds. It is also available in 27- and 30-inch clear opening sizes. The system's tapered risers allow for simple adjustment of the frame to match virtually any surface grade. The locking mechanism deters unauthorized access and manhole cover theft, and eliminates rattling covers. **859/533-0849; www.hamiltonkent.com.**

Milling system



The **Wamax Milling System** from **Mongoose Jetters** utilizes a turbine-driven gearing system to generate cutting torque to turn the milling head. Combined with the hammer-drill effect of the cutting wheel, the unit capable of cutting concrete, major mineral deposits and solid blockages. The internal gearing also allows the system to be used with low gpm jetting machines. **800/323-1604; www.mongoosejetters.com.**

Pipe threading machine

The **RIDGID Model 1224 Threading Machine** features a rugged two-speed gearbox, driven by a 1 1/2 hp reversible induction motor, provides optimal speeds for threading pipe sizes up to 4 inches. The carriage integrates the pipe cutter, reamer and die head to perform all the threading steps, without moving or adjusting the pipe from its chucked position. The special start and run circuit accommodates those instances where the voltage is less than ideal. Integral to the performance of the machine is the oiling system that floods the end of the pipe, clearing the chips into the reservoir while cooling the dies. An adapter can be attached to power a roll groover, or with special dies and die head can be used to cut groove or bevel. **800/769-7743; www.ridgid.com.**

Pumps

Bypass pump

The **Yakka150i** bypass/dewatering pump from **AllightPrimax** has replaceable wear plates and impellers made of stainless steel. It operates quietly, emitting only 65 dBA at 23 feet. The body is impact resistant and requires minimal maintenance. The strong tubular frame design provides side and end protection. Lockable gull wing doors are wrapped over the body for security and easy access. All controls are inside the lockable module. **877/477-4629; www.allightprimax.com.**

Portable non-clog pump

The **Dri-Prime NC150** pump from **Godwin, a Xylem brand,** is engineered to deliver non-clog performance, sustained high efficiency and long-term energy/fuel savings. It is an extremely powerful yet compact pump with flow capabilities up to 1,767 gpm and discharge heads up to 195 feet. It features Flygt N-technology with a self-cleaning impeller. The automatic self-priming system primes and reprimes from dry up to 28 feet without operator assistance or foot valve control. It features a dry-running high-pressure oil bath mechanical seal with abrasion-resistant silicon carbide faces. It can be customized with a diesel engine or electric motor on a highway trailer or skid-mount, or in a quiet enclosure. **800/247-8674; www.godwinpumps.com.**

Centrifugal pump

The **N-Series** solids-handling pump from **Flygt – a Xylem Brand,** features a self-cleaning design that continuously delivers sustained high efficiency resulting in energy savings. The Adaptive N-impeller is designed to move axially upwards when needed, providing clog-free performance. It minimizes unscheduled downtime, resulting in further maintenance cost savings. It can be easily retrofitted into existing conventional non-clog pump installations. **704/409-9700; www.flygtus.com.**

Submersible cistern pump

CI Series stainless steel submersible cistern pumps from **Franklin Electric** are designed for use in graywater/filtered effluent service applications, and include the ability to pass solids up to 1/8 inch in diameter without impacting pump life. They are constructed of a 304 stainless steel motor and outer shell with engineered polymer hydraulics providing corrosion resistance and abrasive handling. Features include a thermoplastic discharge head to avoid breakage during installation and operation, removable 5-inch-wide base for secure and reliable mounting, a motor lead connection protected with a rubber boot and secured with a stainless steel strain relief, and a bottom suction design allowing maximum fluid drawdown without compromising durability or pump life. It is available in flow ratings of 10, 20 and 30 gpm, with a maximum shut-off pressure of over 100 psi, and is available with a 115- or 230-volt 1/2 hp single-phase motor. **800/269-0063; www.franklin-electric.com.**

(continued)

Backup pumping system

Designed to deliver all the benefits of our sound-attenuated silent pumps, the **ReliaPrime** emergency bypass station from **Gorman-Rupp Company** operates on natural gas, making it quiet, efficient and environmentally friendly. It features a 6-inch Super T Series pump capable of passing a 3-inch spherical solid, and offers a soundproof, lightweight aluminum enclosure with lockable door panels that are easily removed for maintenance of the pump or engine. This unit is a complete backup package, ready for hookup for emergencies and power outages, primary pump repair and additional pumping capacity. **419-755-1011; www.grpumps.com.**

Sewage pump

S Pumps from **Grundfos Pumps** can be used for transferring unscreened raw sewage or water, pumping water containing sludge or pumping industrial effluent. They feature a SmartTrim impeller clearance adjustment system and SmartSeal for leakage prevention. The SmartTrim system makes it easy to adjust the factory-set impeller clearance to maintain efficiency. The SmartSeal auto-coupling gasket provides a leak-proof connection between the pump and the base unit of the auto-coupling system. The shaft seal is capable of rotating in either direction. When installed with separate pipework, sludge sedimentation can be avoided by back-flushing at regular intervals. **800/921-7867; www.grundfos.us.**

Sewer pump

The **HDP-196** sewer pump from **Hammelmann Corp.** is suited for dirty water applications, with flow up to 160 gpm and pressures of 3,200 psi. Features include a compact design and integral reduction gear. Options include horizontal or vertical models, a reversible pump head, central or side-suction connection, discharge connections on both sides, left- or right-hand drive shaft, and operation at any angle. It features high-grade solid ceramic plungers, wear-resistant valve seats, low-flow velocity over suction and discharge valves, packing seal sets within rust-resistant stainless steel sleeves, slow plunger speed, an industrial drive end specifically designed for continuous duty, a pressurized oil lubrication system, and clockwise or counterclockwise rotation. It is easy to service due to its reversible valve seats, suction and discharge valves with identical components, maintenance without the removal of suction and pressure lines, service access in the front and above the unit, and a fixed valve housing accessible via lightweight cover plates. It has a quiet drive end due to twin helical gears. **800/783-4935; www.hammelmann.com.**

Pressure sewer system

The **InviziQ** pressure sewer system is an alternative to conventional gravity sewage options. Rather than relying on gravity and a network of lift stations to transfer sewage, it utilizes grinding and pumping to move sewage to treatment facilities, regardless of the terrain, slope, environmental sensitivity of the area or complex topography of the region. It offers Dry Well design that delivers clean access to the system motor and other working parts of the unit. In addition, network monitoring and control is built into the system. **513/226-6961; www.inviziq.com.**

Solids-handling pump

The **Hydromatic HPE Series** premium-efficient solids-handling pump from **Pentair** is available up to 200 hp and is engineered for low life cycle costs and long life. It uses a premium-efficient, oil-filled motor that saves energy and has low operating temperatures and permanently lubricated bearings for long life. Features include a switchable seal for easy change, optional quick-disconnect cord, optional shaft-grounding ring for use with VFDs, a bronze sleeve bearing that eliminates the labyrinth ring and a seal-leak detector. **888/416-9513; www.hydromatichpe.com.**

High-head pump

The portable **6JCC** pump from **Thompson Pump & Manufacturing Co.** delivers 1,100 gpm, high heads to 490 feet and 212 psi with automatic initial priming and repriming. It is ideal for high-pressure applications such as for clear waterjetting, water boosting, wellpoint installation, water supply for hydraulic fracturing, washdowns, tank cleaning and fire protection. It offers the Enviroprime System that provides reliable, automatic initial priming and repriming. Options include a Silent Knight sound-attenuated canopy, and applications assistance. **800/767-7310; www.thompsonpump.com.**

Valves

Heavy-duty pinch valve

Heavy-Duty Pinch Valves from **Flowrox** feature dual closing of the valve sleeve on the centerline of the valve for more accurate flow control and less stress on the rubber sleeve. Available sleeve materials include styrene-butadiene, natural or gum rubber, hypalon, nitrile, EPDM, butyl, polyurethane, hydrogenated nitrile, fluorine rubber and chloroprene rubber. All sleeve materials and all sizes and pressure classes are available with a SensoMate sleeve-wear monitoring system. All types of actuators are available, including manual, pneumatic, electric motor operators and hydraulic. They have an enclosed stainless steel stem that isolates the stem from process media and insures smooth and easy operation. All valves are equipped with a 1/2-inch plug in the bottom half of the body for ease of monitoring sleeve performance. All pinch bar rods are stainless steel. **410/636-2250; www.flowrox.us.**

Wafer check valve

WCV Series wafer check valves from **Hayward Flow Control** have all thermoplastic molded construction, including angle seat and disc design for high flows. The valves fit ANSI 150 and PN10 flanges and are available in PVC and CPVC in 2- to 8-inch diameters with a maximum pressure rating of 150 psi nonshock at 70 degrees F. **888/429-4635; www.haywardflowcontrol.com.**

Plug valve

The **Ballcentric Plug Valve** from **Henry Pratt Company** is available in sizes from 3 to 36 inches. The round port design on 3- through 20-inch units reduces fluid flow resistance, resulting in better flow characteristics

and less pressure drop across the valve. There is no debris buildup on the plug because it is hidden from the flow. This also allows for in-line pigging. A large nominal port design means low erosion, long service life and reduced pumping costs. **877/436-7977; www.henrypratt.com.**

Extendable valve

STRAIGHT-FIT valves from **Mainline Backflow Products** are ideal for retrofit and new installations. They come in 3-, 4- and 6-inch sizes, and are available in both PVC and ABS. They have a body that is extendible to whatever depth required. The gate can be extended for easy extraction as well. They feature a Smart CURVE cleat insert that is designed to allow a sewer snake to feed and retract without catching on the gate itself. They also have a cleat insert in the body that will ease the feeding and retrieval of a snake without hanging up, reducing excessive wear on the body. They also have an optional test gate that can be used to pressure test the system or to isolate the property. **877/734-8691; www.backwatervalve.com.**

Inline check valve

The **CheckMate Valve** from **Red Valve Co. / Tideflex Technologies** was developed for CSO and diversion chamber applications. It is an inline check valve designed to be installed at the upstream or downstream side of a diversion chamber. The entire valve is constructed of rubber, making it rust-free and resistant to grease and oils typically found in wastewater. Additionally, with seven elastomers to select from, it can be manufactured to resist chemicals found in industrial wastewater applications. It boasts extremely low head loss, and can be specified and used in CSO, SSO, odor control, and municipal and industrial cross-connection. **412/279-0044; www.tideflex.com.**

Single rolling diaphragm pressure-reducing valve

The **SRD Pressure Reducing Valve** from **Singer Valve** provides smooth, steady and precise pressure control from maximum to virtually zero flow without the need for low-flow bypass valves. The effective area of a single rolling diaphragm remains constant so the bonnet is smaller and lighter than a flat diaphragm version. A measured quantity into the bonnet control chamber always gives the same smooth movement of the inner valve through the entire stroke. A smaller bonnet also makes the valve lighter and safer for maintenance, while the smaller control chamber enables it to respond faster to changing pressures. By eliminating the seat chatter at low flows, it avoids injecting small pressure pulses into the piping, which, over time, may increase leakage, losses or pipe bursts. Units range in size from 6 up to 36 inches. **888/764-7858; www.singervalve.com.**

Swing check valve

The **AWWA** swing check valve from **Val-Matic Valve & Manufacturing Corp.** for water and wastewater applications prevents backflow by automatically closing when fluid reverses direction. It has a ductile-iron disc that swings open upon pump startup. When closed, the valve provides a tight shut-off through a field-replaceable stainless steel seat. Valves are available with three closure options (lever and weight, air cushion, lever and spring) and in 2- to 24-inch and 30- to 48-inch sizes. **630/941-7600; www.valmatic.com.** ✦

Legal Notice - Paid Advertisement

If You Purchased Municipal Derivative Transactions from January 1, 1992 to August 18, 2011

You Could Get a Payment for a Class Action Settlement.

A proposed Settlement has been reached with Bank of America, N.A. ("Bank of America"), in a class action lawsuit that alleges price-fixing in the sale of municipal derivatives transactions by Bank of America and other companies. The case, *In re Municipal Derivatives Antitrust Litigation*, MDL No. 1950, No. 08-02516, is pending in the United States District Court for the Southern District of New York.

Who Is Included in the Settlement?

This Settlement includes all state, local and municipal government entities, independent government agencies, quasi-government, non-profit and private entities that purchased:

(1) Municipal derivative transactions through negotiation, competitive bidding or auction, from any Alleged Provider Defendant or Co-Conspirator or brokered by any Alleged Broker Defendant or Co-Conspirator,

(2) Any time from January 1, 1992 through August 18, 2011 in the United States and its territories or for delivery in the United States and its territories.

The Defendants and Co-Conspirators are listed in the detailed notice available on the Settlement website.

What Does the Settlement Provide?

Bank of America agreed to a settlement amount of $20 million (plus any funds remaining in the State AG Escrow Fund that, as of the date this Notice is issued, Bank of America has access to pursuant to the terms of the State AG Settlement – this potential additional amount could be between $0 and $1 million) to be paid as follows: $10 million has already been paid into an escrow account and the balance will be paid later. This Settlement is only a partial settlement of the lawsuit because it only affects the claims against Bank of America. The lawsuit is continuing against other Defendants. Morgan Stanley, Wachovia/Wells Fargo, and JPMorgan have already settled. Bank of America will provide reasonable cooperation, including discovery cooperation, to Class Plaintiffs' Counsel in the litigation that will continue against the other Defendants.

What Do I Do Now?

- **Remain in the Settlement.** To remain in the Settlement Class and participate in the Settlement, you do not have to do anything now. If the Court approves the Settlement, you give up the right to sue Bank of America for the claims and issues in this case. The Settlement Agreement, specifically Paragraph 1(cc), which is available at www.MunicipalDerivativesSettlement.com, describes in more detail the legal claims that you give up if you stay in the Class. If you remain in the Settlement Class, you still have the right to exclude yourself from any other settlements with other defendants reached in this lawsuit. Claim forms are not available now. Register on the Settlement website to receive a claim form when it becomes available.

- **Exclude yourself from the Settlement.** If you do not want to remain in the Settlement Class, you must exclude yourself. You must send a written request for exclusion by first-class mail, **postmarked no later than May 6, 2014** to the Settlement Administrator. The detailed notice available on the Settlement website describes the information you are required to include in your request for exclusion. If you exclude yourself, you cannot participate in the Settlement, but you retain your right to sue Bank of America on your own for the claims in this lawsuit.

  NOTE: You may receive similar notices regarding proposed settlements with other Defendants (i.e., GE Funding Capital Market Services, Inc., Trinity Funding Co., LLC and Trinity Plus Funding Co., LLC). However, if you wish to exclude yourself from the Bank of America settlement, you **must** *send a separate and specific notice with regard to the Bank of America settlement*.

- **Object or Comment on the Settlement.** If you remain in the Settlement Class and want to object to or comment on the Bank of America Settlement or any part of it, you must file an objection with the Court and deliver a copy to Class Counsel and Bank of America **no later than May 6, 2014**.

When Will the Court Decide Whether to Approve the Settlement?

The Court has scheduled a hearing on June 6, 2014, at 10 a.m. at the United States District Court for the Southern District of New York, United States Courthouse, 500 Pearl Street, New York, NY 10007, to consider whether to finally approve the Bank of America Settlement as fair, reasonable and adequate, whether to approve Class Counsel's request for reimbursement of litigation expenses, and to consider any objections.

The Court has appointed the law firms of Hausfeld LLP; Boies, Schiller & Flexner LLP; and Susman Godfrey L.L.P. to serve as Class Counsel and represent all Class Members. If you want to be represented by your own lawyer, you may hire one at your own expense. You or your lawyer may ask to appear and speak at the hearing but are not required to. If you want to be heard by the Court, you must file a written notice of your intention to appear with the Court and deliver a copy to the Class Counsel and Bank of America **no later than May 6, 2014**. The Court may change the time and date of the hearing. Any change will be posted on the Settlement website.

Get More Information

For more information on this lawsuit, your rights, or to obtain a list of defendants, call or visit the Settlement website listed below or write to Municipal Derivatives Settlement, c/o Rust Consulting, Inc., P.O. Box 2500, Faribault, MN 55021-9500.

For more information: 1-877-310-0512 www.MunicipalDerivativesSettlement.com

Polypropylene pipe stops unwelcome stormwater infiltration

Problem

To prevent stormwater from infiltrating into its sewer system, the City of Moberly, Mo., decided to replace the crumbling 80-year-old brick and mortar tunnel serving as a combined stormwater and sanitary pipeline. The Reed Street Combined Sewer Overflow (CSO) replacement project used more than 3,000 feet of new pipe to connect to the Taylor Street CSO as a way to reduce inflow and infiltration by replacing the old brick sewer with a larger diameter pipe.

Solution

The 60-inch diameter pipe selected was **SaniTite HP pipe from Advanced Drainage Systems (ADS).** According to Mike McCarty, P.E., of Jacobs Engineering Group Inc. in St. Louis, "In designing the new pipeline, we tried to match or exceed what the capacity of the brick arch was, which yielded the combination of pipe sizes — 60-inch RCP and 54-inch PVC. After consideration of constructability, cost and hydraulic issues, the decision was made to eliminate RCP and PVC and construct the project with polypropylene pipe."

RESULT

The new pipeline was installed successfully, and has significantly cut infiltration. "Another benefit we got from the polypropylene pipe was that we were able to increase capacity for the entire run," says McCarty. **800/821-6710; www.ads-pipe.com.**

Corrosion-resistant manholes needed for quick install

Problem

A new residential development in North Las Vegas, Nev., required corrosion-protected manholes that could be quickly installed. Ease of installation was tremendously important for the project contractor and the small crew of laborers.

Solution

Working with a local contractor, **HD Supply Waterworks selected Geneva Polymer's noncorrosive Armorock Manholes** for the project. They are made of sand and aggregate, with resin as the binder in lieu of traditional cement. They also offer half the wall thickness of a traditional concrete manhole, with strength to surpass the load requirements of a concrete manhole.

RESULT

The manholes bypass the need for many of the inspections and tests required for other manholes, as there is no welding or coating involved. On the job site, the manholes arrived noncorrosive, speeding up installation and avoiding some of the pitfalls of field applications going awry. A significant amount of installation time was saved, and the contractor delivered on time. **262/844-2923; www.hdswaterworks.com.**

Sound-attenuated pumps enable nondisruptive sewer work following hurricane

Problem

Following Hurricane Ike, the City of Galveston, Texas, needed to keep its sewer system operational. Sixteen lift stations needed portable pumps with auto start/stop capability, along with the hose and fittings to tie into existing piping. Several of these stations were in the shadow of expensive beachfront homes, apartments and local businesses. The residents needed to continue their daily lives despite the issues caused by Ike.

Solution

National Pump & Compressor wanted to help accomplish sewer improvement jobs without intruding into residents' space or causing excess noise that usually accompanies running diesel engines. They utilized a mix of 4-, 6- and 8-inch **Pioneer Prime dBA Silencer sound-attenuated pump packages** at 12 locations throughout the city. The package emits only 68 dBA at 25 feet.

RESULT

The packages have been on site for several years while the City awaits funding to repair the lift stations. "We have not received a single noise complaint with the placement of the silent packs," says Cynthia Diaz, Galveston Waste Water Superintendent. It will see continued use in the City of Galveston for the foreseeable future. **888/840-5886; www.npcrents.com.**

Fitting fabricated for emergency transmission pipeline repair

Problem

Dekalb County, Ga., maintenance crews responded to a leak on Buford Highway. They excavated a failed 48-inch pipe connection buried more than 12 feet below that was deflected 5 1/2 degrees beyond what it was designed for. Conditions prevented straightening the joint, adding to the list of complications. The large number of customers dependent on this pipeline for water service meant shutdown would be an absolute last resort.

Solution

Smith-Blair Inc. was chosen to design and fabricate a solution for this project. The solution would involve installing a specially designed fitting under pressure, without interrupting service. First, personnel were deployed

to the job site to collect information critical to ensuring the fitting became reality. Then the company's internal design team developed shop drawings. The factory produced a complex, corrosion-resistant fitting designed specifically for the application. It displayed a blue Flexi-Coat system, a series of specially bonded fusion powder coatings.

RESULT

Along with county personnel, Smith-Blair installed and tested the fitting in the field, assuring a proper installation completed in a timely manner. **800/643-9705; www.smith-blair.com.**

Multiphase engineered bypasses aid in sewer system upgrades

Problem

The city of Atlanta, Ga., serving nearly 2 million customers, had outgrown their existing wastewater treatment plant and pipeline. The city needed to replace their pipeline with a larger-diameter pipe and build a new high-capacity tunnel for water collection prior to going into the treatment facility. The plan was also to eliminate sanitary sewer overflows to a nearby river, separating their Combined Sewer Overflow (CSO) system as part of the expansion. The 20 mgd project included installation of 26,000 feet of sewer line, requiring more than 30 bypasses over the course of the project.

Solution

Rain for Rent was directly involved in the engineering, planning and deployment to coordinate with the various contractors to ensure a seamless operation. During the multiphase bypass, the company provided 30 pumps, more than two miles of 12- and 18-inch HDPE pipe, fittings, valves, alarm monitoring and spill containment. The bypasses ran through neighborhoods, wetlands and creeks. Sound attenuated pumps were installed to mitigate noise concerns in the neighborhoods.

RESULT

As part of best management practices on the project, the company hydrotested the HDPE pipe with clean water to ensure a leak-free system once the bypass was underway. The new sewer system was installed without any complications or spills. **800/742-7246; www.rainforrent.com.**

(continued)

Vertical lift pumps solve clogging issues caused by flushables

Problem

Wastewater pump clogging caused by flushables (wet wipes and other consumer products marketed safe for flushing) are pervasive issues in collection systems across the nation. Steve Peterson, lead foreman for Sanders Construction in Salt Lake City, began seeking solutions to this problem when he experienced clogging issues at a pump station he maintained for area mobile home parks that serviced approximately 300 residential units. Peterson experienced issues roughly twice a month. Every time the pumps clogged, he spent at least $500 sending two service employees to perform maintenance.

Solution

Peterson utilized a solution for vertical dry-pit lift station pumps that requires a fairly simple change in the rotating assembly. The station's duplex pumps were retrofitted with **X-PELLER impellers from Smith & Loveless** featuring a clog-busting design. Because of the vertical construction, impeller replacement was quick and easy. Its mono-port design creates a single flow path through the impeller, negating the buildup of fibrous material in multi-vane pump impellers. It counterbalances the hydraulic forces at play inside the pump volute to maintain balance during operation.

RESULT

Since installation over a year ago, Peterson has been pleased with the results. Pump clogs have been eliminated. "We've already recouped the cost in less than a year," Peterson says. "Looking five years down the road, that will be a big, big thing for us." **800/898-9122; www.smithandloveless.com.**

Fusible PVC utilized in challenging water line installation

Problem

Faced with significant rate increases from one of their largest wholesale water suppliers, the Bucks County (Pa.) Water & Sewer Authority (BCWSA), along with other neighboring authorities, began a search for an alternative water supply. The most direct and cost-effective route for the new line followed heavily traveled County Line Road and required a crossing of the Pennsylvania Turnpike (Rt. 276). The most difficult section of the entire transmission line project, the crossing would require either a horizontal directional drill (HDD) under the County Line Road bridge abutments and road surface, or a difficult jack and bore installation that would require the line to be rerouted away from the bridge crossing.

Solution

Ultimately, the utility chose the most direct alignment and elected to complete the 800 LF HDD with Fusible PVC pipe. **Underground Solutions Inc. contracted with Aaron Enterprises Inc. to provide 800 LF of 30-inch DR 21 Fusible C-905 pipe and fusion services.** In order to achieve the required 25-foot minimum vertical clearance from the road surface, the HDD alignment required an elevation change close to 55 feet within the 800 LF span. This is a very tight radius for an HDD operation that utilized 30-foot steel drill rods to complete the reaming passes and final pipe pull-in.

RESULT

The strength and flexibility of Fusible PVC pipe makes it a strong material that can withstand the long-term vertical loading required of a pipeline installed 25 feet below a major highway, and allows the end user to use standard ductile iron fittings for connections. "As a critical part of an overall $100 million dollar water project, the method of horizontal directional drilling [HDD] with Fusible PVC pipe was chosen based on cost-effectiveness and reliability of the pipe material in this extreme situation," says Benjamin Jones, BCWSA CEO. **858/679-9551; www.undergroundsolutions.com.** ✦

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

FOLLOWING TRENCHLESS TRENDS

NASSCO working to address important issues that will have a big impact on the industry's future

By Ted DeBoda, P.E.

Preserving our industry's history is important, because it reinforces how far we have come and, hopefully, prevents us from slipping back. As we move forward to address current underground infrastructure needs, we must all come together to drive initiatives that build on our history and ensure a strong future.

In last month's issue of *MSW* I mentioned the Sewer History Exhibit, a traveling display related to the history of sewage conveyance systems, which is on display March 12 and 13 at the Water Environment Federation's Collection Systems 2014 event at the Baltimore Convention Center.

Everything we do at NASSCO supports our mission: To set industry standards for the assessment and rehabilitation of underground infrastructure. Collectively, our divisions, the Infiltration Control Grouting Association and International Pipe Bursting Association, our many influential committees, and our members, board and staff stay highly tuned to industry trends and activities to help us meet our goal to assure the continued acceptance and growth of trenchless technologies.

Some of the many industry issues NASSCO has recently addressed include:

Acrylamide Grout Ban: NASSCO worked with the EPA to prevent a proposed ban of acrylamide grout while ICGA prepared an in-depth safety program for the use of grouts.

Use of Intrinsically Safe (Explosion-Proof) CCTV Equipment in a Sanitary Sewer Environment: A CCTV vendor's attempt to get government regulations revised would have required all existing CCTV equipment to be replaced by new, intrinsically safe equipment at an unnecessary cost of hundreds of millions of dollars to municipalities and contractors. NASSCO successfully supported the CCTV industry against this attempted change.

Proposed Changes to OSHA Confined-Space Entry Regulations Regarding Collection Systems: If reclassified to "new construction," routine maintenance jobs may require additional job site requirements, costing the industry roughly $7.5 million per year. NASSCO testified at congressional hearings, through NASSCO's Health and Safety Committee, and successfully persuaded OSHA to classify rehabilitation work as maintenance.

Styrene Listed as a Potential Carcinogen to Humans: The National Toxicology Program (NTP) of the Department of Health and Human Services (DHHS) in 2011 listed styrene as a potential carcinogen, which impacts requirements for the use of resins in cured-in-place pipe (CIPP). NASSCO worked with the styrene industry, through the CIPP Committee, to have the government review the science behind the findings listed in the NTP program. Ultimately, a study by the National Academy of Science (NAS) was authorized by a Congressional Committee to review the findings.

The only way NASSCO can continue to make a positive impact on our industry is through the deep knowledge and commitment of NASSCO members. If you have experience you would like to share and want to join NASSCO in having a voice to help bring about positive change for the trenchless industry, visit www.nassco.org and join today. ✦

Ted DeBoda is executive director of NASSCO. He can be reached at director@nassco.org.

Get the EDge — Training and Continuing Education Courses

PACP TRAINING

March 3-5, 2014
Marriottsville, MD
Includes Manholes and Laterals!
Trainer: Ted DeBoda
For more information or to register contact Dawn Jaworski at 410-442-7473 or email dawn@nassco.org

March 11-13, 2014
Twinsburg, OH
Includes Manholes and Laterals!
Trainer: Brandon Conley
For more information or to register contact the Jack Doheny Camera Department at 248-349-0905 or email pacp@dohenycompanies.com

March 11-13, 2014
Conyers, GA
Includes Manholes and Laterals!
For more information or to register contact John Jones at 404-431-5584 or email plumblineconsultant@gmail.com

April 8-10, 2014
Conyers, GA
Includes Manholes and Laterals!
For more information or to register contact John Jones at 404-431-5584 or email plumblineconsultant@gmail.com

April 28-30, 2014
Marriottsville, MD
Includes Manholes and Laterals!
Trainer: Ted DeBoda
For more information or to register contact Dawn Jaworski at 410-442-7473 or email dawn@nassco.org

ITCP Training (CIPP and Manhole)

March 19-20, 2014
Minneapolis, MN (Metro Council Environmental Services)
Cured-in-Place-Pipe
8 a.m. – 5 p.m. Day 1
8 a.m. – 1 p.m. Day 2
Trainer: Gerry Muenchmeyer
For more information contact Gerry Muenchmeyer at 252-626-9930 or email gerry@muenchmeyerassoc.com

March 19-20, 2014
Orange County, CA
Cured-in-Place-Pipe
8 a.m. – 5 p.m. daily
Trainer: Rocky Capehart
For more information contact Rocky Capehart at 916-834-2712 or email rcapehart@sprayroq.com

April 23-24, 2014
Denver, CO
Manhole Rehabilitation
8 a.m. – 5 p.m. daily
Trainer: Rocky Capehart
For more information contact Rocky Capehart at 916-834-2712 or email rcapehart@sprayroq.com

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

Product Spotlight

Detachable digital recording monitor captures video to USB

By Ed Wodalski

SeeSnake CS6 from RIDGID

BACK VIEW

Designed for fast and efficient fieldwork, the SeeSnake CS6 digital recording monitor from RIDGID captures still images and video clips straight to a USB thumb drive, enabling users to edit and archive multimedia reports.

"While in the field, the user can simply remove the thumb drive from the CS6 or plug it into a computer to view and share the content," says James McGregor, director of global marketing for RIDGID. "With the push of a button, the CS6 provides simple and reliable digital recordings that allow users to instantly identify where the problem may exist."

The CS6, which docks onto the SeeSnake Max rM200 camera system for transportation and storage, is compatible with the full line of RIDGID SeeSnake reels. Powered by an 18-volt rechargeable lithium battery, key features include a 5.7-inch daylight-readable LCD screen with on-screen keyboard for basic titling and text entry, integrated microphone and speakers for adding voiceovers and a water-resistant keypad. Made for residential and commercial applications, the CS6 weighs 3.6 pounds and is 14.2 inches long, 6.5 inches wide and 5.1 inches high.

"A streamlined user experience is a major goal of RIDGID," McGregor says. "We are always looking to utilize the latest technology to bring simplicity and quality to our customers." **800/769-7743; www.ridgid.com.**

Badger Meter turbine flowmeters

Vision Series turbine flowmeters from Badger Meter comply with the lead-free provisions of the United States Safe Drinking Water Act (SDWA) and are bisphenol A (BPA) free. The meters are designed for flow measurement of low-viscosity and nonaggressive liquids. **800/876-3837; www.badgermeter.com.**

Rain for Rent RiteFlo app

RiteFlo, a free app from Rain for Rent, features a suite of hydraulic estimation tools designed for water and wastewater professionals. The app includes a gravity flow logger and TDH calculator. It can be downloaded from the Apple App Store. **800/742-7246; www.rainforrent.com.**

Metabo 5.2 Ah battery system

The Ultra-M 5.2 amp hour battery system from Metabo Corp. is designed to run in extreme temperatures, from 5 to 122 degrees F, and is fully compatible with all Metabo 18-volt systems. **800/638-2264; www.metabousa.com.**

Trelleborg flexible pipe plugs

Pipe plugs from Trelleborg Offshore and Construction Infrastructure feature layers of rubber reinforced with Aramid. Utilizing a new design and manufacturing process, the plugs are lighter, safer and more flexible to install. Side handles make the plugs easier to maneuver, while smaller top plates make transportation through tight manholes and 90-degree turns easier and quicker. The multi-size, inflatable flow stopper range is available for underground pipe diameters from approximately 1.5 (40 mm) to 94.5 inches (2,400 mm) with or without bypass. **800/626-2180; www.trelleborg.com/npc.**

Ditch Witch ride-on tractor

The four-wheel-drive RT100 ride-on tractor from Ditch Witch has a Tier 4-compliant 100 hp Deutz diesel engine. The operator's station has a 90-degree swivel seat, adjustable armrests, tilt steering column and color LCD engine display. Options include climate control. **800/654-6481; www.ditchwitch.com.**

Greyline multi-sensor area-velocity flowmeter

The AVMC 5.1 multi-sensor area-velocity flowmeter from Greyline Instruments is designed for municipal stormwater, combined effluent, raw sewage and irrigation water. The flowmeter uses three submerged ultrasonic sensors to continuously measure velocity at different points in the channel and provide an average velocity reading for flow monitoring. One of the sensors also can monitor the water level or a separate, noncontacting ultrasonic level sensor can be used in the system. **888/473-9546; www.greyline.com.**

Reed Manufacturing deburring tool

The DEB1 deburr and chamfer tool from Reed Manufacturing Co. is designed for PVC, CPVC, ABS, PE and PP pipe up to 2 inches in diameter. Features include a slip-resistant knurled grip and blade that can be sharpened or replaced. **800/666-3691; www.reedmfgco.com.**

Hach FL900AV flow logger

The FL900AV flow logger from Hach, together with the AV9000 analyzer, dampens EMF and RFI noise for smoother, more accurate measurements. Velocity measurements can account for water temperature swings and salinity concentrations. Advanced diagnostics verify that the sensor is working properly. **800/368-2723; www.hachflow.com.**

Dynamic Systems barcode tracking tags

Based on barcode technology, CheckMate software from Dynamic Systems records where an item is, who has it and when it is due back. The software tracks A, B and C Class items and includes a maintenance mode that records repairs, schedules periodic maintenance, records warranty expiration dates and tracks vehicle service and registration renewals. Labels are available in preprinted polyester with adhesive backing, two-dimensional, custom and metal tags. **800/342-3999; www.a-barcode.com.**

Smith & Loveless system controls

QUICKSMART system controls from Smith & Loveless is a PLC-based controller designed to monitor and adjust pump station functions. Features include digital maintenance log, I/O status, Spanish language mode and help functions. Other features include alarm management, wet well level simulation, pump on/off levels, prime mode selection, environmental system set points and optional STATIONCOMM integration. **800/898-9122; www.smithandloveless.com.**

SMC hydrogen sulfide gas detector

The Model 4501-05 two-wire hydrogen sulfide gas detector from Sierra Monitor Corp. is loop powered, eliminating the need for separate power runs and associated power distribution and circuit protection for each device. Features include 180-day calibration interval, integral scrolling menu-driven LCD display, stainless steel transmitter and sensor enclosure and 4-20 mA signal output. **408/262-6611; www.sierramonitor.com.**

Condux pipe splitting tool

The TurboSlitter pipe splitting tool from Condux International is available as a pneumatically powered or cordless drill attachment. The tool is designed to cut through HDPE ductwork and pipe with a wall thickness of 0.097 to 0.216 inches. The cordless attachment fits most rechargeable drills (14 volts and larger). The pneumatic model is self contained and operates on a small compressor (75 to 90 psi). **800/533-2077; www.condux.com.**

Reelcraft heavy-duty, hand-crank reels

The HC80000 Series of heavy-duty, hand-crank reels from Reelcraft Industries are designed for industrial applications requiring long lengths of large hose and truck mounts. The cast aluminum base is rated at 40,000 psi tensile strength. Options include heavy-duty pin lock to prevent de-spooling when not in use and adjustable drag screw to prevent backlash when operating. **800/444-3134; www.reelcraft.com.**

Redline high-speed wireless system

The Redline Transport Gateway (RTG) Connect high-speed wireless system from Redline Communications is designed to securely connect industrial SCADA systems, providing real-time data collection from and control of devices such as programmable logic controllers, remote terminal units, natural gas meters and pumps controllers. **866/633-6669; www.rdlcom.com.**

Telog wireless pressure relief valve monitoring

The Ru-32 remote telemetry unit from Telog Instruments monitors the event switch on the pressure relief valve as well as pressure at the valve, providing event history data that is time-stamped to one-second resolution. Data can be uploaded daily to a host computer or in response to specific alarm conditions, such as pressure trips or valve open duration. The external antenna can be mounted to the underside of a nonmetallic meter box or attached to the top of a metallic meter vault door. The optional burial antenna can be installed below road or sidewalk surfaces. **585/742-3000; www.telog.com.**

FCI air/gas biogas digester flowmeter

The ST51 mass flowmeter from Fluid Components International provides precise air/gas flow measurement in demanding environments, including biogas digester systems. The explosion-proof instrument requires little maintenance and no moving parts. Its nonclogging design operates over a wide flow range from 0.3 to 400 SFPS (0.08 to 122 MPS) with low-flow sensitivity. Available for use in line sizes from 2 to 24 inches in diameter, the meter operates in temperatures from 0 to 250 degrees F (-18 to 121 degrees C) and withstands pressure up to 500 psig. **800/854-1993; www.fluidcomponents.com.**

Predl Systems FRP manhole base liner

New custom FRP Manhole Base Liners from Predl Systems accommodate typical concrete manhole structures between 42 and 96 inches with precision to provide concrete protective liner solutions for small or large box structures. Integrated pipe connections with leak-proof gasketed seals work with most pipe types typically between 4 and 36 inches in size, and greater. Besides inflow and outflow channels, at least four optional inlets/outlets are available. Each can have a different angle, elevation, slope, type and size. Independent professional research and analysis confirms the absence of material degradation after installation in the ground for 20 years or more. Predl FRP Base Liners users report unsurpassed rainfall derived I&I results. **855/773-3562; www.predlsystems.com.** *(continued)*

General Pipe hand-held drain cleaner

The D-25 hand-held drain cleaner from General Pipe Cleaners has a plastic container and rugged chuck for maximum performance, flexibility and reliability. Drop-tested, fully loaded from 8 feet, the drain cleaner can be used as a hand tool or power tool by removing the turning handle and attaching a 3/8- or 1/2-inch electric drill. Three chuck jaws hold 1/4-, 5/16- and 3/8-inch Flexicore cable. **800/245-6200; www.drainbrain.com.**

Ergodyne head protection

The Skullerz head protection line as well as the Skullerz 8950 bump cap and 8960 bump cap with LED lighting from Ergodyne are designed for applications with overhead hazards but do not require a hard hat. The caps have a flanged shell that expands or contracts to fit the worker's head for a secure fit while protecting against bumps, bruises and cuts. Thermo-formed foam and a ventilated shell provide optimized breathability. The shell also can be removed for cleaning. **800/225-8238; www.ergodyne.com.**

Pulsafeeder polymer makedown systems

Polymer makedown systems from Pulsafeeder are available in automatic and manual versions. The systems feature a three-step, static blending system that provides dilution without harming the polymer chains. Systems are available in 0-5 gpm, 5-10 gpm and 10-plus gpm water flow rates. The system is custom-sized to activate all type of polymers with five neat polymer pump flows available. Systems include an auto-fill calibration column, adjustable flowmeter and neat polymer back pressure regulator. **585/292-8000; www.pulsafeeder.com.**

TT Technologies synthetic air tool lubricant

Grundo-oil synthetic lubricant from TT Technologies is formulated for all pneumatic tools, including the Grundomat piercing tool, Grundocrack pipe bursting systems and the Grundoram pneumatic pipe rammer. The nontoxic, biodegradable air tool oil will not deteriorate air hoses or plastic pipe. Water based, water soluble and free of ethylene glycol, the lubricant is available in summer and winter grade formulas. **800/533-2078; www.tttechnologies.com.**

Vactor remote information system

The VactorTRAK remote information system from Vactor Manufacturing monitors and reviews cleaning operations on Vactor 2100 Plus combination sewer cleaners. It also can be retrofitted onto Vactor 2100 Plus trucks. The system collects and transmits operational data to a secure hosted website where it can be accessed from any Internet-connected device. In addition to specific job review, the system enables operations managers to view statistics for each unit or the entire fleet over a given period of time to determine total sewer line cleaned, jobs performed and water and fuel consumed. **800/627-3171; www.vactor.com.**

Wacker Neuson radiant heater

The HDR 155 direct-fired radiant heater from Wacker Neuson delivers 155,000 Btu per hour. An oil flame heats a stainless steel disk to approximately 1,700 degrees F (926 C). The shield emits electromagnetic (infrared) waves that travel in straight lines away from the heater, unaffected by wind or weather. Exhaust gases are directed upward for clean, dry, healthy heat. **800/770-0957; www.wackerneuson.com**.

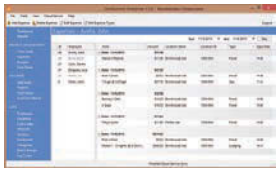
Evoqua magnetite ballasted system

The CoMag magnetite ballasted system from Evoqua Water Technologies (formerly Siemens Water Technologies) is designed for high-rate clarification of industrial and municipal water and wastewater. The system uses magnetite to ballast conventional chemical floc for enhanced settling rates and increased performance of wastewater and water treatment operations, while reducing capital and life cycle costs. **www.evoqua.com.**

Stanley Vidmar 5S cabinets

5S cabinets from Stanley Vidmar are designed to fulfill lean and Kaizen storage requirements. Features include Plexiglas or solid hinged doors with metal pegboard inserts, heavy-duty lock and difficult to duplicate key system to safely secure valuable items. **800/523-9462; www.stanleyvidmar.com.**

ExakTime tracking hub software



TimeSummit 1.4 time tracking hub from ExakTime includes employee curtaining, daily overtime by location and employee expense tracking. Employee curtaining shows supervisors only the employees they need to track at their specific job site. Daily overtime tracking by location enables an administrator to set different overtime rules at job sites. Employee expense tracking provides data on custom-set expenses, such as tools, supplies, meals and travel. **877/435-6411; www.exaktime.com.**

Water Cannon water-cooled pressure washers

Roll-cage protected water-cooled Kubota pressure washers from Water Cannon are available in 2-, 3- and 4-cylinder models up to 7,000 psi. Accessories include 50-foot hose, wand, trigger gun and QC nozzle. The industrial-duty, diesel model includes fork-lift channels, removable roll cage with lifting hooks, optional wheel kit and onboard, long-run fuel tank. **800/333-9274; www.watercannon.com.**

McElroy pipe fusion software

DataLogger Vault pipe fusion software from McElroy Manufacturing provides joint-data analysis and storage. Compatible on the DataLogger 3, 4 and 5, the free online app enables users to view and analyze data from most devices. The DataLogger 5 records and documents key parameters of the pipe fusion process. Features include GPS stamping, barcode scanning, photographic capabilities and full support for Wi-Fi and cellular networks. **918/836-8611; www.mcelroy.com/fusion.** ✦

If You Purchased Municipal Derivative Transactions from January 1, 1992 to August 18, 2011

You Could Get a Payment for a Class Action Settlement.

A proposed Settlement has been reached with GE Funding Capital Market Services, Inc., Trinity Funding Co., LLC and Trinity Plus Funding Co., LLC (collectively, "GE"), in a class action lawsuit that alleges price-fixing in the sale of municipal derivatives transactions by GE and other companies. The case, *In re Municipal Derivatives Antitrust Litigation*, MDL No. 1950, No. 08-02516, is pending in the United States District Court for the Southern District of New York.

Who Is Included in the Settlement?

This Settlement includes all state, local and municipal government entities, independent government agencies, quasi-government, non-profit and private entities that purchased:

(1) Municipal derivative transactions through negotiation, competitive bidding or auction, from any Alleged Provider Defendant or brokered by any Alleged Broker Defendant,

(2) Any time from January 1, 1992 through August 18, 2011 in the United States and its territories or for delivery in the United States and its territories.

The Defendants and Co-Conspirators are listed in the detailed notice available on the Settlement website.

What Does the Settlement Provide?

GE agreed to a settlement amount of $18.25 million. This Settlement is only a partial settlement of the lawsuit because it only affects the claims against GE. The lawsuit is continuing against other Defendants. Morgan Stanley, Wachovia/ Wells Fargo, and JPMorgan have already settled. GE will provide reasonable cooperation, including discovery cooperation, to Class Plaintiffs' Counsel in the litigation that will continue against the other Defendants.

What Do I Do Now?

- **Remain in the Settlement.** To remain in the Settlement Class and participate in the Settlement, you do not have to do anything now. If the Court approves the Settlement, you give up the right to sue GE for the claims and issues in this case. The Settlement Agreement, specifically Paragraph 1(bb), which is available at www.MunicipalDerivativesSettlement.com, describes in more detail the legal claims that you give up if you stay in the Class. If you remain in the Settlement Class, you still have the right to exclude yourself from any other settlements with other defendants reached in this lawsuit. Claim forms are not available now. Register on the Settlement website to receive a claim form when it becomes available.
- **Exclude yourself from the Settlement.** If you do not want to remain in the Settlement Class, you must exclude yourself. You must send a written request for exclusion by first-class mail, **postmarked no later than May 6, 2014** to the Settlement Administrator. The detailed notice available on the Settlement website describes the information you are required to include in your request for exclusion. If you exclude yourself, you cannot participate in the Settlement, but you retain your right to sue GE on your own for the claims in this lawsuit.

  NOTE: You may receive similar notices regarding proposed settlements with other Defendants (i.e., Bank of America). However, if you wish to exclude yourself from the GE settlement, you **must** *send a separate and specific notice with regard to the GE settlement.*
- **Object or Comment on the Settlement.** If you remain in the Settlement Class and want to object to or comment on the GE Settlement or any part of it, you must file an objection with the Court and deliver a copy to Class Counsel and GE **no later than May 6, 2014**.

When Will the Court Decide Whether to Approve the Settlement?

The Court has scheduled a hearing on June 6, 2014, at 10 a.m. at the United States District Court for the Southern District of New York, United States Courthouse, 500 Pearl Street, New York, NY 10007, to consider whether to finally approve the GE Settlement as fair, reasonable and adequate, whether to approve Class Counsel's request for reimbursement of litigation expenses, and to consider any objections.

The Court has appointed the law firms of Hausfeld LLP; Boies, Schiller & Flexner LLP; and Susman Godfrey L.L.P. to serve as Class Counsel and represent all Class Members. If you want to be represented by your own lawyer, you may hire one at your own expense. You or your lawyer may ask to appear and speak at the hearing but are not required to. If you want to be heard by the Court, you must file a written notice of your intention to appear with the Court and deliver a copy to the Class Counsel and GE **no later than May 6, 2014**. The Court may change the time and date of the hearing. Any change will be posted on the Settlement website.

Get More Information

For more information on this lawsuit, your rights, or to obtain a list of defendants, call or visit the Settlement website listed below or write to Municipal Derivatives Settlement, c/o Rust Consulting, Inc., P.O. Box 2500, Faribault, MN 55021-9500.

For more information: 1-877-310-0512 www.MunicipalDerivativesSettlement.com

RIDGID launches enhanced website

RIDGID launched www.ridgid.com, a single, global company website with responsive design that enables it to work on any Internet-enabled device. The website dynamically scales larger and smaller, depending on the device and its orientation, and enables users to review, rate and ask questions about specific products.

PRIMEX adds sales engineer

PRIMEX, formerly Control Works, hired Perry Baldwin as sales engineer. Based in Milford, Ohio, Baldwin has 30 years of engineering experience and 10 years experience in the wastewater control panel industry.

Perry Baldwin

Hyundai sends aid to Philippines

Hyundai Heavy Industries Group, Hyundai Construction Equipment's parent company, donated $200,000 via the Korean Red Cross in the wake of Typhoon Haiyan, which caused catastrophic damage to the Philippines. The company also dispatched a 21-ton class excavator, backhoe loader and operators to the area to assist in recovery efforts.

Bilco's single-leaf smoke vents receive UL approval

The Bilco Co.'s Type SV single-leaf, automatic smoke vents received UL approval per the UL 793 standard for automatically operated roof vents for smoke and heat.

Aquatherm launches website

Aquatherm redesigned its website, www.aquatherm.com. The site features training videos, navigable case studies, products and industry certifications.

Pipe Restoration Technologies receives Spanish patent

Pipe Restoration Technologies, makers of the ePIPE product line, received Spanish patent 2099581 for methods and systems for relining and sealing pipe systems in place.

HOBAS Pipe certified for Canada drinking water

HOBAS Pipe USA gained inclusion on the Bureau de normalization de Quebec's (BNQ) list of certified products, processes and services. BNQ is a member organization of the National Standards System of Canada and acts as a partner to business, industry and public and regulatory bodies for the purpose of improving the quality of products, processes and services, as well as their acceptance in all markets.

ADS adds fourth production line

Advanced Drainage Systems added a fourth manufacturing line to its Saint-Germain-de-Grantham, Quebec, plant to produce large diameter, open profile pipe from 900 to 1,500 mm. The facility is certified to produce N-12 corrugated HDPE pipe diameter from 100 to 900 mm with minimum pipe stiffness. It also is capable of making the company's SaniTite HP polypropylene pipe.

Burns & McDonnell hires regional manager

Della Schall Young

Burns & McDonnell named Della Schall Young regional manager in the environmental studies and permitting practice. She will provide services in Minnesota and surrounding states related to federal, state and local water resources, stormwater and environmental planning and permitting.

Wastequip names division presidents, vice president

Wastequip promoted John Defenbaugh to mobile division president. He will be responsible for sales and operation of the Galbreath, Pioneer, Mountain Tarp and Parts Place brands. Shawn King was named president of Wastequip's technical division and will focus on growing market share for compactors and balers. Tim Phanco was named vice president of sales for Toter.

Joe Johnson Equipment opens Texas location

Joe Johnson Equipment opened a location in Beaumont, Texas, to serve the Gulf Coast from Corpus Christi, Texas, to New Orleans, La. JJE supplies equipment to the industrial cleaning market, including hydroexcavators, industrial vacs, horizontal directional drilling and trenching products. ✦

WORTH NOTING

PEOPLE/AWARDS

Stafford Township's engineering firm, **CME Associates of Howell,** received a first-place Municipal Management Projects Award from the New Jersey Society of Municipal Engineers for its concept and plans for the Ocean Acres Stormwater Management Investigation Project.

The Muncie (Ind.) Sanitary District's Stormwater Management Department announced the following 2013 award recipients:

- Contractor of the Year: **Wiley & Sons Excavating**
- Outstanding Individual Site Management: **3D Company Inc., The Grove**

The Lake County (Ill.) Stormwater Management Commission announced the following 2013 award recipients:

- Community of the Year: **Tower Lakes Improvement Association**
- Best Management Practice Project of the Year: **Sheridan Road Wetland Detention Project,** City of North Chicago
- Stewardship of the Year: **Britt Hanson** and **Todd Nega,** Highland Park
- Media Award: **Lake County TV**
- Stormwater Manager of the Year: **Dave Brown,** Village of Vernon Hills
- Development of the Year: **Prairie Trail School**, Wadsworth

LEARNING OPPORTUNITIES

American Society of Civil Engineers

The ASCE has these courses:

- March 3 – Sustainable Stormwater Hydrology: Concepts to Reduce Hydrologic Footprint, online
- March 14-15 – Stormwater BMPs That Work: Effective Analysis, Design and Maintenance, Cambridge, Mass.
- March 26 – Stormwater BMPs: What Works, What Doesn't and What About Maintenance, online

Visit www.asce.org.

American Water Works Association

The AWWA has these courses:

- March 3-4 – Understanding Water Chemistry for Practical Application, Madison, Wis.
- March 11-13 – Operation of Maintenance and Pumps, New Brunswick, N.J.
- March 25-26 – Management Skills for Supervisors, New Brunswick, N.J.
- March 28 – Effective Emergency Communications, New Brunswick, N.J.
- April 7-9 – Financial Management Cost of Service Rate-Making, North Charleston, S.C.

Visit www.awwa.org.

Wisconsin

The University of Wisconsin Department of Engineering-Professional Development is offering the following courses in Madison:

- April 3-4 – Using WinSLAMM v.10.0.1: Meeting Urban Stormwater Management Goals
- June 2-3 – Advance Modeling Using HEC-RAS
- June 4-6 – Unsteady Flow Modeling Using HEC-RAS

Visit http://epdweb.engr.wisc.edu.

The Wisconsin Department of Natural Resources has a Pumps and Motors seminar on May 6 in Madison. Visit http://dnr.wi.gov. ✦

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

CALENDAR

March 9-11
American Water Works Association-South Carolina Section Environmental Conference, Myrtle Beach, S.C. Visit www.awwa.org.

March 17-20
American Water Works Association-Illinois Section Annual Conference, Springfield, Ill. Visit www.awwa.org.

March 18-21
American Water Works Association-New Jersey Section Annual Conference, Atlantic City, N.J. Visit www.awwa.org.

March 30-April 4
American Water Works Association-Missouri Section Annual Conference, Osage Beach, Mo. Visit www.awwa.org.

April 14-17
American Water Works Association-Texas Section Annual Conference, Dallas, Texas. Visit www.awwa.org.

April 21-24
American Water Works Association-Alaska Section Annual Conference, Juneau, Alaska. Visit www.awwa.org.

May 3-6
American Water Works Association-British Columbia Section Annual Conference, Whistler, British Columbia, Canada. Visit www.awwa.org.

May 4-7
American Water Works Association-Ontario Section Annual Conference, London, Ontario, Canada. Visit www.awwa.org.

May 4-7
American Public Works Association 2014 North American Snow Conference, Duke Energy Convention Center, Cincinnati, Ohio. Visit www.apwa.net/snow.

May 6-8
American Water Works Association-Pennsylvania Section Annual Conference, Bethlehem, Pa. Visit www.awwa.org.

May 6-9
American Water Works Association-Pacific Northwest Section Annual Conference, Eugene, Ore. Visit www.awwa.org.

May 6-9
American Water Works Association-Hawaii Section Annual Conference, Honolulu, Hawaii. Visit www.awwa.org.

May 7-9
American Water Works Association-Arizona Section Annual Conference, Glendale, Ariz. Visit www.awwa.org.

May 12-14
American Water Resources Association 2014 Spring Specialty Conference, Snowbird Resort, Salt Lake City, Utah. Visit www.awra.org.

June 8-12
American Water Works Association Annual Conference & Exposition (ACE) 2014, Boston, Mass. Visit www.awwa.org.

June 18-21
American Society of Agricultural and Biological Engineers-Florida Section Annual Conference, Waldorf Astoria Naples, Naples, Fla. Visit www.asabe.org.

June 30-July 2
American Water Resources Association Summer Specialty Conference, John Ascuaga's Nugget Casino Resort, Reno, Nev. Call 540/687-8390 or visit www.awra.org.

July 13-16
American Society of Agricultural and Biological Engineers Annual International Meeting, Montreal, Quebec, Canada. Visit www.asabe.org.

classifieds

see photos in color at www.mswmag.com

POSITIONS AVAILABLE

GapVax, Inc., a nationally recognized manufacturing business, is seeking a talented, highly motivated individual to fill a full-time Sales Position in the Midwest (Iowa based preferred) region. GapVax is the leading manufacturer of industrial and municipal vacuum units and hydroexcavation units in the United States. We provide the most reliable, comprehensive, and efficient mobile vacuum units in the industrial and municipal markets. Specifications of the position are listed on our website, www.gapvax.com, click on the Now Hiring link in the left hand column. Send resumes to Lthomas@gapvax.com or 575 Central Avenue, Johnstown, PA 15902. (CPMGBM)

USG is a growing Pennsylvania-based company seeking CCTV, grouting, jet/vac, CIPP, HDD, lateral rehab and manhole rehabilitation technicians and foremen. Applicants should have a minimum of 1 year experience in the industry. We are an EOE offering great pay, relocation subsidy and steady work. Send resumes to HR@usginc.net, Fax: 717-737-6093 or USG HR Department; 1304 Slate Hill Road, Camp Hill, PA 17011 (P03)

Underground Palmetto FL Utility Company seeking experienced technicians and crew leaders with knowledge of trenchless methods. Fax resume to 941-722-3447 or email to info@subterrainfl.com (C03)

SERVICE/REPAIR

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

TV INSPECTION

CUES K2 SYSTEM: Steerable Compact Pipe Ranger (CPR), OZ3 camera, 1000' gold cable, auto cable reel, CPU, CCU, wireless controllers, six different wheel sets, two different wheel spacer sets, tool and manual. Like new (app. 40 hours) at 20% off list. Call 866-936-8476 or email office@envirosight.com. (MBM)

1998 CUES Mainline TV System: GMC Savanna 3500, CUES with Pro-Data on-screen titler, Honda generator, Sony combo DVD/VHS, 1,700' of M/C cable, pan & tilt camera with shorty transporter. $29,500. 608-835-7767, WI. (CBM)

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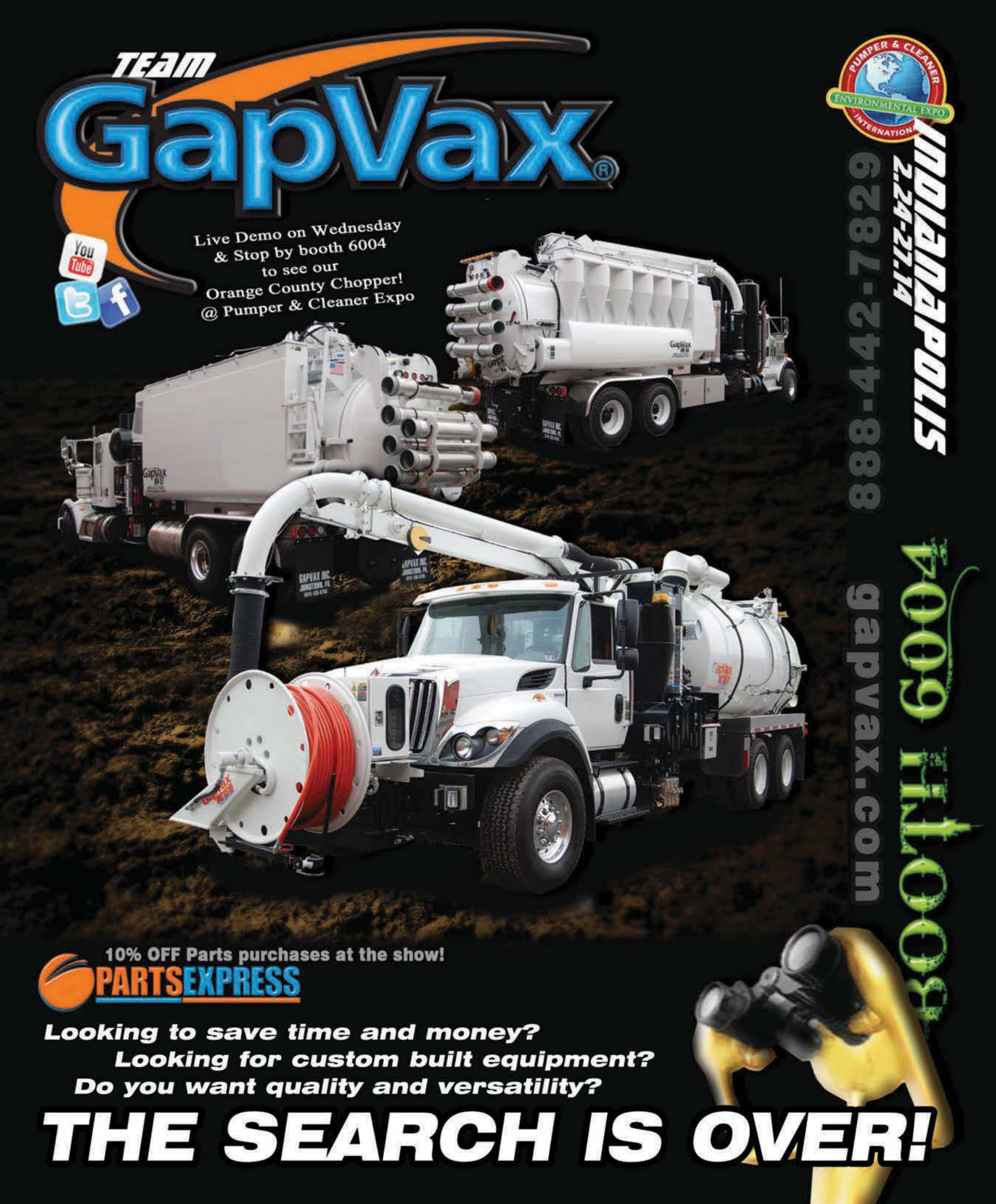
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