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January 2011

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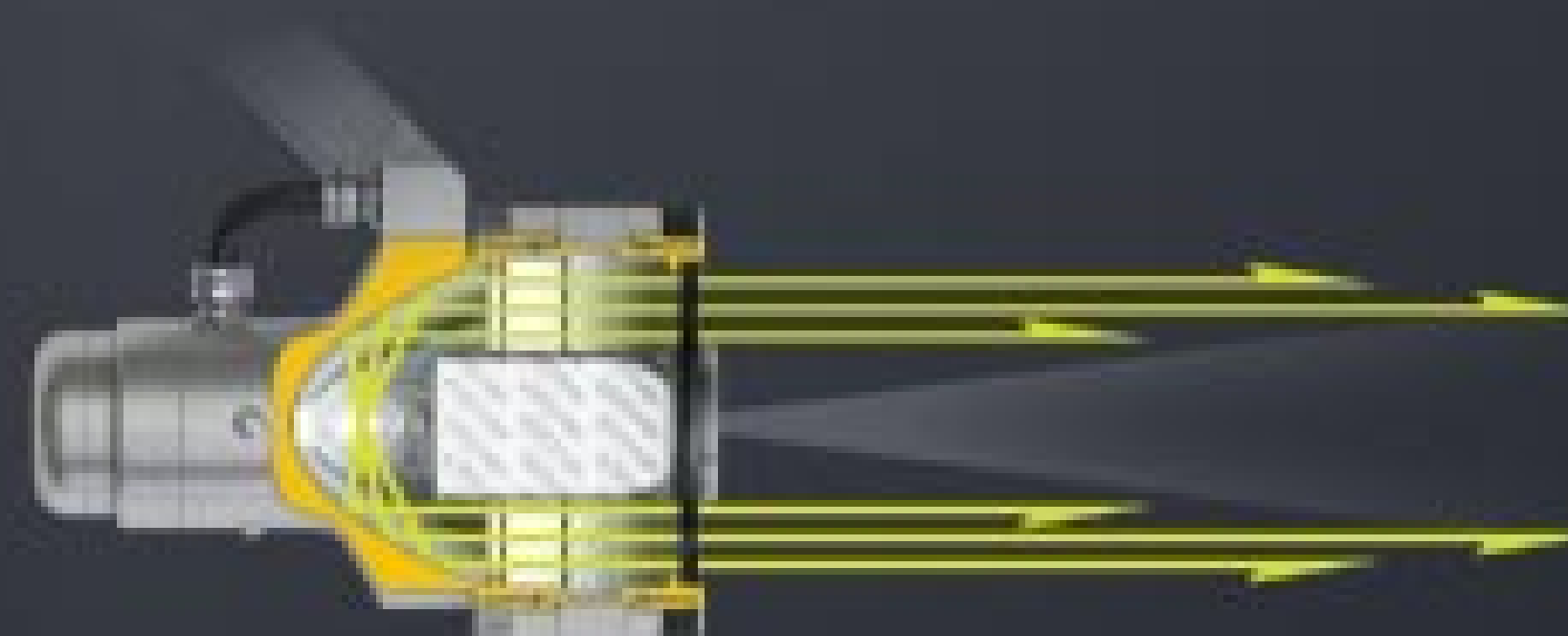
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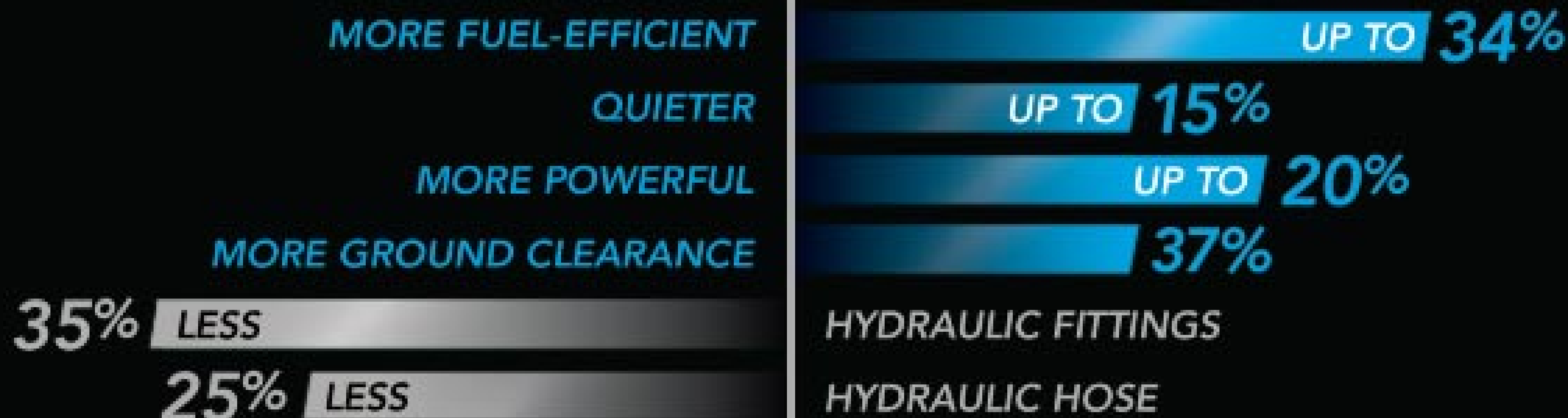
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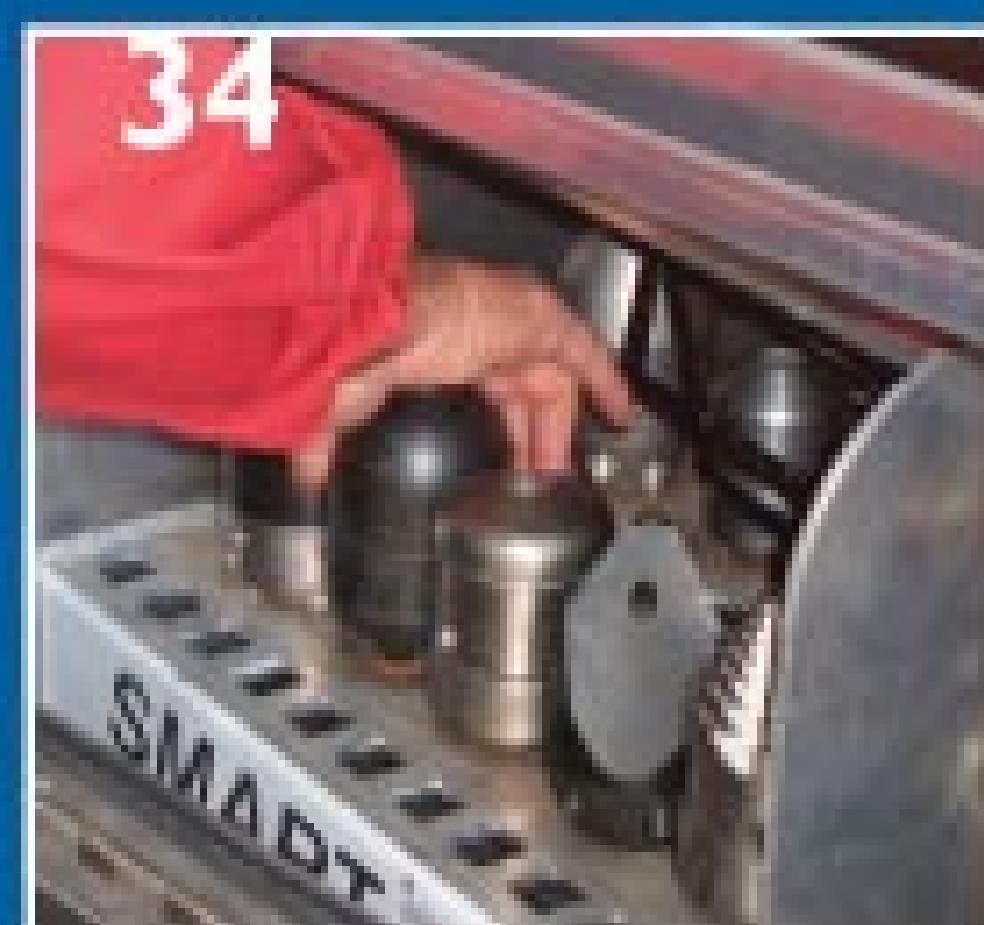
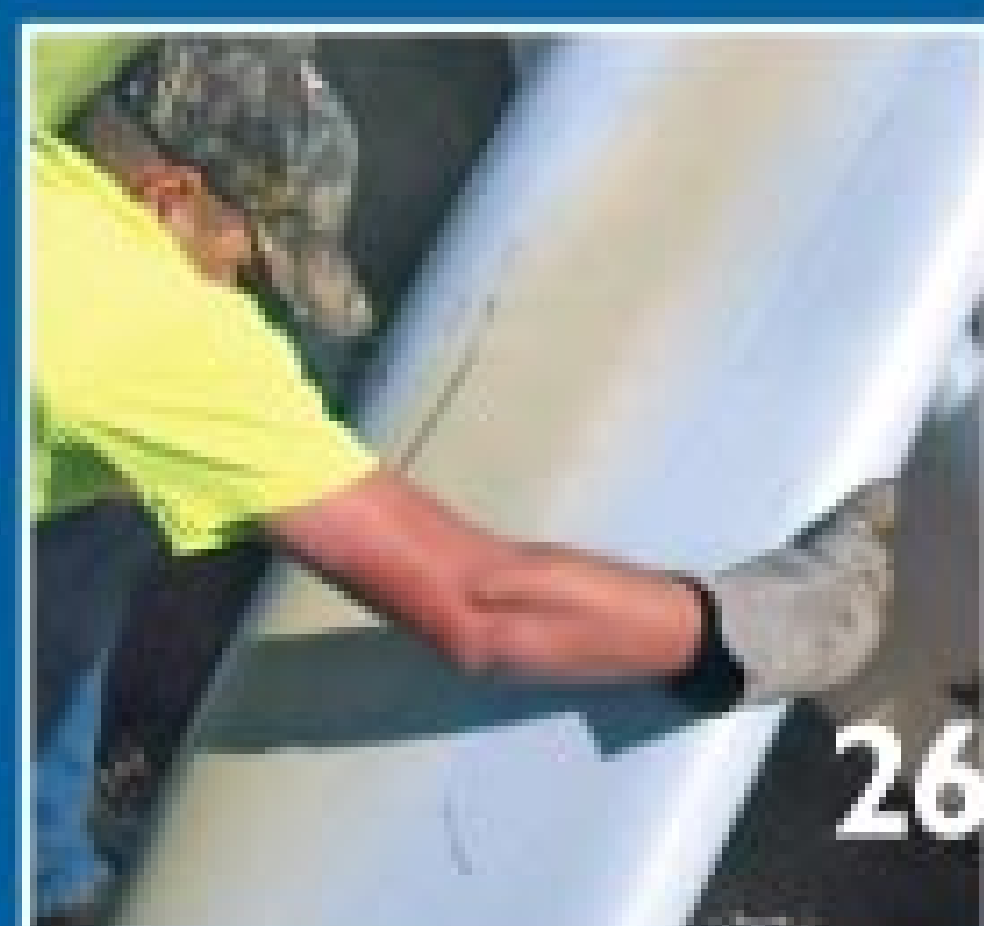
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INSIDE:

WATER SYSTEM MAINTENANCE AND REHABILITATION



COVER:

Consulting field engineer Terry Keeling of ADS Environmental Services uses an ADS Enigma to detect water main leaks in the City of Decatur, Ill. It's part of a leak detection and repair program that has helped the city cut water loss significantly. (Photography by Steve Hale)



COMING IN FEBRUARY 2011

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- ◆ Storm: Public education programs in Chesterton, Ind.
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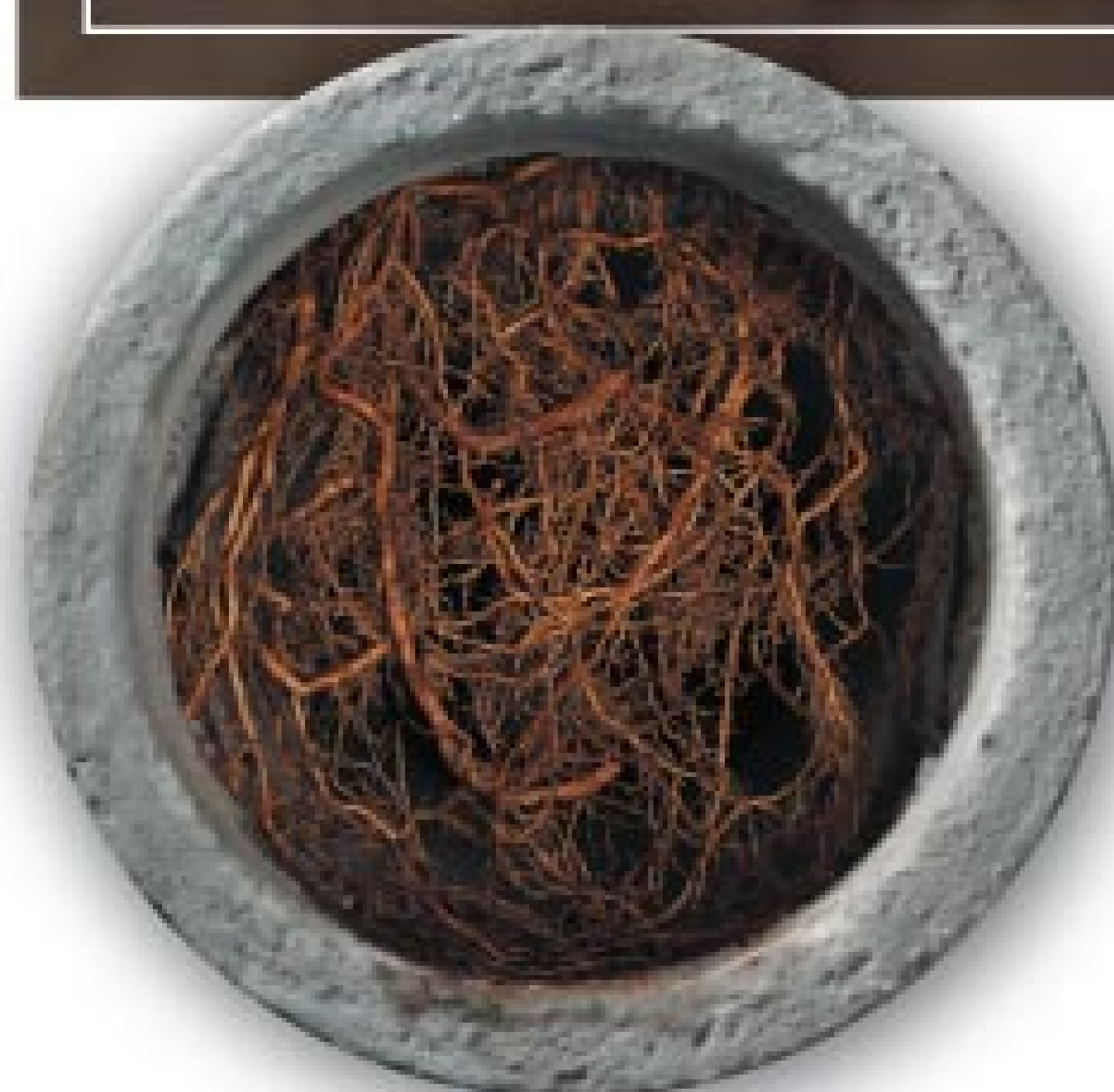
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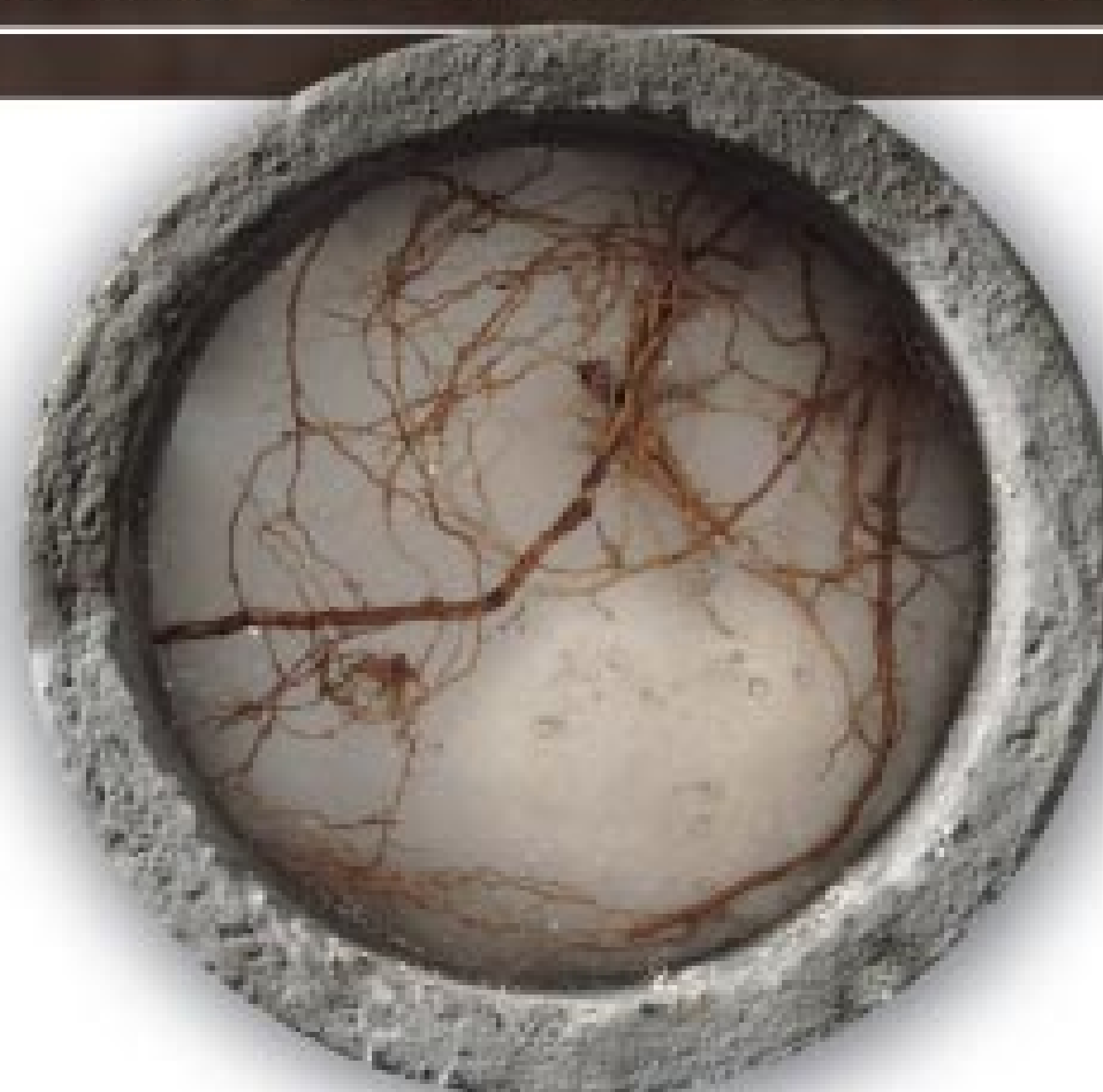
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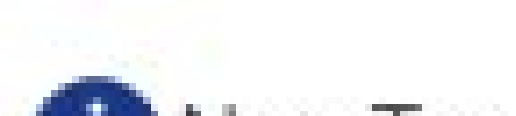
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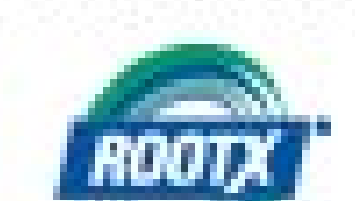
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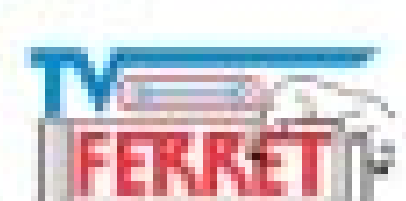


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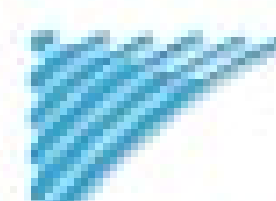


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WHO WERE YOUR MENTORS?

Sometimes we get our best lessons not from books or teachers but from the everyday wisdom of people we encounter in daily life

“When I was a boy of fourteen, my father was so ignorant I could hardly stand to have the old man around. But when I got to be twenty-one, I was astonished at how much he had learned in seven years.”

Mark Twain

This month's "Human Side" column is about mentoring and how it can help younger employees learn what they need to excel at their jobs and move up the ranks.

The right mentor at the right time can do wonders for a person's career. I could name a couple of former bosses without whose help I could never have done what I do professionally today.

But often some of our best lessons come not from official sources like teachers, trainers or mentors. They come from people we happen to encounter who at a given moment turn out to be wise, or happen to say just the thing we need to hear at the time.

Sometimes that's a parent. I've always loved the Mark Twain quote above, and it rings very true for me. Other times it's someone we meet almost at random. Example: When I was 29, not long after our first child was born, I was at a gym playing basketball and happened

to chat with a guy a few years older.

I confided how my wife didn't care for me playing basketball two nights a week now that we had a baby at home. In a bit of macho bluster, I added, "That's too bad — because I'm playing and that's it."

He looked at me and said, "You know, she's right. You're not a kid anymore. Maybe you should be spending more time at home." I took it to heart. I didn't give up what was after all my favorite sport, but I dialed it back and was never sorry.

Making utopia

I got another lesson back in college when I took a course on Utopia during the January

Often some of our best lessons come not from official sources like teachers, trainers or mentors. They come from people we happen to encounter who at a given moment turn out to be wise, or happen to say just the thing we need to hear at the time.

interim session. (This qualifies as a lesson from an unofficial source because interim courses often had less to do with learning than with finding a way to earn a course credit while saving the maximum time for drinking beer.)

The idea was that our group of 20 students would read books about different visions of perfect societies, then use what we learned to devise such a place for ourselves. I started with a pretty clear idea of what Utopia was, and it included a culture that relied to the minimum on mechan-



FROM THE EDITOR

Ted J. Rulseh

ical, energy-consuming devices.

As we began shaping our Utopia, I realized that mine was a minority view — that my classmates weren't much interested in a place where people cut wood to heat their homes, got about on bicycles, and washed clothes by bashing them on rocks. In other words, there were more ways of looking at the world than my own.

I came away pleasantly humbled: The experience helped me shake off a sort of dogmatism I badly needed to get rid of. And I suspect that was just the outcome our wise young professor wanted for us. Years later, I took the opportunity to thank him.

Learning the ethic

Another lesson, this one in the work world, came from a crusty old lifer in a soda pop plant where I worked for a summer during college. Back then I looked at work as something I was forced to do to earn money. I did what I was told and put in my time (often not cheerfully), and that was it.

One day after lunch, after hearing me grumble at the break table, the old-timer pulled me aside and essentially told me I needed to get my mind right. "If you're on their payroll, you need to be on their team," he said. "Take an interest in your job. You'll be a lot happier."

Of course, he was right. And that brings up a favorite work story of mine. In the 1890s, a gang was working on the railroad tracks out west when a train pulled up and out stepped the president of the railroad.

He gave a short speech, after which an old track worker raised his hand and said to the president, "You and I started work on the very same day 35 years ago. How is it that you're up there and I'm still here?"

The president replied, "That's easy. You went to work for 90 cents an hour. I went to work for the railroad." ■

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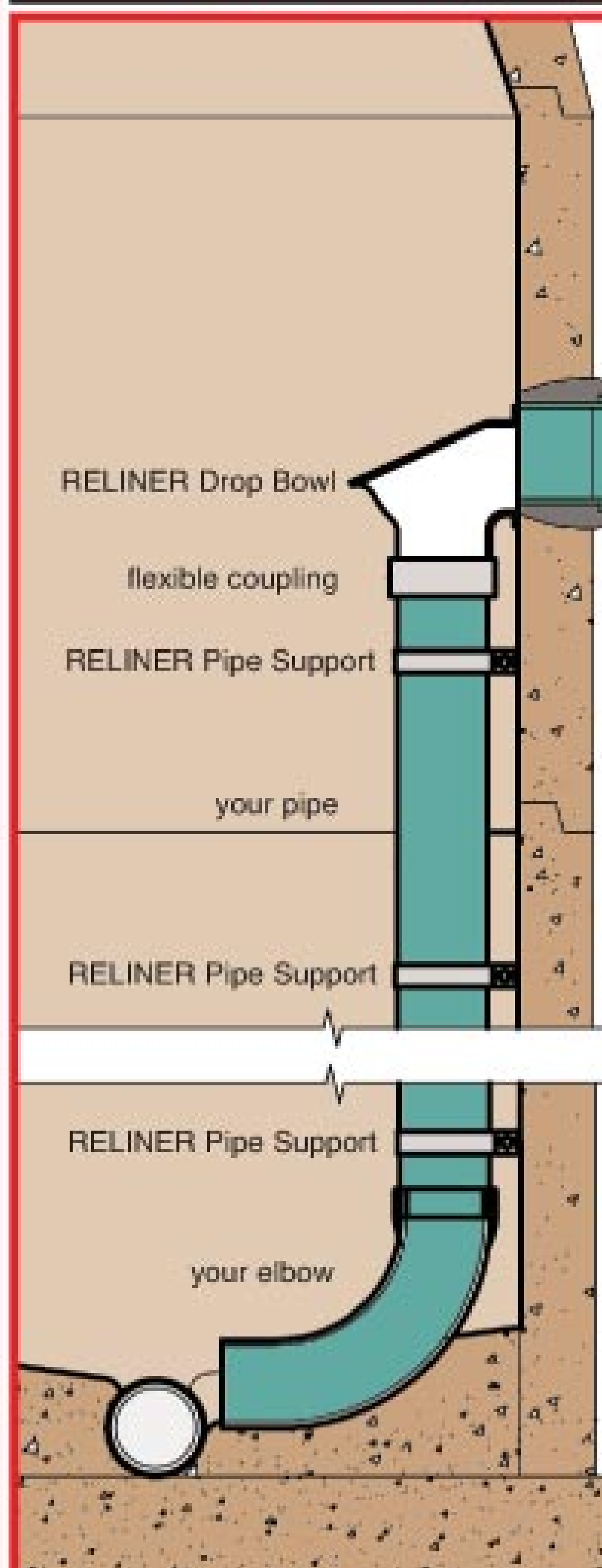


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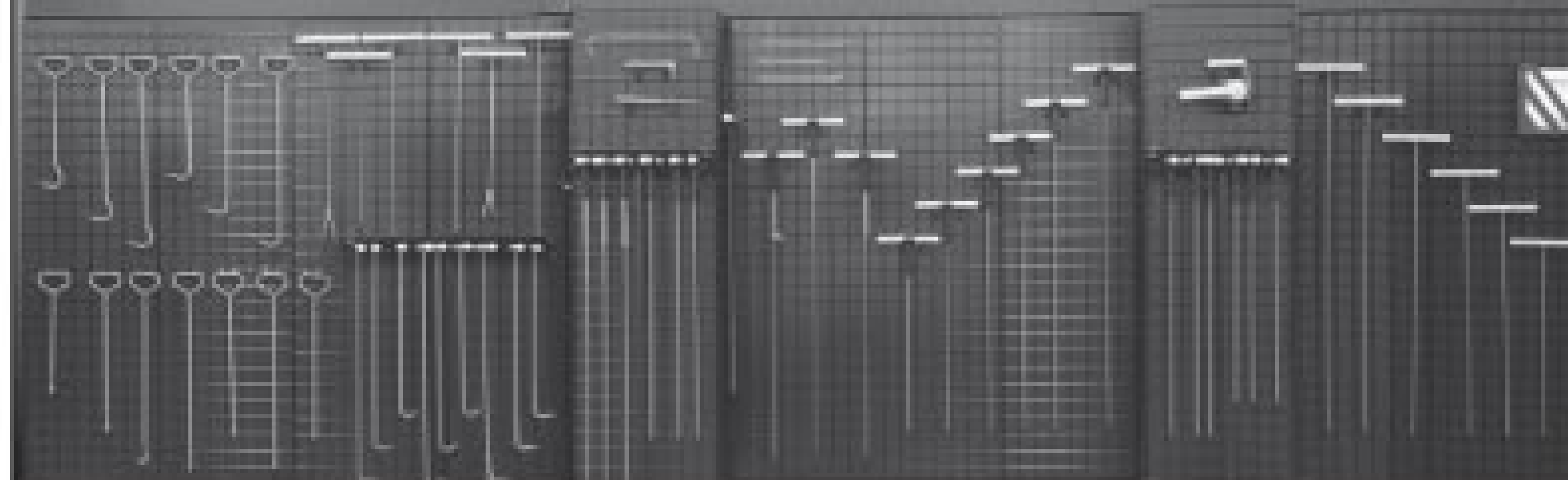


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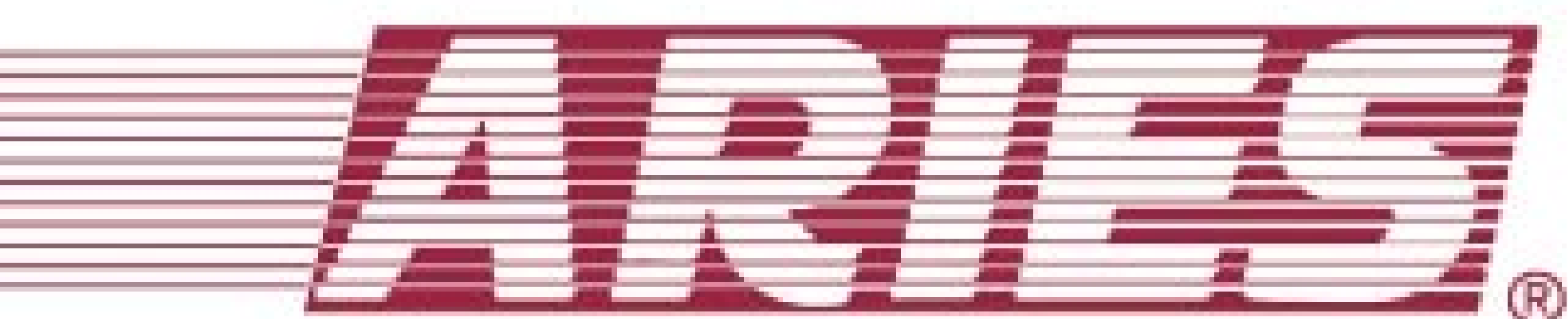
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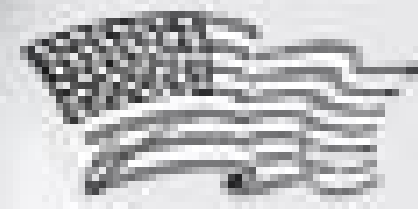
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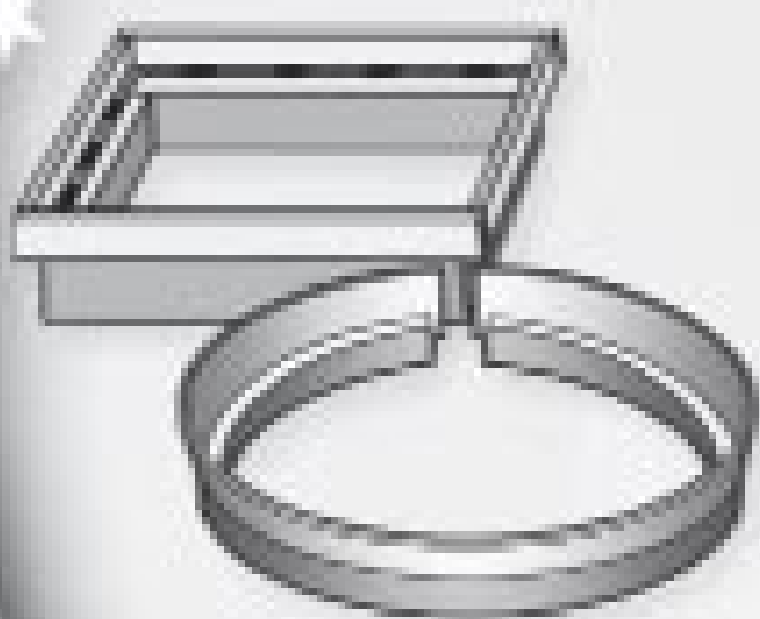
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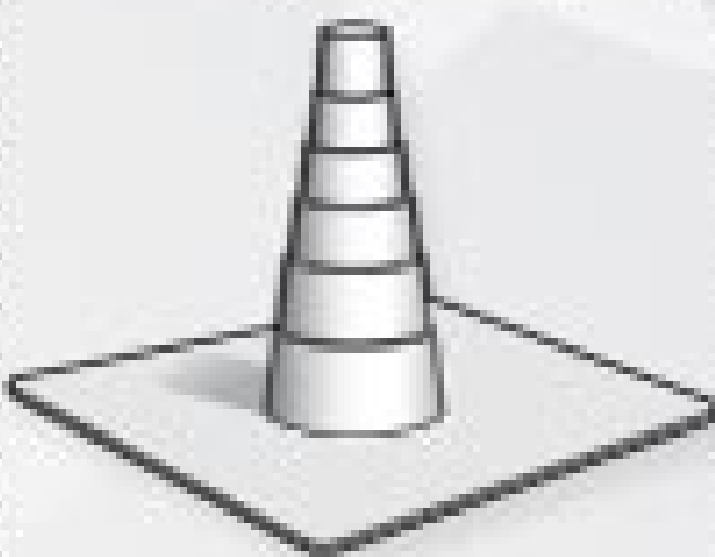


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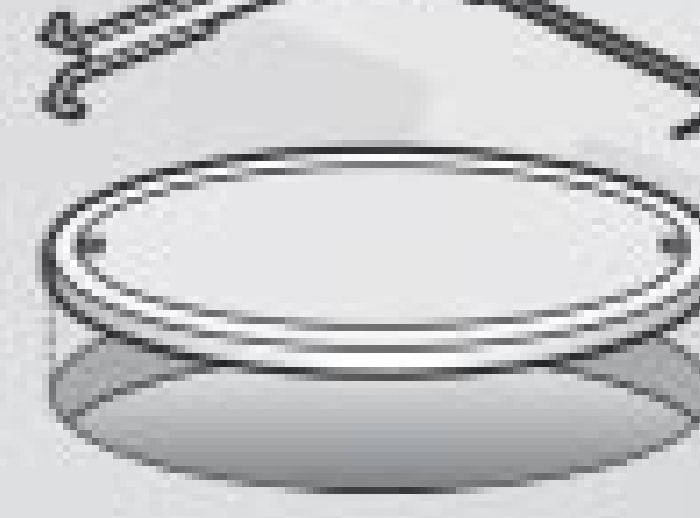
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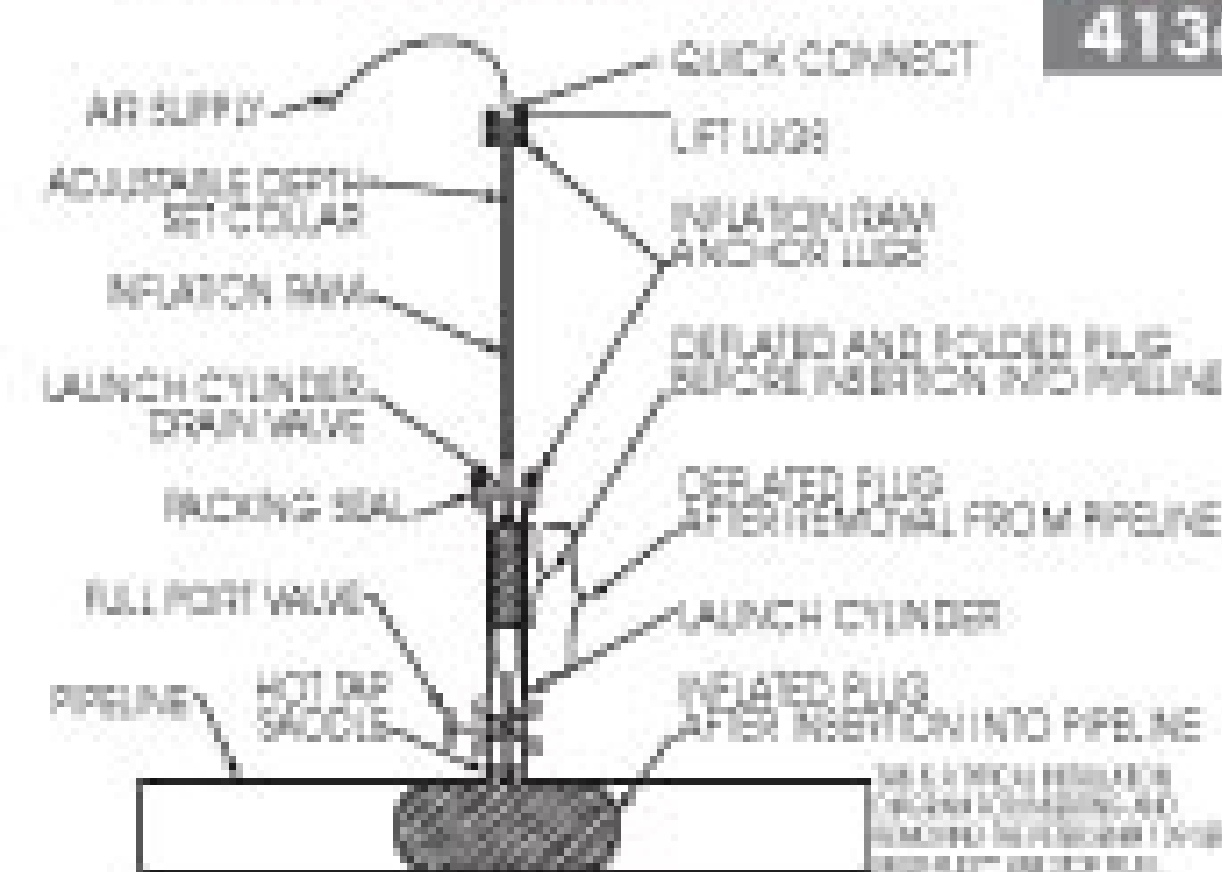
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FOCUS: WATER

GIVING A LISTEN

Maintenance helper Kyle Gamble watches as equipment operator Richard Crawford excavates for a leak repair with a Komatsu WB146 machine. (Photography by Josef Willis)

A performance contract helps a Tennessee city add automated water meter reading and a leak detection system and pay for the improvements out of system savings

By Peter Kenter

The City of Kingsport, Tenn., estimated it was losing more than 1.2 million gallons of water, and associated revenue, to leaking pipes each year.

As a remedy, the city undertook a performance contract that saw the installation of new water meters with automated reading and a sophisticated leak detection system, together guaranteed to save the city more than \$15 million over 17 years.

The deal had its genesis at a 2008 meeting of the Tennessee City Management Association, where Miles Mennell, business development manager with the Building Efficiency business of Johnson Controls, presented a seminar on

performance contracting as a procurement strategy. In the audience were Kingsport city manager John Campbell and public works director Ryan McReynolds.

"I had known John for some time, and after the meeting, I approached him with a business proposition," says Mennell. "I offered to make a presentation to the city in which we would enhance the billables in the water system to self-fund infrastructure improvements.

"No other city in the state had used performance contracting to upgrade its water utility with automated meter reading and a leak detection system. But John is a true visionary, so he's very receptive to nontraditional ways of getting things done."

Sophisticated leak detection

The city was mainly interested in automated meter reading, but Mennell suggested a sophisticated leak detection system that would automatically detect system water losses, enabling the city to make repairs. The meter reading system allows city workers to read meters from their vehicles, increasing billing accuracy and improving customer service. The projects would allow Kingsport to make significant infrastructure improvements without touching reserve funds, raising fees or taxes, or issuing bonds.

"The largest portion of the city's water system was built in the 1920s, with a resurgence in infrastructure construction during World War II," says McReynolds. "It's seen

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1822

POPULATION:
303,000 (metropolitan area)

CUSTOMERS:
80,000

AREA SERVED:
45 square miles

DEPARTMENT STAFF:
62

INFRASTRUCTURE:
750 miles of waterlines

ANNUAL BUDGET:
\$14 million

WEBSITE:
www.kingsporttn.gov

“No other city in the state had used performance contracting to upgrade its water utility with automated meter reading and a leak detection system. But John Campbell is a true visionary, so he’s very receptive to nontraditional ways of getting things done.”

Miles Mennell

a lot of service.” The water system was aging and beginning to leak, but the area’s soil is porous, so leaking water often percolates through the soil without surfacing. The accuracy of the city’s water meters was also called into question.

“We have an abundant water supply with low turbidity, but our problem wasn’t with the supply,” says McReynolds. “We were losing billable water into the soil, and although the meters weren’t worn down, we realized they could more accurately reflect the sale of water to each customer. By improving those two things we realized we could become better stewards of our water resources.”

Under the performance contract, Johnson Controls financed the up-front cost of the improvements, and the city is paying the money back out of the cost savings and increased revenue those improvements generate. In the event



Public Works director Ryan McReynolds

the savings fall short of the amount guaranteed by contract, Johnson Controls would be required to write the city a check to cover the difference.

Best for the job

As a first step, Johnson Controls representatives tested the existing metering system and estimated its accuracy at 94 to 96 percent. “The company felt comfortable that by installing new meters, the accuracy of the system would range between 98 to 100 percent, increasing revenues and allocating costs accurately to the customers who use the water,” says McReynolds.

The city had its choice of meters and selected Master Meter Bottom Load Multi-Jet (BLMJ), with integrated encoder, RF transmitter, battery, and antenna placed inside a stainless steel and tempered glass shell. New meters were installed for more than 34,000 service con-



Above: MLOG leak detectors from Itron are installed on the city side of the customer meter. At the right is the receiver that reads the signals.



Truck driver Russell Watterson and water distribution specialist Dwight Thornburg discuss the Kingsport leak detection project.



ON THE FRONT LINES

The City of Kingsport is wired for sound as its sophisticated Itron MLOG technology provides daily computerized reports on potential leaks in the water system.

The man on the front lines is Dwight Thornburg, water distribution specialist.

“The first thing I do each morning is log into the system and check the report from Itron,” says Thornburg. “All of the loggers are marked with GPS data, and the database information is integrated with Google Maps. What I see is a map of the city marked with red, yellow, green and grey balloons.”

Red indicates a noise identifying a potential leak. Yellow indicates that crews must be sent with a mobile leak detector for further investigation. Green means the system in that area has been cleared. A grey balloon

indicates that the logger has read nothing significant over the past 90 days.

“If the logger reads nothing within 90 days it shuts itself off,” says Thornburg. “We keep an eye on the grey balloons because we want to know if those units are really reading nothing of significance or if they’re not functioning.”

The system produces a printout of street addresses flagged with red balloons. Thornburg can also “visit” each customer location in advance using Google Street View. Crews then go to each site to determine whether action is necessary.

Occasionally, the MLOG flags vibrations that mimic leaks – often the hum of an electrical transformer on a utility pole transmitting noise into the ground. “In one case, we traced the noise to the pump in a customer’s fish pond,” says Thornburg. “For a listening device, that’s impressive.”



nections, representing 80,000 customers.

"One of the benefits of the automated meter reading is that we removed various vehicles from running the routes," says McReynolds. "We took five pickup trucks off the road and went as fuel efficient as we could go with one Toyota Prius that collects data by driving past the meters one day a week."

The installations also included Itron MLOG leak detectors on the city side of the service connections. The units employ acoustic sensor technology and sound analysis software to help identify water loss across the entire water distribution system. The system analyzes changes in the level and frequency of water pipe sounds and uploads detailed reports on potential leaks to a database accessible to the city staff.

The MLOG does most of its work when the system is quiet, between midnight and 3 a.m.

Electronic reporting

Each morning, employees access

a report listing potential leaks in terms of likelihood, setting priorities for investigation by the water department and marking the locations on a computerized map. Color-coding identifies new potential leaks and those still carried on the books from previous reports. Work crews are then assigned to investigate the potential leaks, flagging some of them for imminent repair.

"A technician will go to these reported addresses and try to refine the location and pinpoint the leak," says McReynolds. "Once the location is identified, the site is spray-painted and a construction crew follows in four to five days."

The reports are accessible both to the city and to a Johnson Controls specialist who provides a monthly report to the water department. "It essentially says that these leaks look possible and these look probable," says J.B. Carson, performance assurance specialist with Johnson Controls.

"The reports do an excellent job of prioritizing investigation

and repair activity. The goal here is not to reach a day when there will be no probable leaks detected, but to reduce the number of likely leaks and see an improvement in the entire system. It's like a dog chasing its own tail, but in smaller and smaller circles."

Saving water and energy

As of late October, the system had identified some 50 line leaks and breaks, enabling the department to make repairs and prevent the loss of more than 1,685 gallons of treated water per minute. As Reynolds points out, that saves both water and the energy required to move and process it.

"The savings also don't take into account the difference between responding to a potential leak proactively, and responding to an

the amount required to fill his swimming pool," says McReynolds. "We showed him exactly when he started filling the pool and when he finished."

The MLOG can also identify customer leaks with high accuracy, pinpointing problems such as faulty toilet valves.

The leak detection system has created a backlog of potential repairs that crews are tackling on a computer-prioritized schedule. "There's more there than we can get to in a month, but the same soil conditions that make it difficult to detect some leaks by eye, also allow us a bit of leeway in dealing with them," says McReynolds. "In many cases, the water just goes straight down into the limestone through voids and fissures."

But crews are slowly gaining

"We were losing billable water into the soil, and although the meters weren't worn down, we realized they could more accurately reflect the sale of water to each customer. By improving those two things we realized we could become better stewards of our water resources."

Ryan McReynolds

emergency leak in the winter, with road closures and crews working during the night," says McReynolds. Most repairs in Kingsport are dig-and-replace. The typical depth of waterlines is about three feet, though some older mains are just 18 to 20 inches below the surface.

"For mains six inches and above, which are mostly cast iron, we replace with ductile iron," says McReynolds. "For smaller lines, we consider PVC. In established neighborhoods, we sometimes go with directional drilling for smaller lines." Some larger mains are diagnosed with faulty leaded joints, which are also repaired.

Identifying usage

In addition to detecting leaks on the city side, the MLOG device pinpoints customer water usage, and waste, by logging usage patterns in 15-minute increments.

"In one case, we had a dispute about the amount of water used by a customer, and we were able to show this gentleman that the volume of water in dispute was exactly

on the leaks. As part of the contract, Johnson Controls will test the accuracy of the system in about two years.

"We're very happy with the way the performance contract is working for the city," says McReynolds. "We're containing costs, improving customer service, and demonstrating stewardship of our water resources in meaningful ways, while financing our own infrastructure improvement on system savings. As long as we maintain our end of the contract, the savings are guaranteed." ♦

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Education Day at the 2010 Expo.

A LOT TO LEARN

The 2011 Pumper & Cleaner Environmental Expo offers 84 seminars with advice on improving business practices and in-the-field performance

By *Ted J. Rulseh*

This year's Pumper & Cleaner Expo education program offers 84 seminars given by industry experts covering a full range of topics for environmental service professionals.

The lineup includes instruction on industry-specific in-field techniques as well as sound business and management practices of interest to any business owner. Once again, the lineup for Education Day (Wednesday, March 2) is broken into tracks hosted by leading industry associations.

Seminars on Thursday and Friday, March 3 and 4, provide more learning opportunities and include an expanded lineup of sessions presented in Spanish. Here is a brief look at the education program. For more information on seminar times, locations and speakers, visit www.pumpershow.com.

EDUCATION DAY Leaders Resource Network

This series of seminars emphasizing business skills attracts large crowds every year. Sessions include:

- Profile of a Successful Business
- Successful Business Best Practice Discussion
- Successful Business Profile sessions (three)
- Panel discussion with couples in business together

These seminars dispense general business knowledge but have

a special focus on portable restroom and septic system service companies.

Southern Section Collection Systems Committee

These sessions are of special interest to sewer service contractors and municipal managers in charge of collection systems. Sessions include:

- Sewer Collection System History and the Evaluation of Pipeline Materials and Problems
- Combo Vacuuming: A

Forgotten Art

- Keeping Your Standard CCTV Inspection Program Relevant
- Growing Your Business by Building Your Company Image
- Pump Station and Lift Station Fundamentals and How to Achieve Maximum Service and Reliability
- Making Sense out of Nozzle Nonsense

- How Will You Know if You Need to do a Sewer System Evaluation Survey (SSES)?
- Laser Profiling Applications for Documenting Piping System Conditions
- Advancements in UV Technology for Curing CIPP

National Environmental Health Association

This series covers a broad range of topics of interest to professionals who install, inspect and service onsite wastewater treatment systems. Seminars include:

- The Qualified O&M Service Provider: An Opportunity to Do Well While Doing Good
- Effluent Screens and Filters for Onsite Applications
- Develop Champions for Your Decentralized Wastewater Projects by Harnessing the Smart Growth Concept
- The Business of Management
- Developing O&M Inspection Actions in Partnership

NASSCO

This track provides insights on the finer points of pipeline inspection, evaluation, and rehabilitation, especially with trenchless technologies. Seminars include:

- Grout: Its Use and Application for the Total Collection System
- Look Ma, No Hands: Using Automated Controls in Temporary Bypass Pumping Applications
- Pipe Bursting Tools for Everyday Utility Installations

- to Improve the Quality of O&M
- Building a Successful O&M Program: Working with Regulators, Regulations and Industry

National Onsite Wastewater Recycling Association

This track covers more topics related to the design, installation and management of onsite systems. Seminars include:

- Pumps: A Basic Understanding
- Selling the System to the Site Conditions
- Effluent Dispersal and Water Management Around Soil Absorption and Treatment Systems
- Troubleshooting Our Modern Waste Stream
- System Remediation: Why, What, When, Where and How
- Sampling Sewage Treatment Systems

WaterJet Technology Association

These sessions cover topics of interest to professionals in the high-pressure cleaning and industrial vacuum sectors. Seminars include:

- Estimating the Vacuum Job for Fun and Profit
- How to Maximize the Power of Your Waterjetter Through Tip and Hose Selection
- Waterjetting: Financial Startup Considerations and Real-World Application



Portable Sanitation Association International

Two sessions in this track highlight keys to profitable operations in the portable restroom industry. Seminars include:

- Understanding Your True

Cost Per Service For Special Events

- Understanding Your True Cost: PSAI panel of experts

Safety Management Systems

A single session is offered: Avoiding Violation Fines & Tickets with DOT Safety Compliance Required.

National Association of Wastewater Transporters

NAWT presents six sessions dedicated to professionals in septic system pumping, operations and maintenance, grease pumping, waste t t and system installation. Seminars include:

- So You Think You Want to Own a Waste Treatment Facility?
- Grease as a Resource
- Resource Recovery: Methane and Septage
- O&M Problems on Drip Distribution Systems
- O&M Problems We Have Seen
- O&M Problems With Media Filters

Scott Hunter

Here is a special series of five seminars on building leadership skills and establishing a strong and prosperous business, given by motivational speaker and business coach Scott Hunter. Seminars are:

- The Mindset of Leadership, Part One
- The Mindset of Leadership, Part Two
- The Mindset of Leadership, Part Three
- Creating an Outrageously Successful Organization, Part One
- Creating an Outrageously Successful Organization, Part Two

THURSDAY, MARCH 3 Business Track

- 45 Marketing Tips in 45 Minutes
- The Benefits of Vehicle Routing Software in Today's Economy
- Unleashing the Power to Profit and Freedom

Liquid Waste Track

- The Evolution of Effluent

Filters

- Life Cycle: From Waste to Windfall
- Take Confined Space Seriously: A Matter of Life and Death

New Business Opportunity Track

- Centripipe (Centrifugally Cast Concrete Pipe)
- Valve Exercising and Fire Flow Testing for a Reliable Water Distribution System
- The Basics of Buying and Selling a Septic or Sewer Business Company

Municipal Track

- Think Like Grout: For Better Point Repair of Below Grade Structures
- CCTV Inspections Evolve to Unparalleled Heights
- Manhole Chimney Section Rebuilds

Installer Track

- Membrane Bioreactor (MBR) Technology for Decentralized Wastewater Systems
- Shallow Pressurized Drainfields for Soil-Based Effluent Dispersal
- Onsite System Solutions for Shallow Installations

Spanish Track

- Técnicas Corrientes de Limpieza de Tuberías (Current Pipeline Cleaning Technologies)
- Avances en la Evaluación de Tuberías y Tecnologías sin Zanja para Rehabilitación de Tuberías (Latest Advances in Pipeline Assessment, Pipeline Rehabilitation and Trenchless Technologies)
- La Elección de Boquillas en la Limpieza de Drenajes (The Selection of Nozzles for Sewer Cleaning)

Advanced Installer Course

- Introduction and Site Evaluation
- System Sizing and Basic Design Principles
- Pumping to Systems
- Installations of ATUs
- Installing for Management
- Troubleshooting Systems

FRIDAY, MARCH 4

Municipal Track

- Large Pipe Inspection
- Chemical Grouts & Grouting Methods
- Sectional CIPP Repairs Per ASTM F2599

Business Track

- Save Money – Go Paperless
- Marketing Your Septic/Drain Service Business
- Evolving Your Business with Digital Solutions

Spanish Track

- Abriendo Caminos/Pathways: How to Start a Business in South America, Marketing and Importing/Exporting
- Efficient Cleanup Operations of Any Latin American Sewer Network
- Rodding Equipment and Simple Tools for Sewer Cleaning

Liquid Waste/Installer Track

- Grease Interceptor 101
- Data Logging for Onsite Septic System Diagnosis
- Belt Press Performance Optimization

Sewer & Drain Cleaning Track

- In line Cutting Tools – Taking Science to the Sewer
- Waterjetting: Impact on Drain Cleaning
- Jetters: Don't Underestimate Your Cable Machines

Portable Restroom Track

- Routing Efficiency and Analysis
- Give Me 3 Reasons Why I Should Advertise My Portable Restroom Company
- Pathways: How to Start a Business in South America, Marketing and Importing/Exporting

Early registration costs just \$40 per person (until Jan. 28). At-the-door registration is \$60 for the full program. **To find out more, visit www.pumpershow.com or call 866/933-2653.** ♦



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We are reaching out to industry professionals and their families who would be interested in participating in a talent contest to be held during the 2011 Pumper & Cleaner Expo. Prizes would be awarded to the top three finalists.

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2ND PLACE:

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2. A YouTube link of the video showcasing your talent.

SUBMIT ALL VIDEOS BY JAN. 21, 2011

CONTEST RULES

1. You must be present and registered for the 2011 Expo. No transportation or hotel accommodations will be provided.
2. A video from all applicants performing their talent must be submitted to COLE Publishing in advance. All talents must be appropriate for all age groups.
3. An independent panel will pick the top ten finalists from the submitted videos.

4. The top ten finalists will then need to perform their talent in front of industry peers on Friday, March 4th, 2011 at the 2011 Pumper & Cleaner Expo.

5. The audience will be able to vote for their favorites and the top 3 vote getters will be the winners.

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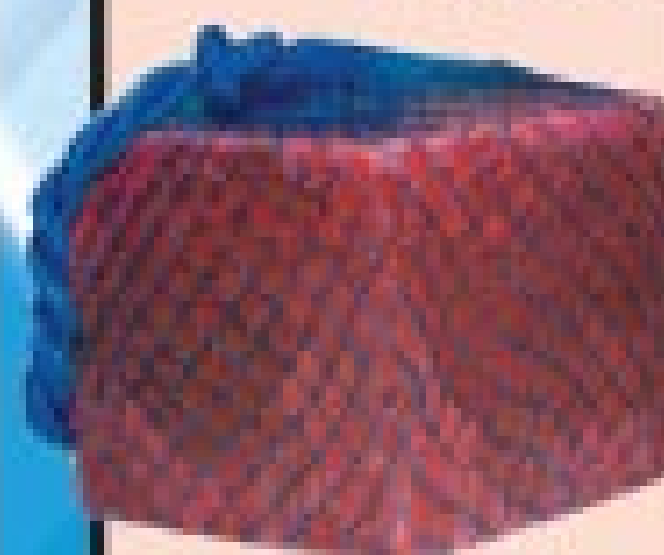
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Steam rises from the heated liner as workers from Engineered Lining Systems pull the head of the liner toward the manhole. (Photos courtesy of Engineered Lining Systems)

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PRODUCT:

UltraLiner PVC alloy thermoforming pipe lining system

APPLICATION:

Rehabilitation of buried pipelines

BENEFITS:

Enables major and lasting repairs without open-trench excavation

USER:

City of Titusville, Fla.

TRACKING TROUBLE

A Florida contractor uses a thermoforming PVC alloy pipe to prevent the collapse of a major highway and railroad crossing

By Scottie Dayton

“We started pulling at 2 a.m. and the line was completely rehabilitated by 5 a.m. That’s a very quick turnaround.”

Don Arch

A heavily tuberculated, flaking and rusting 90-foot section of 18-inch carbon steel pipe in a 280-foot clay pipe sewer was a headache for the City of Titusville, Fla.

Waste hung up on the tuberculation, causing stoppages that belched sewage up two 15-foot-deep manholes in the center turn lane of a major four-lane highway. Daily cleaning and jetting to open the line caved in the crown, inundating the wastewater treatment plant with mud, sand, and infiltration, as the

pipe was below the water table.

Vibrations from passing traffic loosened more soil, creating a void that began migrating well below the asphalt toward a railroad track crossing the highway. If the void reached the tracks, the city feared it would undermine the bed. Continued cleaning brought down more sections of pipe, blocking the jetter.

About the only things preventing a depression or hole in the center lane were the communication and fiberoptic cables, gas lines,

and water mains running above the sewer. Open cutting was out of the question, and the city bid specified that lining products had to withstand a gritty, semi-live pipe.

Engineered Lining Systems (ELS) in Jacksonville, Fla., won the contract. It overcame all obstacles by using a custom PVC alloy thermoforming pipe lining system that rehabilitated the sewer in three hours.

What a mess

A camera inspection revealed

that the clay pipe had minor imperfections, but tuberculation in the carbon steel section under the tracks had constricted its diameter to 3 inches. Work proceeded from dusk through dawn when the traffic and hydraulic flow were lightest.

A city crew plugged the upstream manhole, then used the other deep manholes on the line as storage capacity, enabling six ELS workers to jet the line. "The city monitored the manholes, releasing the pressure three or four times a night when they were full," says ELS president Don Arch.

The crew parked its equipment in the turn lane and worked from the downstream manhole. Traffic was never affected. The men used Lumberjack high-speed, low-torque multipurpose chain cutters from NozzTeq Inc. and a GapVax combination truck to clean the pipe. They regulated flow and pressure as needed, avoiding damage to the fragile metal.

"Although we were very delicate, sections of pipe still failed, pinning the cutter and jetter," says Arch. "When that happened, we'd

launch another jetter from the upstream manhole to wash off the mud and free the trapped tools." The men cleaned 12 to 14 hours a day for four days, much longer than Arch anticipated.

After they removed 90 percent of the tuberculation, Jeff Wayner, public works field operations superintendent, reviewed the tapes and decided it was time to line the pipe. "The more we cleaned, the greater the risk of catastrophic failure and having to excavate," says Arch.

All or nothing

The SDR35 PVC alloy pipe from UltraLiner arrived from the factory in Oxford, Ala., coiled on a wooden spool and folded like an H lying on its side. Arch notes that the liner could not simply be pulled off the spool because the alloy has a memory and would coil up again. The material must be heated and softened first.

"We formed a tent over the reel with a tarp and introduced steam from a boiler truck through a pipe into the center of the spool for about an hour," says Arch. The hole, acting like a chimney, dispersed steam at 280 degrees F upward and over the liner until it was limp.

Left: The sewer plug has flared out the end of the liner, locking it in place against the manhole and preventing inflow and infiltration. Below: The boiler truck generates the steam that softens the SDR35 PVC alloy pipe, enabling it to be pulled off the spool and into the sewer.



While the liner heated, the men pulled a 1/2-inch winching cable through the pipe. When the liner was pliable, they tapered the head to prevent snagging in the sewer. They then drilled two opposing holes 12 inches in from the edge, fed a chain through the holes, and hooked it to a 30-ton hydraulic winch. It pulled the liner through the pipe at 40 to 50 feet per minute.

The crew sealed the upstream end tightly against the manhole with a flow-through sewer plug from Plug-It Products, then connected the steam hose. The heat relaxed the alloy and prevented post-installation longitudinal shrinkage. The crew then plugged the downstream end and increased the boiler pressure to 8 psi to inflate the liner.

"Using the correct amount of pressure was critical, as too much would have expanded the liner through the numerous gaps and ruptured it," says Arch. After the liner formed to the pipe, they reduced the pressure to 4 psi to hold it in place as an after-cooler blew in 80-degree compressed air.

When the temperature at the exhaust end of the liner dropped below 100 degrees, the crew turned off the pressure and allowed the liner to cure for two hours. If a mistake had occurred in the process or placement, they could have reheated the liner, applied a vacuum with the combination truck to collapse it, extracted it, corrected the error, and reinserted the liner.

The sewer plugs flared out the ends of the liner against the manholes, locking them in place and preventing inflow and infiltration. To combat the head pressure at 12 feet below the water table, a worker applied hydrophilic rubber seals to fill any remaining

annular spaces between the liner and manhole, then coated them with Epoxytec Concrete Polymer Paste.

"We started pulling at 2 a.m. and the line was completely rehabilitated by 5 a.m.," says Arch. "That's a very quick turnaround." The crew's final inspection of the pipe showed that the liner had formed itself to a slick surface even where the original crown was missing.

Parting shot

When workers laid the sewer in the 1930s, they shored up the trench with wooden cribbing, and it was still there. All the I&I and jetting had washed away much of the surrounding soil, creating a huge void around the pipe.

"The city had resurfaced the highway the previous year and didn't want to risk a cave-in," says Arch. "We called Henderson Wilder Company in Orlando to stabilize the soil and highway." Two days of pumping grout removed the threat of collapse. ♦

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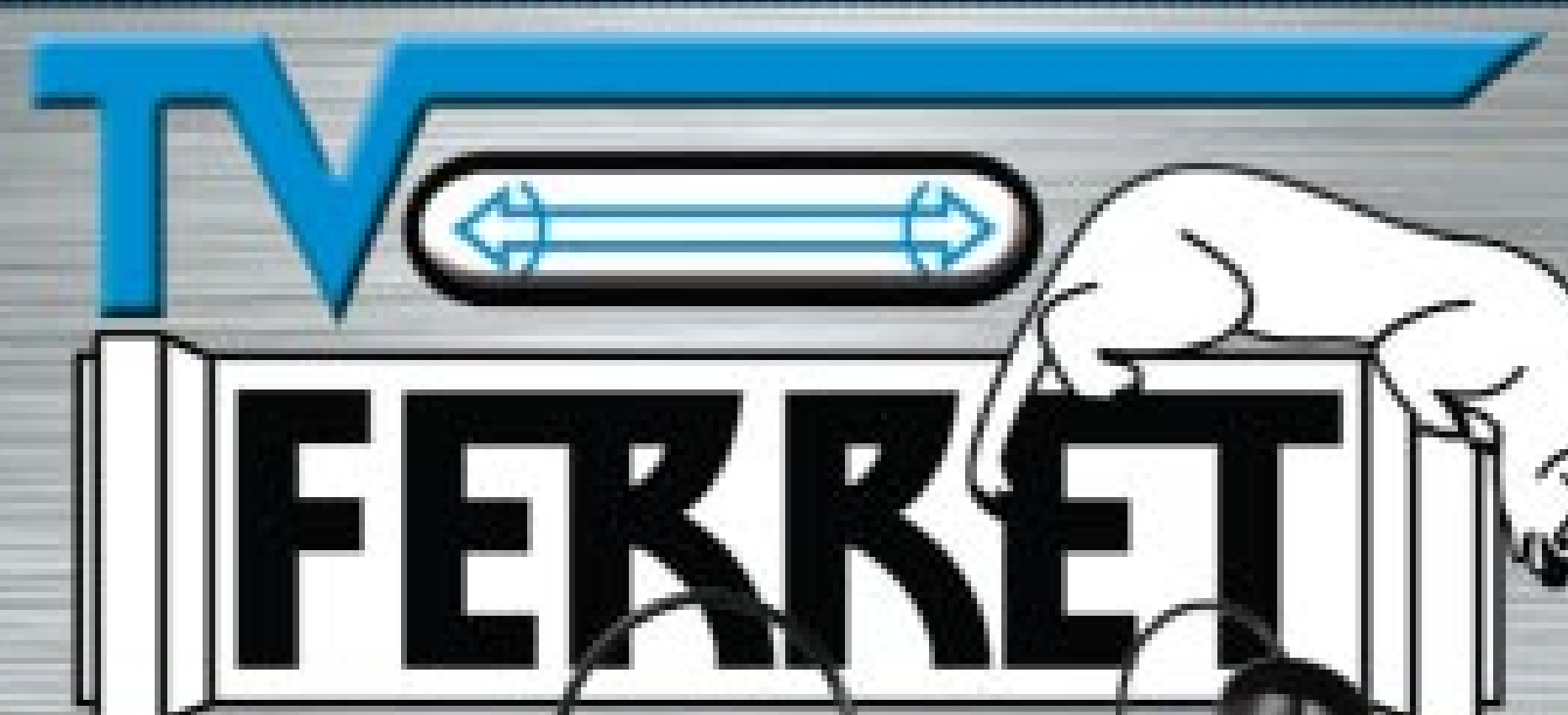
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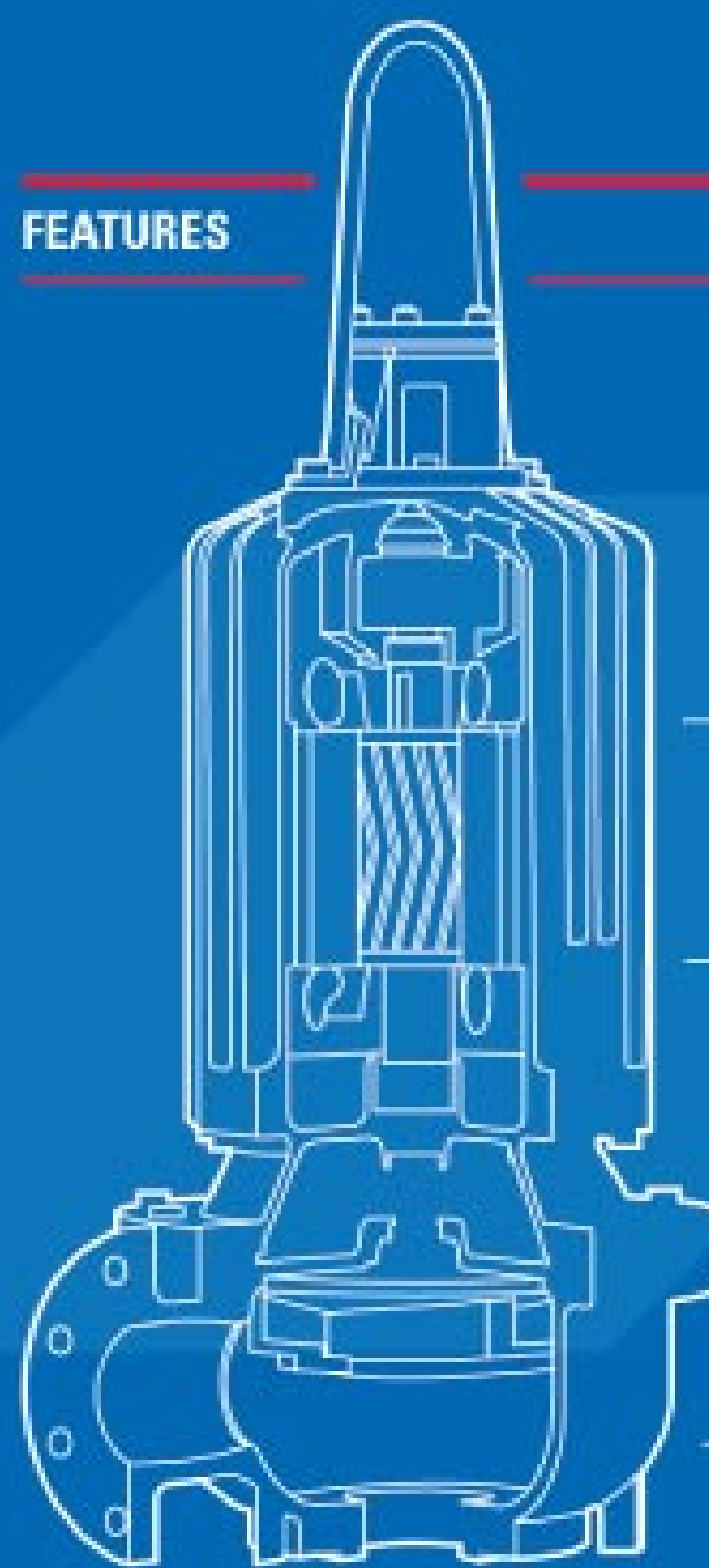


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FOCUS: WATER

CLAMPING DOWN ON LOSSES

An industrial city in central Illinois reaps big dividends with a phased approach to identifying and repairing leaks in its water distribution system

By Erik Gunn

The water system in the City of Decatur serves a population of 79,000, but even more noteworthy is its thirsty base of industrial customers. So when the city first considered a comprehensive study of water loss a few years ago, it seemed like a pretty good idea.

"We're always looking at our water accountability," says Randy Miller, water services manager. "You're always upgrading your meters to make sure they're accurate. This was just one piece of the puzzle: Let's find some leaks that we can't see."

In summer of 2010, Decatur completed its first three-year comprehensive leak detection program. Total savings? Five times what the program cost. It should come as no surprise that they're planning to repeat the project.

Industrial city

Decatur, in central Illinois about 180 miles southwest of Chicago, is a heavily industrialized city. Its water system is fed by Lake Decatur, a reservoir built on the Sangamon River in the early 1920s. The system serves the city and the neighboring village of Mount Zion.

Total system capacity is 36 mgd, and the average usage is 20 mgd.

"About three-fourths of the water we produce at our water treatment facility goes to commercial and industrial customers," says Keith Alexander, director of water management. "Some of the largest agriculture grain processors in the world are located here." Heavy manufacturers also have a significant presence.

"We have a good revenue stream from very large customers," Alexander says. "But it also means we need a very robust system. We have a large need for raw water supplies. We have built a very large water distribution system, including water mains, valving and elevated storage facilities — all oversized for a community of our size and population."

That kind of infrastructure costs a lot to maintain. "That's why, any way we can reduce the cost to our customers, reduce the amount of water we have to purify, and conserve our raw water supply, we will," Alexander says.

Where the water goes

The need became clear a few years ago. "We had about a 17 percent apparent water loss between



Digging begins in a residential area in Decatur in preparation for deploying ADS Environmental Services' Enigma technology for leak detection. (Photography by Steve Hale)

what we pump out of our water treatment plant and what we bill to our customers," says Alexander. "We thought one of the most important ways to start toward lowering that percentage was to do a systemwide leak detection survey."

Decatur issued a request for proposals and qualifications for a survey of its more than 500 miles of mains to a set of prequalified regional firms. After face-to-face interviews with the two top candidates, both highly qualified and well known in the industry, the city hired ADS Environmental Services.

ADS and the city agreed to a three-year program that divided



PROFILE: City of Decatur (Ill.) Department of Water Management

POPULATION:
79,000

SERVICE AREA:
City of Decatur and Village
of Mount Zion

INFRASTRUCTURE:
530 miles of water mains

ANNUAL REVENUE:
\$12.25 million

WEBSITE:
[www.decaturil.gov/water
management.htm](http://www.decaturil.gov/watermanagement.htm)

the community into three parts. The first phase took place in 2008 and the last one was completed in July 2010. For each year's phase, ADS technician Terry Keeling spent four to six weeks methodi-



Keith Alexander, left, director of water management for Decatur, discusses plans for the leak detection program with water services manager Randy Miller.

“About three-fourths of the water we produce at our water treatment facility goes to commercial and industrial customers. Some of the largest agriculture grain processors in the world are located here.”

Keith Alexander

cally going over every main in search of leaks.

The first year's phase focused on the part of town with the oldest water mains. The city had already identified some sites where leaks were suspected.

Large and small

For each suspected leak, the technician produced work orders with a street address and an estimate for water loss. “The majority of the leaks were hydrants that were probably not shut down properly, or they were seeping water,” Miller says. “The technician would repair them on site, just adjusting the hydrant.”

The extent of leakage from hydrants surprised city officials. “Certainly we had the majority of our water loss through our water mains,” says Alexander. “But the amount that we were losing from hydrant leaks and water service leaks surprised me. I didn't expect

those numbers to be as high as they were. Those are easy fixes that we were able to do right away.”

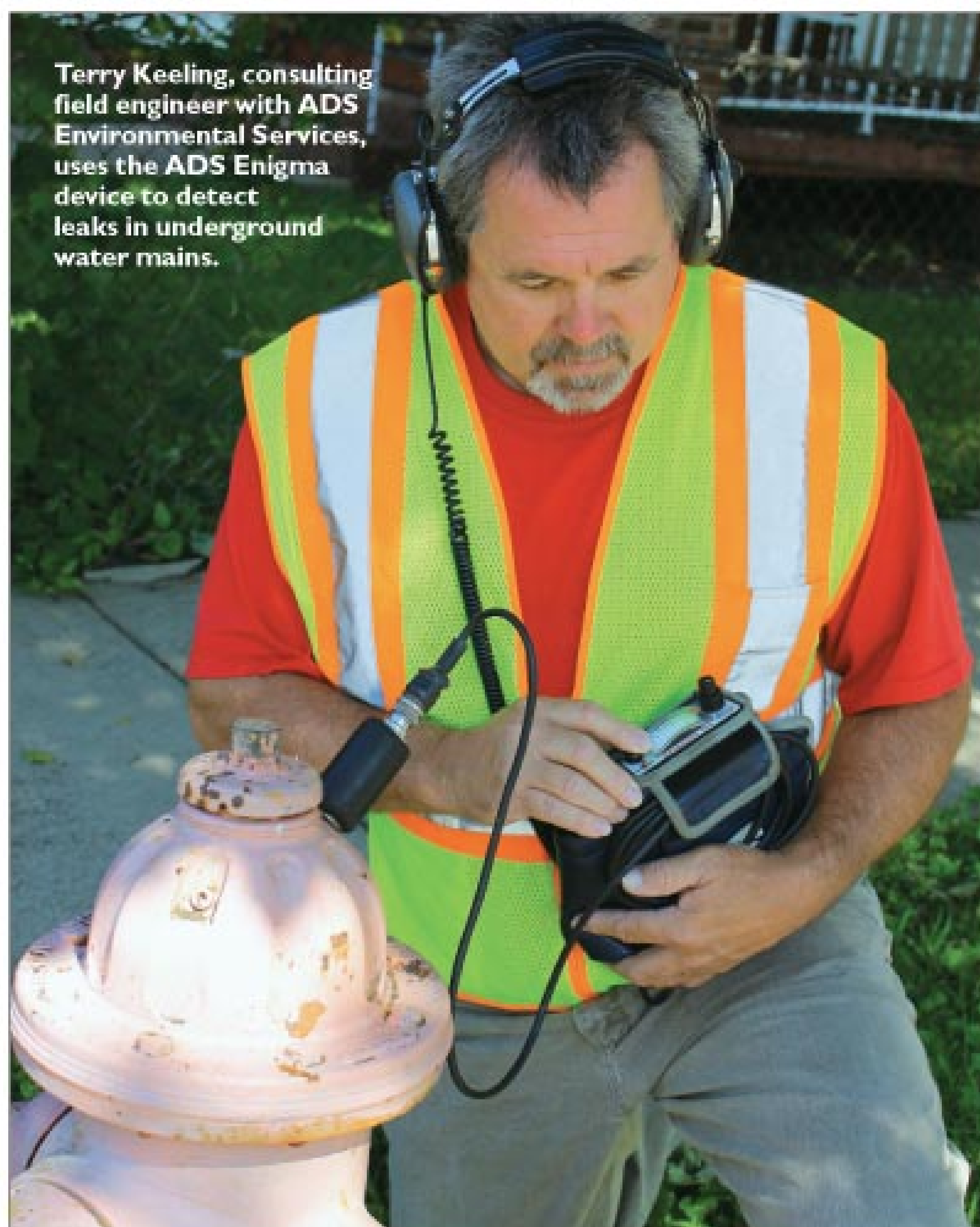
Individually those leaks weren't very large — typically on the order of a thousand gallons or so a day. “Then there were service leaks that had a little bit more volume,” Miller says. “We had one that was more than 600,000 gallons per day.”

The accuracy of the locating effort impressed city officials, but the project was unknown territory for Miller and Mark O'Connor, the city's water distribution maintenance supervisor.

“Our biggest concern was that we wouldn't be able to keep up with the digs — that we were going to be running helter-skelter trying to get this done,” Miller says. “That really wasn't the case. We were pleasantly surprised that we didn't have as many digs as we thought we might.”

By breaking the project into three phases, the city limited the scope of the work enough so that the staff could keep up with the repairs. “In 2008 we were probably done about a month after the ADS technician was gone,” Miller says.

That was important because as winter moved in, the department knew that seasonal water main breaks would spike from October to February, keeping crews too busy to take on any additional work that might result from the leak detection project.



Terry Keeling, consulting field engineer with ADS Environmental Services, uses the ADS Enigma device to detect leaks in underground water mains.

ON THE LEAKY TRAIL

Decatur's leak detection program was spread out over three years, and the system was divided into three sections.

Step one of each phase involved going through the system for a week using the Mikron brand of listening devices from ADS Environmental Services as technicians listened to hydrants, valves and services for sounds of leakage.

“We usually go through a system for four days doing that,” says Jim Fisher, senior project manager for the Pitometer Water Group of ADS and project manager for the Decatur leak detection program. “We mark up a map to get a list of locations with suspected leaks.”

With those identified, the technician returned with correlation equipment. “We set up sensors and transmitters and brackets where we think the leak is,” Fisher says. “We have to know the material the pipe is made of, the size of the pipe, and the distance between the sensors.” The sounds from a leaking concrete or PVC pipe are different from those from metal pipes.

Correlation software calculates the time delay between the sound and the respective sensors, then pinpoints the likely spot by triangulation. The technician returns to the spot with a ground microphone and moves toward and away from the point where the sound is believed to be coming, further defining the location.

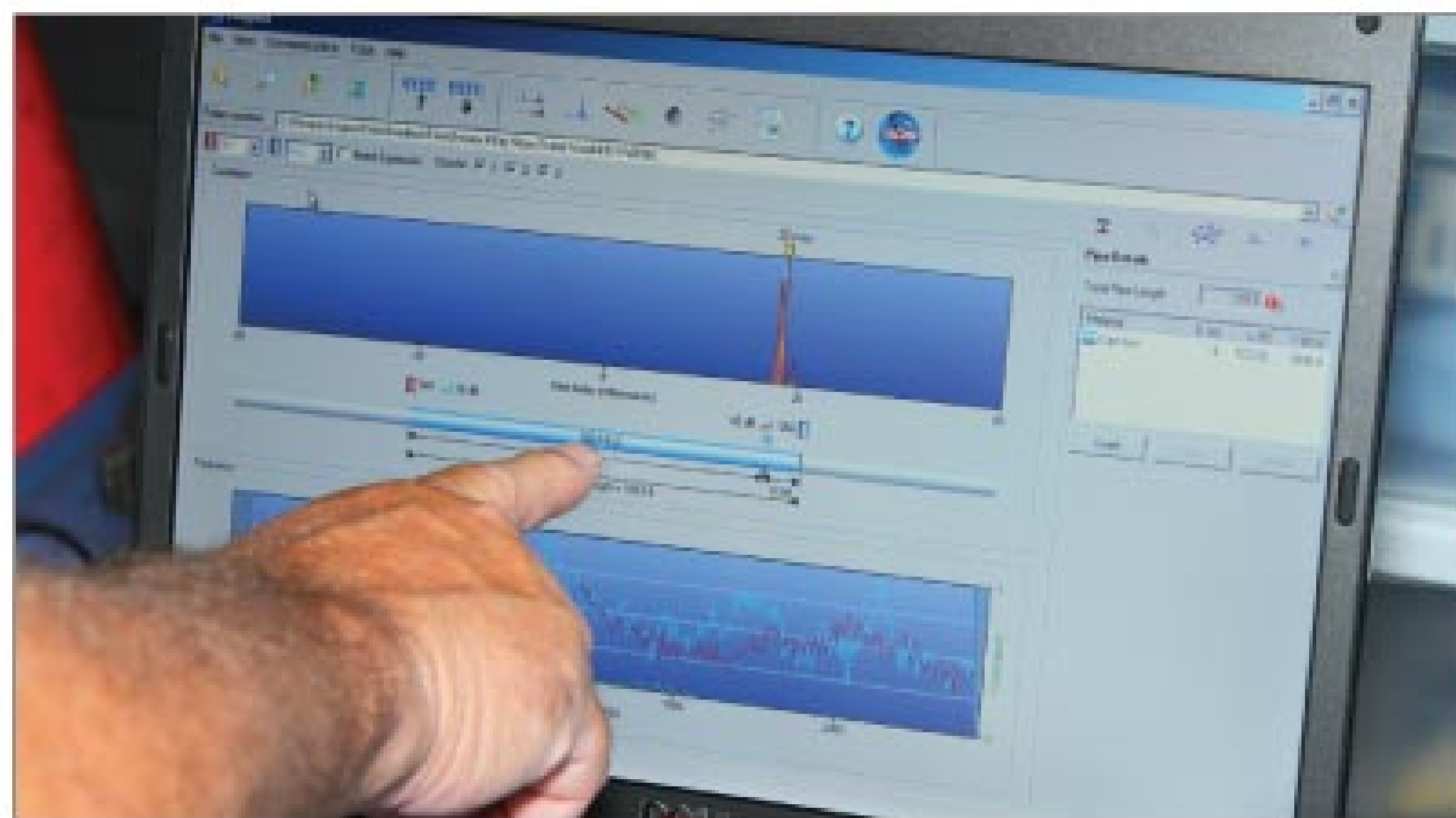
The importance of accuracy is obvious. “You need to dial it in like that before you tell the city, ‘We need you to bring a backhoe out here and dig into this street,’” Fisher says. “They don't like you to dig a dry hole.”

“Our biggest concern was that we wouldn’t be able to keep up with the digs — that we were going to be running helter-skelter trying to get this done. That really wasn’t the case. We were pleasantly surprised that we didn’t have as many digs as we thought we might.”

Randy Miller

Big payoff

Miller’s worst fears of the project didn’t materialize. “I was afraid we were going to find a lot of big leaks,” he says. “That wasn’t the case. We did find a lot of small leaks that added up.” Altogether, the project cost the city \$80,323. Crunching the numbers from the 2010 phase of the survey, Alexander says, “We figured that for every dollar that we spent,



Above and right: The ADS Enigma device uses pods magnetically attached to hydrants or other connections to water mains. Readings are gathered and entered into a laptop computer for analysis.



we saved \$5.30 in water that we did not have to produce, so the pay-back is tremendous.”

Alexander isn’t sure yet exactly how much the city has reduced its water loss from the original 17 percent. An ideal goal would be to reduce the water loss to about 10 percent, but that’s likely to take time, “especially for a community that has an aging water distribution structure such as ours,” Alexander says.

Beyond that dollars-and-cents payoff, the project offered a wealth of knowledge. “It kind of gave us a real good snapshot of our system,” says Miller. “It just makes you feel better that you don’t have any great big leaks out there.”

“We did find enough leaks that it gave us a bit of an education about how we can reduce leaks, especially in the way of hydrant usage.” City crews also learned about leak detection and how to listen on their own for leaks.

When the city draws up its new budget in early 2011, the water utility plans to ask for money for another leak detection survey. That will probably once again be on a three-year cycle, although there are other options, such as dividing the system into just two sections, or even doing it all in one season.

Alexander says the savings was so substantial that it will be an easy sell. “I would strongly encourage any water utility that has not done a leak detection survey in recent memory to seriously consider doing so,” he says. ♦

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TREADING LIGHTLY

Cleaning trucks with the Eco Jet System from Sewer Equipment Co. of America combine gains in efficiency with environmentally friendly features

By Erik Gunn

Communities nationwide are looking for ways to save energy, reduce their carbon footprint, and operate more sustainably. These efforts extend to the equipment they use to maintain sewers and other infrastructure.

Sewer Equipment Co. of America has introduced a new version of its Model 800-HPR truck jetter that includes the Eco Jet System designed to make the unit more environmentally friendly. It has a more efficient water pumping system and uses a nontoxic and biodegradable hydraulic fluid.

Sewer Equipment regional sales manager Ernie Bakakos and marketing manager Brandon Shelton

demonstrated the truck on Oct. 1 for Wally Kehr, foreman with the Northfield Township Road District, in a suburban area northwest of Chicago.

Walk-around

The demonstration unit was built on a 2009 Peterbilt chassis — customers have their choice of truck platforms. Running off the truck's engine, the hydraulic system that drives the jetting system's water pump and uses a larger hydrostatic drive, which moves a higher volume of hydraulic fluid through the system. That allows the truck engine to operate at a lower speed while jetting.

"A normal truck jet would run



The Model 800-HPR truck jetter with the Eco Jet System is designed to make sewer cleaning more environmentally friendly. (Photography by Erik Gunn)

at 2,100 rpm," says Bakakos. "This is running at 1,400 rpm." The company calculates that results in about 35 percent less fuel used, along with lower emissions and less noise.

The more earth-friendly fluid is easier to clean up in case of a spill or leak, according to Shelton. The hydraulic system is water-cooled rather than air-cooled, also saving energy.

The demonstration unit carried a Myers pump rated at 65 gpm/2,000 psi. Pumps delivering

The more earth-friendly fluid is easier to clean up in case of a spill or leak. The hydraulic system is water-cooled rather than air-cooled, also saving energy.

75 gpm/2,500 psi and 80 gpm/2,000 psi are available. The unit has two 750-gallon water tanks interlocked on the inside, so that both can fill or drain at the same time. They are made of 3/4-inch thick Duraprolene polymer and are baffled to minimize water sloshing in transit.

The truck is covered with an aluminum shroud, which is lighter and less subject to corrosion than steel. It carries aluminum side-mounted tool boxes.

Tank fill nozzles are on each

TECHNOLOGY TEST DRIVE

EQUIPMENT:
800-HPR Eco Jet truck

MANUFACTURER:
Sewer Equipment Co. of America

LOCATION OF DEMO:
Northfield Township (Ill.) Road District

DEMONSTRATED BY:
Ernie Bakakos and Brandon Shelton of Sewer Equipment Co. of America; Wally Kehr of Northfield Township Road District

LIST PRICE:
\$180,000 as demonstrated



A wireless remote unit controls multiple functions of the jetting system.



The demonstration unit carried a Myers pump rated at 65 gpm/2,000 psi.

side of the vehicle, toward the front, just behind the cab. Drainage valves are also on both sides, behind the cab. The drains are routed to directly beneath the truck in the center to avoid splashing the operator.

The hose reel and control panel are mounted to the chassis rail at the rear of the truck. When in transit, the reel and control panel rest inside the back enclosure behind a roll-up door; the space is heated with an 80,000 Btu/hr heater. The unit has a digi-



Above: Rear of the truck showing the hose reel and control panel. **Inset:** The control panel enclosure is built to NEMA Standard No. 4 and is watertight. Pressure gauges on the panel are mounted at eye level.

tal hose footage counter mounted just above the control panel.

When the jetter is in use, the door is raised and the jetter workings are extended out. The reel can rotate up to 180 degrees and can be sized for 600 or 1,000 feet of hose. It has an auto level-wind and is set at a lower height for operator convenience.

The onboard control panel is built to NEMA Standard No. 4 and is watertight. Pressure gauges on the panel are mounted at eye level. Besides the standard onboard control panel, a tethered remote and a wireless remote control are available.

The wireless control includes forward and reverse controls for the reel, a throttle up and down for the pump speed, and on/off

controls for the water. The wireless unit works at up to 800 feet. Standard accessories include a tiger tail, two high-flow nozzles, and a washdown gun.

Operation

Bakakos and Shelton went with Kehr to a street in a residential neighborhood and demonstrated the unit by jetting a section of storm sewer. Bakakos raised the rear door and then used the control panel hydraulic controls to smoothly extend the hose reel out about four feet.

After filling the tank from a nearby fire hydrant, Kehr and Bakakos attached a jetting nozzle and threaded the unit through the tiger tail and into the line.

Using the control panel, Baka-



The hose reel can rotate up to 180 degrees and can be sized for 600 or 1,000 feet of hose. It is mounted at a lower-than-traditional height for operator convenience.

kos unreeled the jetter hose a short way into the line. Then Kehr took over. Taking the wireless remote, Kehr walked down to the next manhole. From there he used the remote to control the hose reel as it unspooled the jetter hose, sending the nozzle down the line toward the manhole where he stood.

Once he saw the jetter nozzle appear in the manhole, Kehr used the remote to throttle up the engine and then draw the nozzle back toward the truck. The water blasted the inside of the storm sewer as the hose rewound.

For this unit, "throttling up" meant taking the engine to 1,400 rpm instead of the usual 2,100 rpm or higher. At the lower speed, the engine was much quieter than comparable equipment would have

been at the higher speed. Despite the lower engine speed, Kehr said, the jetter showed no loss of power or efficiency. The line had been recently cleaned, so the jetting itself was uneventful, but Kehr said the unit's key benefits were immediately apparent. "If I had my other truck out here, your ears would be ringing," he said.

Kehr also found the wireless remote immediately responsive and easy to operate. Standing a block from the truck, he explained if he heard or saw any sign of trouble that would require him to shut off or slow down the jetter, he could act immediately. Without a remote, he would have had to radio or sig-

Jetter accessories and tools such as nozzles can be stored in tool boxes on the side of the vehicle.



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TECHNOLOGY TEST DRIVE

At the lower speed, the engine was much quieter than comparable equipment would have been at the higher speed. Despite the lower engine speed, the jetter showed no loss of power or efficiency.

nal an operator back at the control panel, probably causing up to several seconds of delay.

Bakakos pointed out that the machine's greatest benefits — the savings in fuel and the reduced emissions because of its design — would be evident only over time, as customers saw their fuel costs reduced.

At the end of the demonstration, Bakakos opened knife valves on either side of the truck, and water quickly drained from the tanks onto the roadway, well away from the perimeter of the vehicle.

Observer comments

The reduced noise from the 800-HPR Eco Jet unit was immediately evident. Kehr said the brief demonstration made a strong case for the machine: "I'm very impressed with it." He added that the vehicle's eco-friendly attributes would likely interest his agency, which has been looking for ways to save money and cut pollution.

For instance, the road district's vehicle barn is now heated with waste oil. "In our garage, we took out all of our fluorescent lighting," Kehr said. "All of our new lights in there are LEDs. We're starting to push the green envelope." Kehr noted that the township has a no-idling policy for all

its vehicles to save fuel, and asked whether a cut-off switch for the engine might be available on the control panel.

Manufacturer comments

Bakakos indicated that an idle cut-off switch on the control panel is not a standard feature but probably could be installed at the purchaser's request, although he pointed out that during jetting itself, the engine would have to run, since it ultimately powers the system. Shelton pointed out that the drum reel was built with greater interior support. "We try to focus in on safety, usability, and keeping it long-lasting," he said.

He and Bakakos noted that the reel can swivel so as to make it easier to direct a hose into a man-hole set off to the side from where the truck is parked. Bakakos noted that the unit could be sold on a lease-to-buy basis. ♦

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FOCUS: STORM

IT TAKES ALL HANDS

A Kentucky county's stormwater program brings residents on board to change behaviors and make maintenance and BMPs more effective

By Mary Shafer

If you want people to care about something, show how it benefits them. It's an old concept, and it's working to great advantage for the Oldham County Storm Water Management District in La Grange, Ky.

The two-year-old district is ensuring the success of its ambitious new Municipal Separate Storm Sewer System (MS4) Program by involving all stakeholders. The program serves Oldham County and its co-permittees, the cities of Crestwood, Goshen, Orchard Grass

Hills and River Bluff in the north central part of the state. It follows the guidelines of its U.S. EPA-issued Phase II permit. In September 2009, the county contracted with Veolia Water N.A. to handle day-to-day operations.

Veolia implements six Minimum Control Measures (MCMs) in the permit: illicit discharge detection and elimination, construction site stormwater runoff control, post-construction management, pollution prevention/good housekeeping, public education and outreach, and public involvement

and participation. Technical improvements and water-quality improvements are largely results of public education and participation.

Tight teamwork

The stormwater management team has many members among Oldham County and Veolia personnel. County engineer Beth Stuber approves subdivision plans, and Louise Allen administers the planning and development department.

Ed Basquill, licensed professional engineer and certified project manager, coordinates issues



PROFILE:

Oldham County Storm Water Management, La Grange, Ky.

FOUNDED:
2007

CUSTOMERS SERVED:
15,600

SERVICE AREA:
160 square miles

ANNUAL RAINFALL:
44.69 inches

INFRASTRUCTURE:
70 miles of sanitary storm sewers; 7,000 culverts; 25 detention ponds; 13 outfalls

ANNUAL BUDGET:
\$730,000 stormwater operations

WEBSITE:
www.oldhamcounty.net

On a daily inspection, stormwater manager Kevin Gibson analyzes drainage areas and sediment buildup and checks silt fences to make sure everything is draining properly and erosion will not be a problem. (Photography by Fred Minnick)





Courtney Steinmetz, stormwater community planner for Veolia Water North America, analyzes a rain garden at the Oldham County Extension office. Veolia offered five grants to county residents to create rain gardens, reimbursing them up to \$500.

“We think some of the best, most innovative ideas can originate with the contractors and developers closest to the everyday problems with stormwater. In fact, we’re starting up a demonstration grant program to motivate creativity in that area.”

Ed Basquill

and makes sure Stuber has input from the stormwater staff on anything related to water quality.

Stormwater manager Kevin Gibson handles inspections and manages daily operations. Mapping specialist Justin Reed is creating a digital map of system assets and has already found and corrected five illicit discharges. Courtney Steinmetz, community planner, is in charge of public outreach. Gibson, Reed and Steinmetz are all Kentucky Erosion Prevention and Sediment Control (KEPSC) certified stormwater inspectors.

The team’s inspection equipment includes a CCTV camera. The team coordinates closely with the

county road department, led by Brian Campbell. The road crew performs pipe maintenance, repair and replacement and cleans roadside ditches. Veolia uses a proprietary database (called E3) to track work orders. It’s an Internet-based tool that creates work orders for scheduled maintenance and unscheduled repairs.

Imaginative solutions

Creativity and innovation are keys to the technical/maintenance and public education sides of the program. For example, the district inspects and manages the standard Best Management Practices (BMPs) in the system, includ-

ILLICIT DISCHARGE AND SITE RUNOFF CONTROL

The heart of Oldham County’s illicit discharge detection plan is its GIS mapping plan. “We maintain a digital map of all construction activity in the county,” says Ed Basquill, project manager.

“We have a digital database of inspection reports that we cross-reference to the location to monitor construction effects on water quality. For example, if a problem were detected in a local stream, it would be immediately placed on the map. We could then click on nearby features such as construction sites, and retrieve data related to the site’s condition, last inspection, notices issued, and other pertinent information.”

The mapping is part of the good housekeeping section of the MS4 plan. The county’s ESRI ArcMap 9 software makes it easy to exchange data and use public domain sources such as government web sites. “As our geospatial database continues to grow in volume and complexity, we may add to the ESRI system with software for asset management and hydraulic modeling,” says Basquill.

Mapping is an efficient basis for asset inventory, but the MS4 program can’t succeed without the human element. “Our program needs eyes and ears, as well,” Basquill says. “Our GIS technicians have found, reported and corrected many illicit discharges by observing conditions while mapping outfalls to local streams.”

Eyes and ears outside the team are equally valuable. The public education and involvement of Minimum Control Measures help eliminate illicit discharges. “When we educate about the correct way to dispose of motor oil and household chemicals, the public begins to be more aware and watchful,” says Basquill.

ing retention basins, rock checks and silt fences. The team used solid asset data from the beginning.

One stream was identified as a water-quality problem area. The county engineer pursued an EPA Section 319 nonpoint source pollution control grant to fund the cleanup. The county now manages that project with the University of Louisville, extending district resources while providing real-world engineering exercises for students. They’re restoring the stream through a large-scale bioretention BMP.

In fact, the Watershed Engagement Opportunities section of the county’s MS4 program specifically outlines ways to identify and install BMPs. “That part of our program is still in its infancy, and we’re evaluating some exciting opportunities,” says Basquill. “We think some of the best, most innovative ideas can originate with the contractors and developers closest to the everyday problems with stormwater. In fact, we’re starting up a



Justin Reed, GIS technician, uses Trimble GPS equipment while checking stormwater runoff.



Courtney Steinmetz shows parents and kids the EnviroScape display, a tabletop model of a community and associated streams used to demonstrate how rain washes pollutants into waterways. (Photo courtesy Oldham County)

demonstration grant program to motivate creativity in that area.”

Involving the public

Public education plays a major role because public awareness is key to the success of all other plan elements. “Most residents don’t understand the impact they can

have on water quality and how they can help to maintain it,” says Steinmetz. “It can’t be done by one person. It takes the help and participation of the entire community to make a successful and healthy watershed.”

The State of Kentucky and the EPA make information materials

“We mailed a postcard to all residents within our MS4, informing them of ways they can help keep pollutants out of the waterways. It had a recipe on the reverse side so they would hold onto it longer.”

Courtney Steinmetz

available to MS4 programs. The district chooses materials based on what best addresses the county’s specific watershed issues. Oldham also develops some of its own materials.

“It’s cost-effective because there are tremendous resources available in the public domain,” says Steinmetz. “These resources need to be customized before printing, and we can do that in-house.” The county outsources printing and major mailings because that is more cost-effective.

The District distributes educational materials in a variety of imaginative ways. “We mailed a postcard to all residents within our MS4, informing them of ways they can help keep pollutants out of the waterways,” says Steinmetz. “It had a recipe on the reverse side so they would hold onto it longer.”

Steinmetz has also produced five 30-second public service announcements on animal waste, exposed soil, farm fertilizer, sewage and dirty water. They rotate on the county’s local cable TV access channel.

Productive events

Some of the best public outreach happens at events. During an Earth Day event at the local zoo, Steinmetz’s team used an EnviroScape display — a tabletop plastic model of a small community and associated streams — to show how rain washes pollutants into waterways. The presenter uses a spray bottle with food coloring to show how different surface impurities affect community water quality.

Steinmetz also uses the display for classroom stormwater awareness training. In March, she trained four classes of about 20 kids each. While the module was being set up in the hallway, teachers and students asked questions about how it works and its purpose.

Veolia Water provides schools with The Water Box, an educational tool it developed mainly for children ages 9 to 11. It includes 25 experiments and lesson plans.

The county distributed 10 units for the 2010-11 school year.

As important as making the information relevant is making it easy to put the concepts to work. The district developed the Recipe for Clean Water Fact Sheet based on EPA information. Linda Fountain, county solid waste coordinator, led and scripted an Electronic Recycling Drop-Off event where people could deliver old electronic equipment and household chemicals.

Interactivity engages

Some of the best outreach efforts include interaction. The district’s rain garden demonstration program so far has given grants to seven residents. The district provides directions for creating a rain garden to capture water from a home’s rain gutters. The gardens encourage water conservation and reduce peak-flow runoff. Residents install the gardens, then submit receipts totaling up to \$500 to the district for reimbursement.

The district also has a “Build Your Own Rain Barrel” program. Meanwhile, local Scout groups take part in a drain-marking program in which kids stencil “No Dumping — Drains to Waterway” on the street beside storm drains. Steinmetz and her team are working on a T-shirt design for the participants.

She believes such recognition would bring the outreach program full circle, acknowledging the importance of every person’s help in maintaining water quality. ♦

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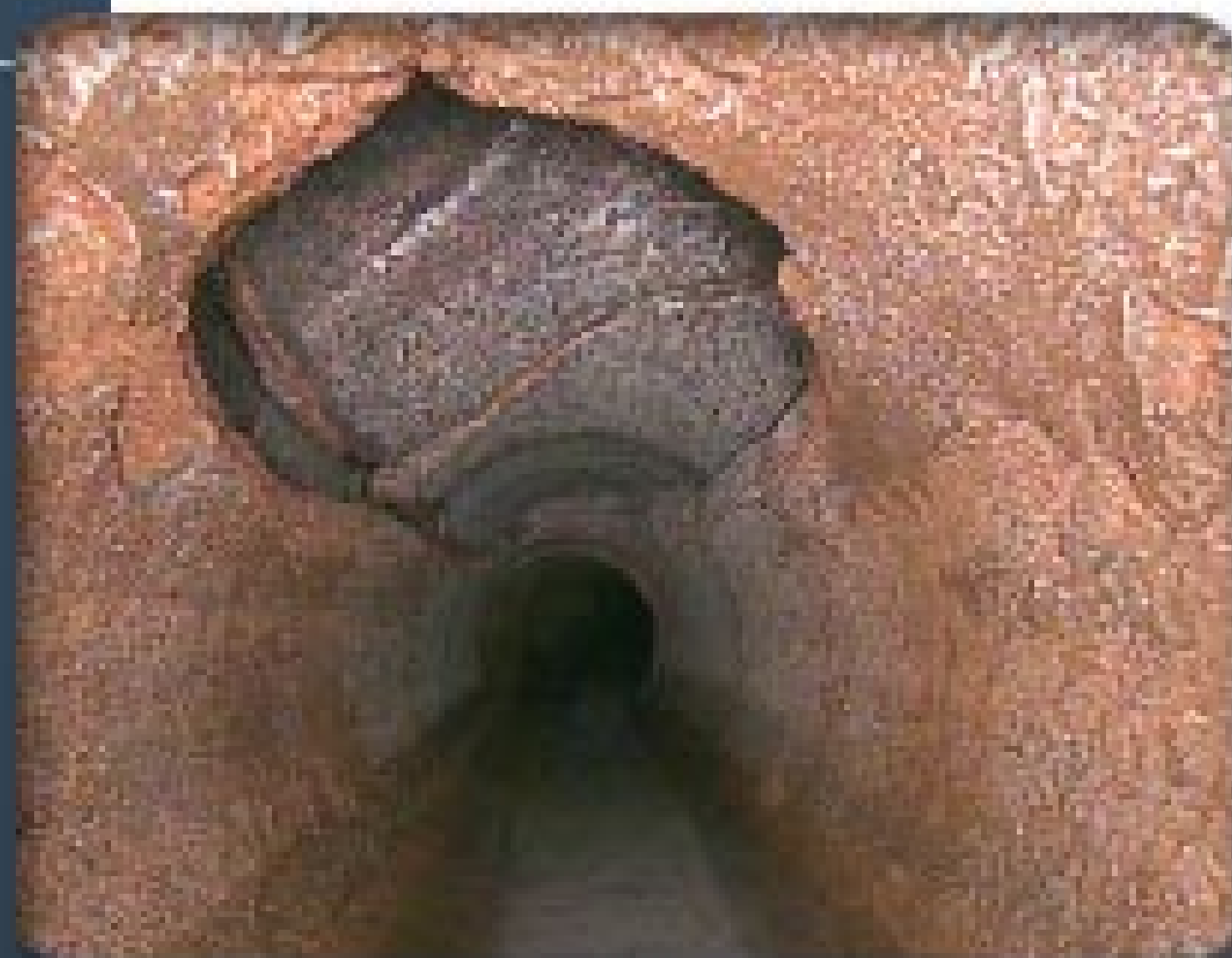
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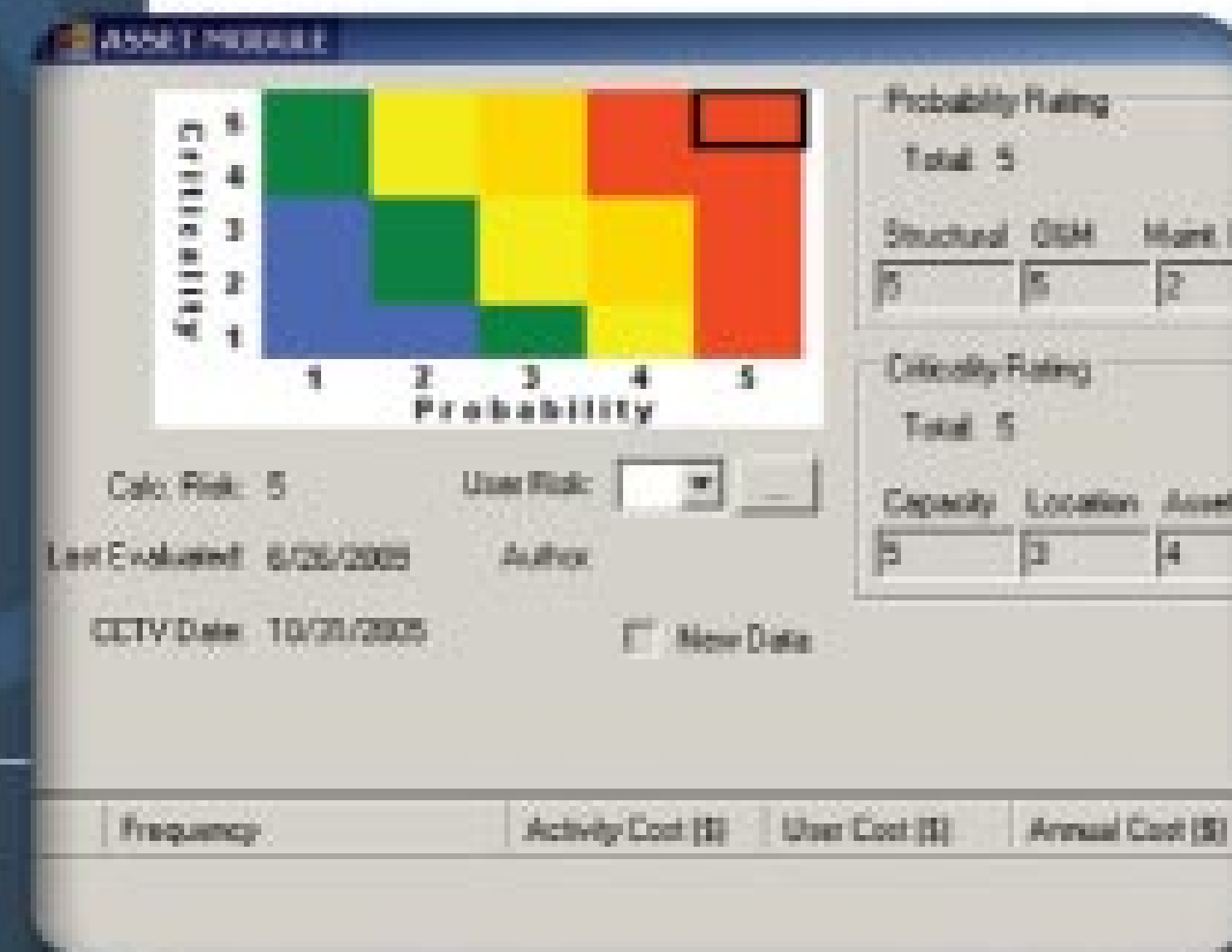
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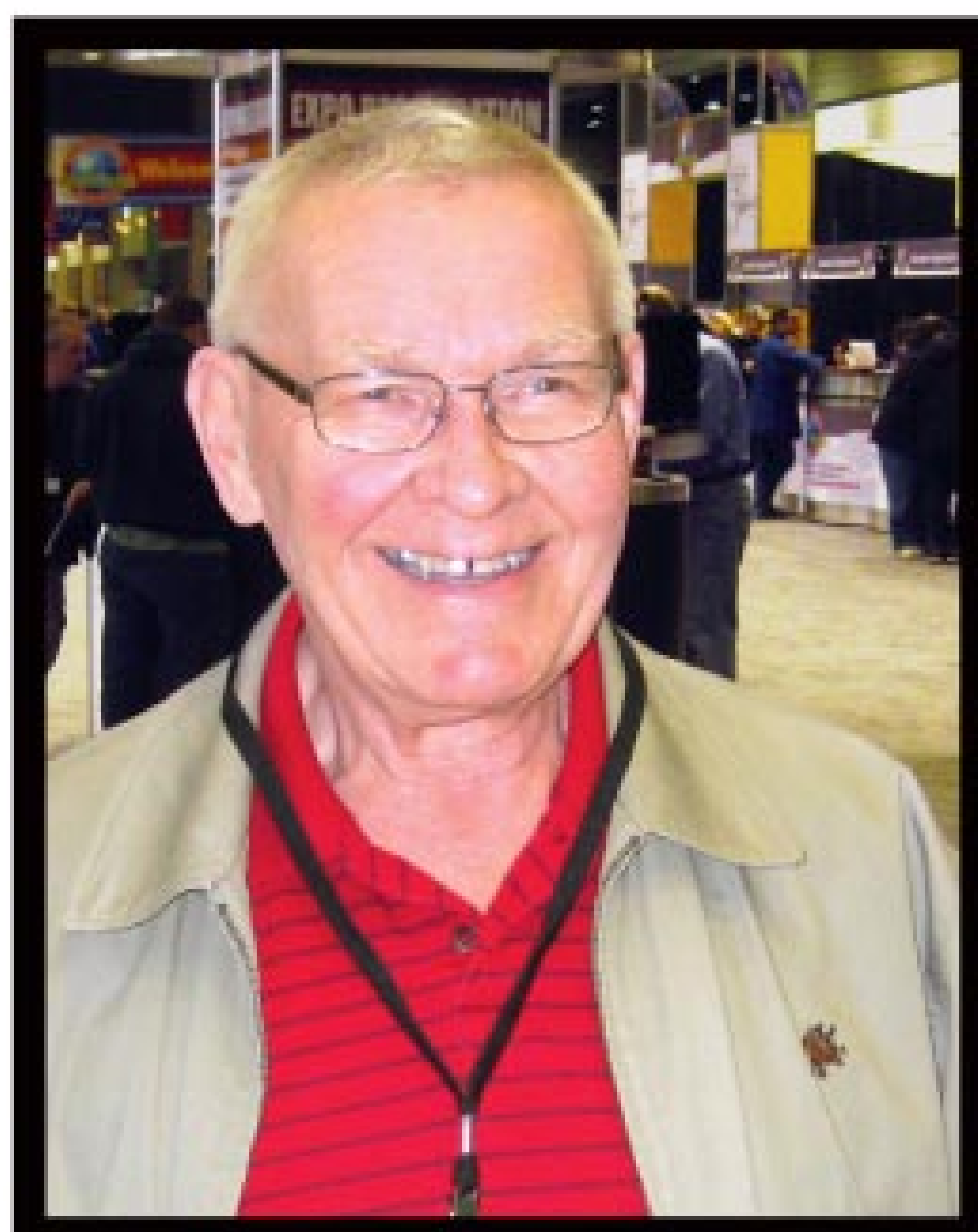
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SSCSC

Southern Section Collection Systems Committee

- 8 a.m. Sewer Collection System History & the Evaluation of Pipeline Materials and Problems
- 9:30 a.m. Combo Vacuuming, a Forgotten Art
- 11 a.m. Keeping your Standard CCTV Inspection Program Relevant
- 1 p.m. Growing Your Business by Building Your Company Image
- 2:30 p.m. Pump and Lift Station Fundamentals: How to Achieve Maximum Service and Reliability
- 4 p.m. Making Sense out of Nozzle Nonsense

NAWT

National Association of Wastewater Transporters

- 8 a.m. So You Think You Want to Own a Waste Treatment Facility?
- 9:30 a.m. Grease as a Resource
- 11 a.m. Resource Recovery - Methane and Septage
- 1 p.m. O & M Problems on Drip Distribution Systems
- 2:30 p.m. O & M Problems We Have Seen
- 4 p.m. O & M Problems with Media Filters

NASSCO

National Association of Sewer Service Companies

- 8 a.m. Grout: Its Use and Application for the Total Collection System
- 9:30 a.m. Cured-In-Place Pipe
- 11 a.m. Pipe Bursting Tools for Everyday Utility Installations
- 1 p.m. How Will You Know if You Need to do a Sewer System Evaluation Survey (SSES)?
- 2:30 p.m. Laser Profiling Applications for Documenting Piping System Conditions
- 4 p.m. Advancements in UV Technology for Curing CIPP

WJTA

WaterJet Technology Association

- 8 a.m. Estimating the Vacuum Job for Fun and Profit
- 9:30 a.m. How to Maximize the Power of Your Waterjetter
- 11 a.m. Waterjetting - Financial Startup Considerations and Real-World Application

PSAI

Portable Sanitation Association International

- 1 p.m. Understanding Your True Cost per Service for Special Events - Part 1
- 2:30 p.m. Understanding Your True Cost per Service for Special Events - Part 2

NARC

National Association of Regulated Carriers

- 4 p.m. Avoiding Violation Fines and Tickets with DOT Safety Compliance

NOWRA

National Onsite Wastewater Recycling Association

- 8 a.m. Troubleshooting Our Modern Waste Stream
- 9:30 a.m. Pumps - A Basic Understanding
- 11 a.m. System Remediation - Why, What, When, Where and How?
- 1 p.m. Selling the System to Site Conditions
- 2:30 p.m. Sampling Sewage Treatment Systems
- 4 p.m. Effluent Dispersal and Water Management

NEHA

National Environmental Health Association

- 8 a.m. The Qualified O & M Service Provider
- 9:30 a.m. Effluent Screens and Filters for Onsite Applications
- 11 a.m. Develop Champions for Your Decentralized Wastewater Projects
- 1 p.m. The Business of Management
- 2:30 p.m. Developing O & M Inspection Actions
- 4 p.m. Working with Regulators, Regulations & Industry

SCOTT HUNTER

Business Track

- 8 a.m. Creating an Extraordinary Organization - The Mindset of Leadership (Part 1)
- 9:30 a.m. The Mindset of Leadership (Part 2)
- 11 a.m. The Mindset of Leadership (Part 3)
- 2:30 p.m. Creating an Outrageously Successful Organization (Part 1)
- 4 p.m. Creating an Outrageously Successful Organization (Part 2)

LRN

Leaders Resource Network

- 8 a.m. The Disciplines and Art of Business Success
- 10 a.m. Developing a "Fantastic" Team
- 1 p.m. Diversifying or Specializing Your Services
- 3 p.m. Succession Planning

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KEEPING THEM ON BOARD

Well-structured mentoring programs can help younger employees learn skills and deepen their commitment to the organization

By Ken Wysocky

These days, some studies show that employees in their mid-20s work an average of 16 months before moving on. An employee age 18 to 34 may hold up to nine different jobs.

That has to make a manager think long and hard about how to keep Mike, that talented young collection system technician, around long enough to become a supervisor.

But there's an inexpensive and relatively easy way to keep Mike happy and protect your investment in his training: Find him a compatible mentor and watch both parties — and your organization — benefit.

"Arguably, the cost of training employees alone means you should do everything you can to retain them," says Dawn Chandler, an assistant professor of management at Cal Polytechnic State University in San Luis Obispo, Calif. "Motivational research shows training is important to employees. Training and mentoring make people more competent, and organizations with mentoring programs have more satisfied, committed employees who are less likely to leave and more likely to share information."

Chandler says mentoring is more important than ever because technology is changing rapidly, organizational demographics are shifting, and other cultural trends are affecting organizations of all kinds, including municipal agencies.

In the face of a mobile workforce, it's critical to get new employees indoctrinated quickly to the organization's culture and poli-

tics, which older-generation employees had the luxury of learning during a 20- or 30-year career.

Carve out time

To weary managers already pressed to do more with fewer resources, mentoring might seem like more effort than it's worth. But Chandler says mentoring doesn't have to be a huge time sink, and it often offers unexpected benefits.

"It's honestly a challenge," she says. "I wouldn't tell anyone to take mentoring lightly. That being said, there are great benefits, not the least of which is that mentors may well learn something from their protege."

"For example, older people may not be as sophisticated about computers and software programs, or

employees may be able to offer objective, valuable feedback about a manager's leadership skills.

"In my research, I looked at relationally savvy people," Chandler says. "Savvy seniors recognize that they can learn from junior people, who can help them understand how others perceive their management style. Maybe they don't delegate enough, or maybe they're not communicating or motivating employees as effectively as they think they are. They may not understand their blind spots as a manager, but these juniors can open a window to them."

Both parties need to feel they benefit from the partnership. They should be mindful about what is occurring in the relationship so that one person doesn't feel ne-

"You need to create pairs with as much chemistry as possible. Mentors should be empathetic and good communicators and have good social skills. The mentor's skills should be relevant to those the protege is seeking to develop."

Dawn Chandler

troubleshooting problems with them, while younger generations are quite tech savvy. So the pair can build a mutually beneficial relationship."

Mentoring doesn't always require a formal structure full of rules and requirements. It can be as simple as periodic lunches with one or two entry-level operators or technicians, where a manager can answer off-the-cuff questions and offer advice. In return, the junior

employees may be able to offer objective, valuable feedback about a manager's leadership skills.

Good match

Whether mentoring is formal or informal, one factor augurs success or failure more than any other — finding a good match between mentor and mentee. Chandler suggests picking people with similar likes and dislikes, or a shared hobby or personal or work

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

values. Something as simple as a similar sense of humor can make a difference.

"You need to create pairs with as much chemistry as possible," she notes. "Mentors should be empathetic and good communicators and have good social skills. The mentor's skills should be relevant to those the protege is seeking to develop."

Chandler also suggests asking rather than telling people to serve as mentors. Studies show that people who volunteer are more likely to be vested and succeed. Once paired, the mentor and mentee need to set expectations, such as how often to meet, what they hope to achieve, the best ways to communicate (e-mail, phone, in person), and how often to expect feedback. There should be a defined timetable for the mentoring to end.

"In programs I've been involved with, and according to general studies, it's good for a human resources department (if the city has one) to keep its finger on the pulse of relationships," Chandler says. "Every three or six months, someone should check on things and see if there are any problems. Everything should be confidential. It's helpful to hold a formal training session for mentors and proteges — maybe just 45 minutes to tell both parties what it's all about. Training is very beneficial."

Watching for pitfalls

Sometimes even the best-thought-out pairings can go awry. For example, without clear expectations and

effective monitoring, a mentor may take advantage of a relationship and order a mentee to work 20 hours over a weekend to finish a report the mentor neglected.

"Or the protege can become overly dependent and reliant on advice and doesn't grow into an independent thinker," Chandler says. "Sometimes mentors don't give them enough work for the person to grow professionally. It's also possible for either party to try and damage each other's career, or to have a mentor take credit for a protege's work.

"Mentors can feel threatened, or they can bask in the success of younger proteges. That's why social skills and a good match are so critical."

On a broader level, Chandler encourages organizations to hold a workshop for younger employees and educate them about the importance of building their own

networks with peers and managers and with professionals outside the organization.

"No one person can fulfill all their professional needs," Chandler says. "If you educate them about what mentoring entails, they can proactively seek out people who will help them. That puts the responsibility on the individual, and they will seek out people with whom they already have natural chemistry.

"It doesn't necessarily have to be a senior/junior relationship, either. They can attend conferences or meetings of professional organizations and reach out to someone who has an interesting career. There's a whole bunch of people they can learn from. Everybody wins."

Especially employees like Mike, who just might stick around long enough to take over when his boss retires. ♦

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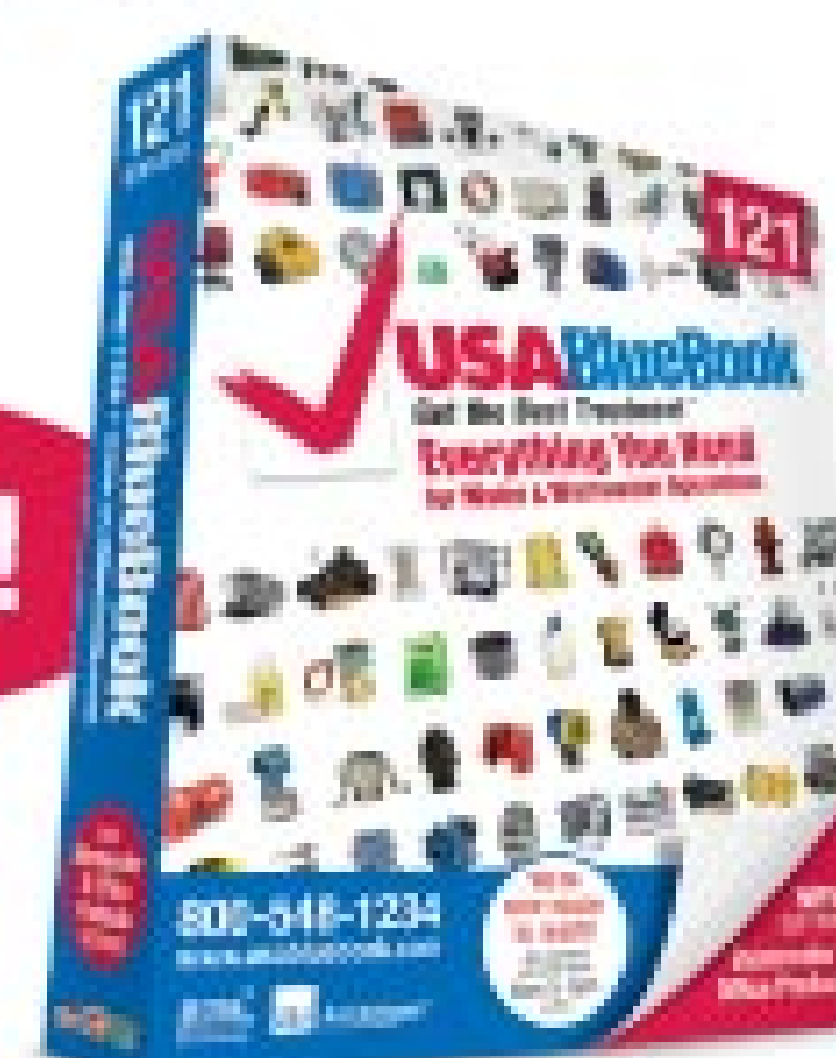
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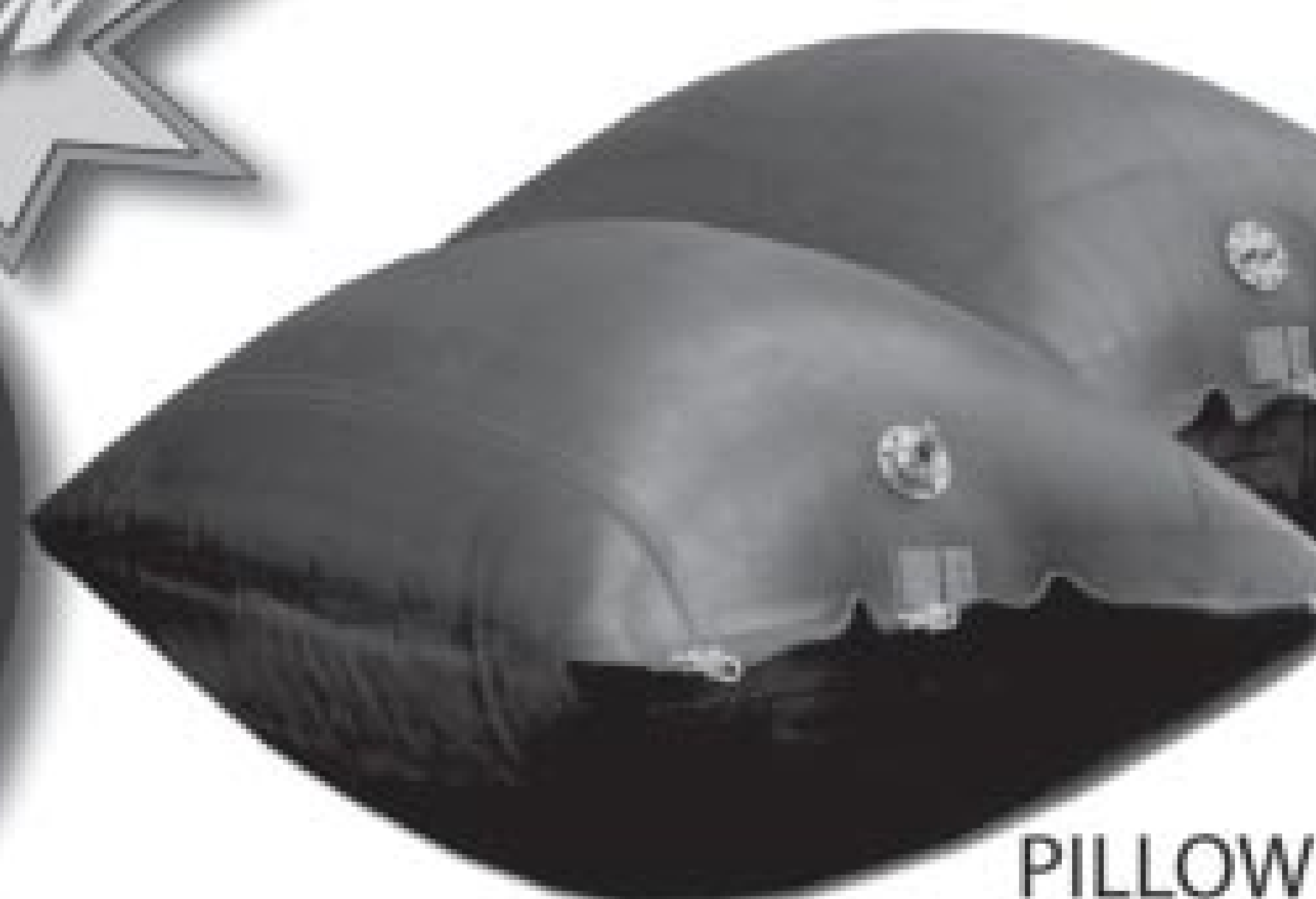
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Pumper & Cleaner Expo Heads to Indianapolis in 2012

The 2012 Pumper & Cleaner Environmental Expo International will be held in Indianapolis Feb. 27 to March 1. The Indianapolis facility has more than 4,000 connected hotel rooms, shopping and dining, all within walking distance. More information will be available at the 2011 Expo in Louisville, March 2-5. The 2010 Expo drew nearly 4,000 companies and 13,000 attendees from 48 countries.

FS Solutions Names Regional Sales Representatives

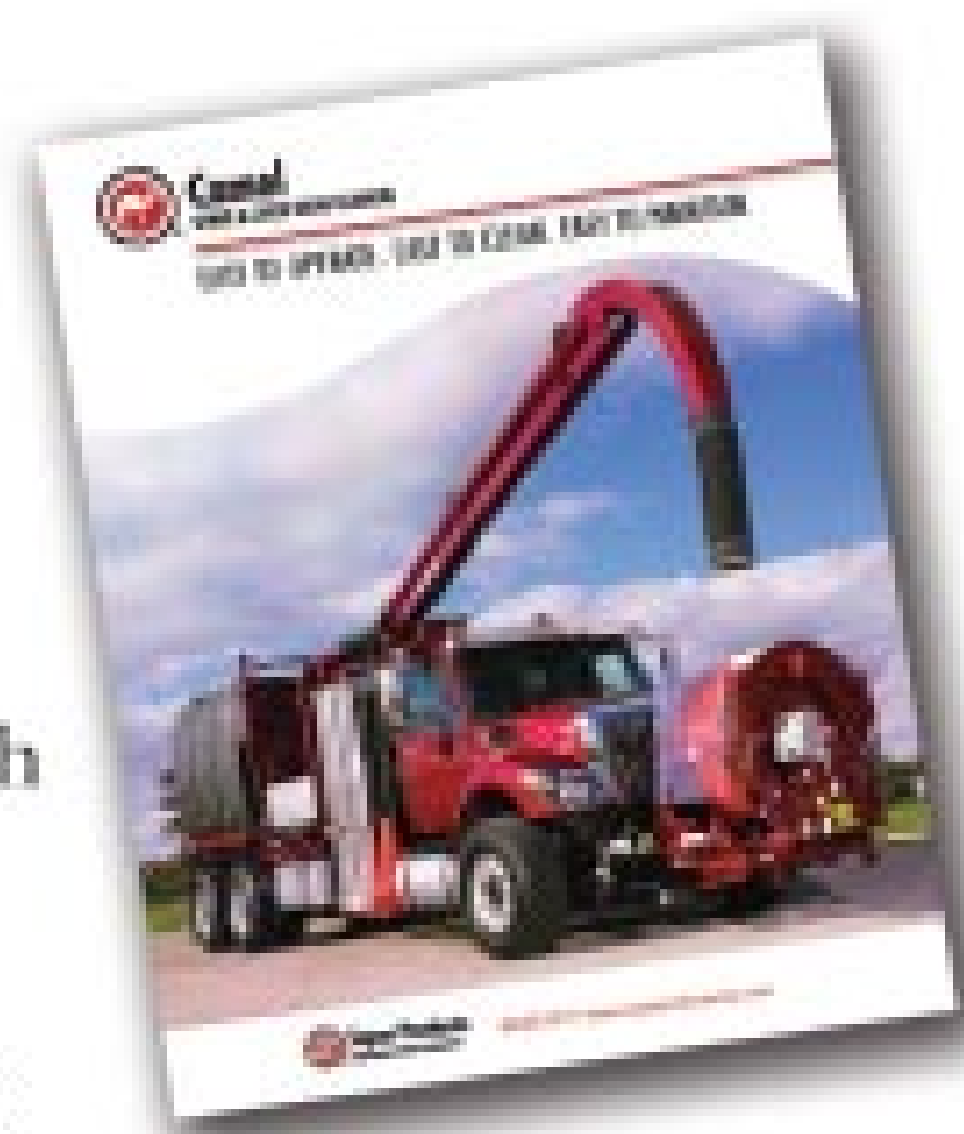
FS Solutions has named Bill Pharis and Brad Ketchum regional sales representatives for parts and service and the company's Guzzler, Jetstream and Vactor brands. Pharis will be responsible for Long Beach, Calif., and Ketchum for Pasadena, Texas. Both have 12 years of sales experience.

Water Cannon Launches Online Store

Water Cannon Inc. has launched an online store at www.cole-mart.com/watercannon. The store offers the convenience of 24-hour shopping, the ability to research and compare products, and a simple order process.

Super Products Releases Product Brochures

Super Products has released product brochures on its line of Camel sewer and catch basin cleaners as well as spec sheets for its Supersucker industrial vacuum loaders and Mud Dog 650 hydroexcavators. Available in both English and Spanish, the product brochures and spec sheets can be downloaded at www.superproductscorp.com or requested by calling 800/837-9711.



Cummins Builds Sound-Testing Facility

Cummins Power Generation has begun construction of a hemi-anechoic test chamber at its Fridley, Minn., headquarters. The facility will enable the company to further reduce sound levels in generators and other products.

Webinar Highlights Jetter Selection

US Jetting will sponsor a webinar on "Selecting a High-Pressure Jetting Unit for Maximum Use Applications and Profits" on Thursday, Feb. 3, from 4 to 5 p.m. Eastern time. *Cleaner* magazine will host the session.

Presenters from US Jetting are Ryan Peake, southeast regional sales manager, and Danielle Young, new unit and international sales coordinator. They will explain why purchasing a high-pressure jetting unit is a capital investment that must be researched thoroughly.

A profitable jetting unit needs to cover a wide range of pipe cleaning applications, and the wider the range, the greater the potential profits. The webinar will focus on selecting a unit with the pressure, water flow, water storage capacities and engine horsepower to fill the needs of any sewer cleaning operation. The seminar will last 45 to 50 minutes and will allow 10 minutes for the presenters to answer submitted written questions.

To register, visit www.mswmag.com/webinar.

NozzTeq Launches Online Store

NozzTeq has launched an online store at www.cole-mart.com/nozzteq. The store offers the convenience of 24-hour shopping, the ability to research and compare products, and a simple order process.

APS Names Matsoukas Manager, Opens Branch Office

Advanced Pressure Systems has named Johnny Matsoukas branch manager for the company's new La Porte, Texas, office. He has 15 years experience in the high-pressure waterblasting industry and will handle all aspects of technical sales.



Johnny Matsoukas

Vermeer Realigns Senior Staff

Vermeer Corp. has named Mike Byram vice president of environmental solutions, Steve Heap vice president of Vermeer Latin America and Vermeer Europe, Middle East and Africa, and Dave Wisniewski vice president of underground solutions. In addition, Jason Andringa will assume the role of vice president of distribution and global accounts. He had been serving as managing director of Vermeer Europe, Middle East and Africa (VEMA) in The Netherlands. Frank Beerthuis will take over Andringa's managing director role at VEMA. Mark Core will serve as vice president for global aftermarket and marketing, David Corbin will be vice president of global forage, procurement, logistics and IT, and Doug Hundt will be vice president of global industrial solutions.

Gradall Names Petrole Vice President of Vacall

Gradall Industries Inc. has named William G. Petrole III vice president of Vacall products. Petrole has 25 years experience in the industrial vacuum industry, leading companies on both the manufacturing and distribution side of the business.



William G. Petrole III

Triple R Specialty Launches Online Store

Triple R Specialty has launched an online store at www.cole-mart.com/triplerspecialty. The store offers the convenience of 24-hour shopping, the ability to research and compare products, and a simple order process.

Northeast Trenchless to Host Annual Seminar

Northeast Trenchless Association will host its Annual Training and Development Seminar Jan. 17-19 at the Crowne Plaza Boston North Shore in Danvers, Mass. The meeting is open to members and nonmembers. NTA also will host an 8-hour Advanced Drilling Fluids course. A full-day training session for engineers and owners/operators on how to evaluate trenchless technologies will be held the second day. For more information, call Bill King at 508/498-3811 or visit www.northeast-trenchless.com.

PipeLogix Renames Flagship Software

PipeLogix Inc. has renamed its flagship pipe inspection, analysis and data reporting software PipeLogix. Originally known as flexidata, the program serves as the core of a suite of modules that include video capture, graphical pipe depth representation, GIS assessment, standards-based manhole surveys and multi-view pipeline data. To mark the rebranding, PipeLogix also has introduced a new product logo. ♦



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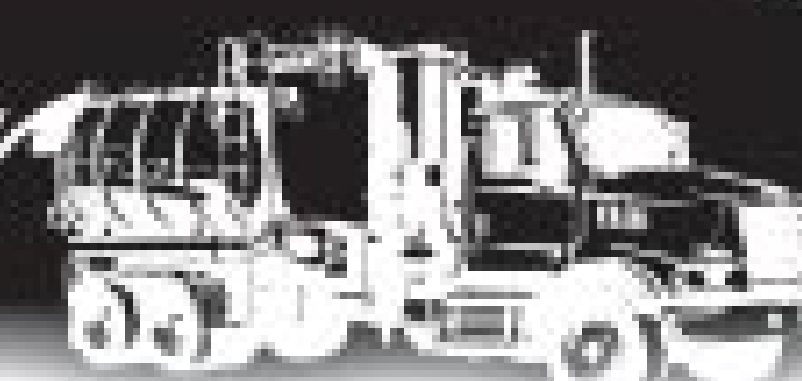


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1"-15° or 30°	\$68.00
1-1/4"-18 or 35°	\$85.00

Steel Sand

1"-12° \$70.00

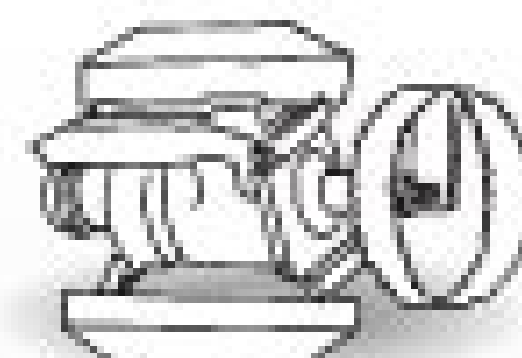
NEW Storm/Culvert Floor Cleaner Nozzles

Parker & Piranha Jetter Hose

1/8"-1-1/4"

Saw Blades

NEW Chain Root Cutters
4"-48", All Stainless Steel, No Lubrication



Root Cutter Assemblies

Skid Mounted	
w/flat blades	\$888.00
w/concave blades	\$930.00
w/spiral blades	\$930.00
Donut Mounted	
w/flat blades	\$867.00
w/concave blades	\$909.00
w/spiral blades	\$909.00
Lateral Mounted	
w/flat blades	\$850.00
w/concave blades	\$920.00
Assemblies come with one ea. of 6, 8, 10 and 12" blades, saw blades, hub, skids, etc.	

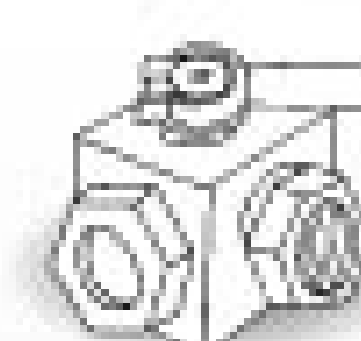
Sewer Hose Guides

TigerTail™ Style	
3" x 36"	\$40.00
2" x 36"	\$34.00
with 24' rope	



Clamps

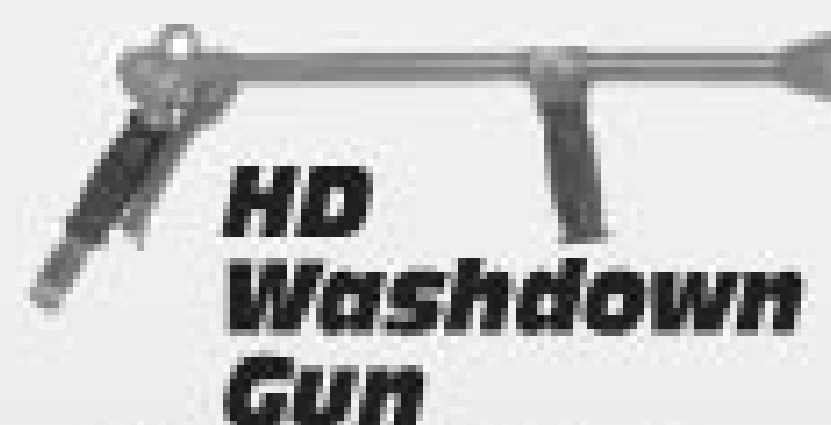
Power Clamps	
8"	\$13.00
3"-6" available	
King Clamps	
8"	\$29.75
4"-6" available	
Bandlock® Clamps	
8"	\$24.00
3"-6" available	
Quick Clamps	
8"	\$26.50
3"-6" available	



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1-1/4" 3-way	\$440.00



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MANAGING ASSETS

An effective program considers life-cycle costs, long-term funding, asset condition and criticality

By Ted DeBoda, P.E.

Necessity is the father of invention" means we will find a way to accomplish something when a need is presented. Given our economic state, the need to spend money on infrastructure wisely has never been greater.

In the sewer industry, this means we need to move from operating our systems to managing our assets. This became clear in NASSCO's recent membership survey where respondents listed asset management as one of their top support needs. As a result, we are forming an Asset Management Committee.

Asset management is not a new concept, although it can take many years to establish an effective program. Whatever the approach, the goal is always to achieve a desired level of service at the low-

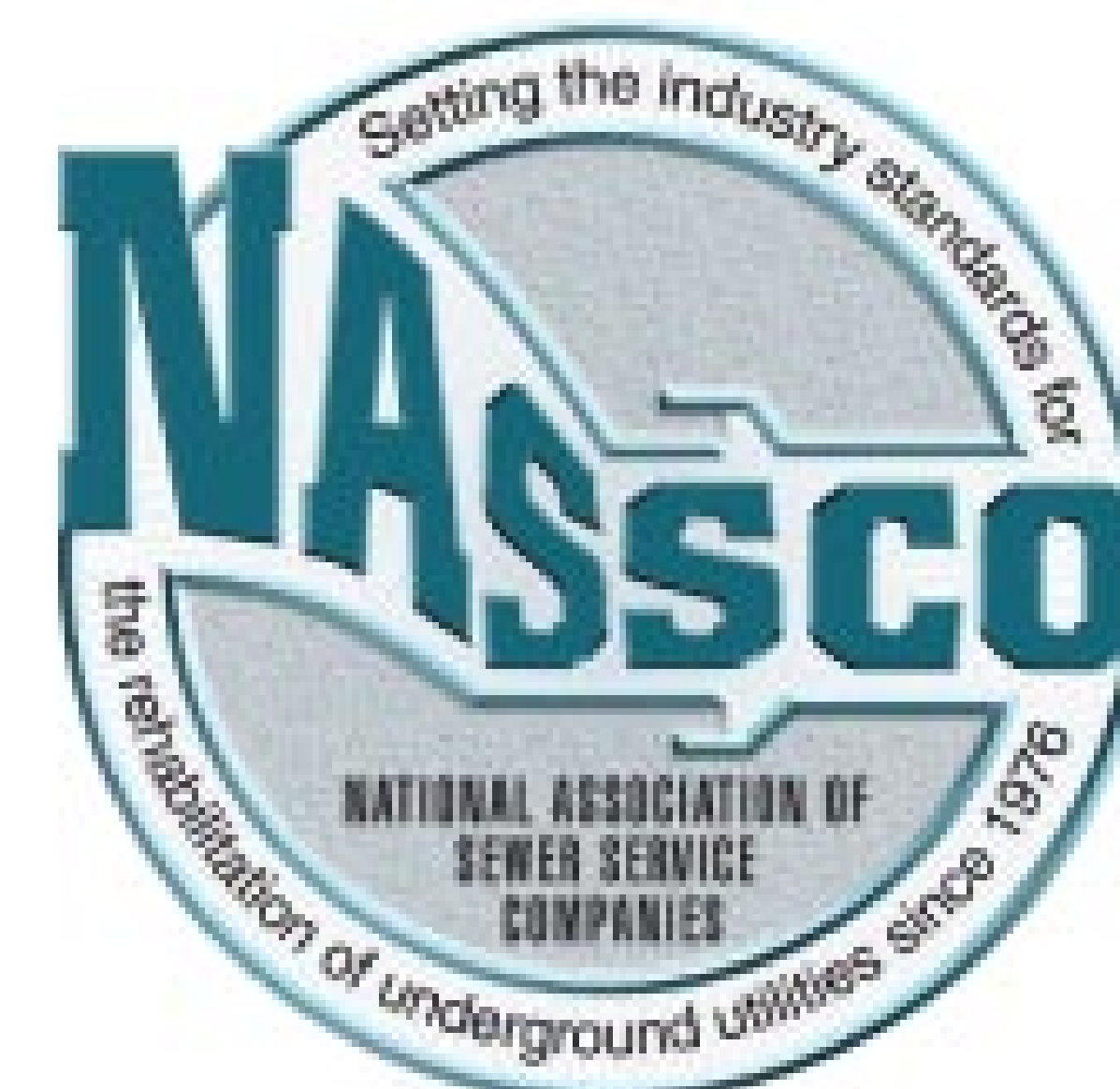
est cost. The EPA provides training in the development of asset management programs, and the first of several core questions is: What is the current state of my system's assets?

NASSCO's Pipeline Assessment Certification Program (PACP) has been answering that question consistently for eight years. By adopting PACP, many utility managers have established a mechanism to provide consistent data that describes the state of assets very specifically. Whether the data was collected to assess pipe condi-

tion, to locate a lateral, or just to verify that the line was cleaned properly, PACP addresses the core question.

Manholes also need to be considered in an asset management program, and many utilities have also adopted our Manhole Assessment Certification Program (MACP).

Another question the EPA teaches us to ask is: "Which assets are critical to sustained performance?" PACP addresses this by providing a field in which to enter Sewer Category (Header Field 35).



ground requiring extensive dewatering, or extensive stabilization.

- **Traffic and road data.** This includes traffic levels or unusual traffic control requirements, and special engineering difficulties.
- **Other factors.** These include average depth, size, material, and repair and replacement costs.

Consider two defects of condition grade five.

The first is an 8-inch line that serves two properties and runs through an easily accessed easement. The second is a 36-inch interceptor that serves a hospital and 1,000 homes. Clearly, the latter has a much higher criticality rating and would get priority.

This one field provides the criticality rating of the line being surveyed or the consequence of failure. The importance of this field (it is not mandatory) is huge when considering where to start programming projects.

Consider two defects of condition grade five. The first is an 8-inch line that serves two properties and runs through an easily accessed easement. The second is a 36-inch interceptor that serves a hospital and 1,000 homes. Clearly, the latter has a much higher criticality rating and would get priority.

Assigning a criticality rating is a little more complicated and is more than a CCTV operator can be expected to provide. The Water Research Centre (WRC) *Sewerage Rehabilitation Manual (SRM)* provides procedures for identifying critical sewers. The procedures include using information about:

- **Ground conditions.** Bad ground conditions may include running sand,

Finally, there needs to be a way to identify and categorize strategic sewers, such as those where failure would disrupt a hospital, sewers under rivers and railways, or sewers under buildings. A more complete description can be found in the SRM.

I am often asked: Now that I have PACP CCTV data, how do I use it to program projects into my asset management plan? Using the sewer categories along with the condition codes can certainly help.

However, to maximize performance while minimizing cost, you need an effective asset management program that identifies an acceptable level of service — and also addresses life-cycle costs and long-term funding along with condition and criticality. ♦

Ted DeBoda is executive director of NASSCO. He can be reached at director@nassco.org. NASSCO is located at 11521 Cronridge Drive, Suite J, Owings Mills, MD 21117.



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LISTINGS

Amarillo, Texas sewer, drain & plumbing business established in 1976. Owner wants to retire, so take the keys to a 2004 Sprinter outfitted with all of the equipment you'll need to run this business. Price includes real estate with 80x100 shop/office on two city lots. Good gross, good profit, financials available with signed non-disclosure. **Offered at \$495,000.**

Chicago-Area Biosolids, Land Application, Dredging and Industrial Services Business. Established in 1985, owner is retiring. Reputable business includes real estate servicing the entire Chicagoland area with sludge and biosolids disposal and treatment services. Real estate and shop included with sale valued at \$750,000, business grosses in excess of \$3 million annually, \$6.3 million in equipment and assets including several TerraGators, Vac Trailers, dump trailers, loaders and much more. **\$4,900,000.** Huge potential, good profit and priced right. Non-Disclosure Agreement required, all P&L statements, list of assets, and financials available to qualified buyers.

WANTED. Very serious and well qualified buyer looking for sewer, septic or industrial business in Dallas, Texas area. Must be grossing between \$500,000-\$1,000,000. All inquiries are kept confidential.

Green Bay, Wisconsin Area Septic & Drain Business. Solid and steady revenue history and nearly 20 years established. Excellent opportunity to expand or start your own business. Includes very well-maintained 3,800 gallon septic service truck, fully outfitted 2002 Chevy drain service van, drain & sewer equipment, all office equipment and computers, 2,700+ customer list, and more - a true turn-key or easy expansion opportunity. Very meticulously maintained equipment all kept inside a heated shop. Current owner is retiring. Large shop and real estate is also available if desired at additional cost. **Asking \$249,000.**

Successful business with a large amount of equipment and inventory. Profitable sewer and septic business in central Pennsylvania. Increasing revenue over the past 3 years and a large amount of equipment and inventory. Equipment is a mix of old and new, but all is working and making money. **Selling price \$349,000.**

Dallas/Fort Worth Texas Area Sewer/Rehab Business For Sale. Drain Cleaning, TV inspection, Pipeline & Manhole Rehab/Relining, Municipal Cleaning and Maintenance business for sale. Excellent opportunity to expand or start your own business. Good revenue history and priced to sell. Includes all equipment to get started. **Asking \$150,000.**

Well-Established and Profitable Texas Septic, Sewer & Installation Business For Sale. Price reduced. Grossing in excess of \$600,000 annually, customer list of nearly 2,000 accounts and 430 contracted customers. Includes nice late model equipment, most are 2007, 2008 model years. Owner retiring after nearly 40 years in business. Real estate available upon request. **Reduced to \$450,000.**

Established portable restroom and septic service business located in central Virginia. Excellent gross each of the past 3 years with no decline in revenue makes this business recession-proof. Steady work including many contracts and repeat customers. Extensive equipment inventory, good revenue, and owner willing to train. Great opportunity for expansion or a new career. **Asking price \$775,000.**

New Jersey VIP Restroom/ Portable Toilet Business. Servicing Metro Philadelphia and Southwest New Jersey with VIP restroom trailers and portables. Many late model assets including 2 nice service trucks, 1 back-up service truck, pick-up truck, 4 VIP restroom trailers, nearly 300 restrooms, sinks, holding tanks, slide-in unit, 2 forklifts, and more. Assets worth over \$300,000 - priced to sell at **\$399,000.**

Product Spotlight

PowerGrit Tool Offers a More Efficient, Safer Way to Cut Pipe

By Ed Wodalski

The PowerGrit utility saw chain from ICS, Blount International, cuts ductile and cast-iron, PVC and HDPE pipe as well as pipe lining from one position.

The chain has a brazed layer diamond coating that lets an operator in a trench cut up to 12-inch pipe from the top, eliminating the need to excavate around the pipe and work from underneath to complete the cut. Pipes can be cut even in tight locations where another utility has been laid close by.

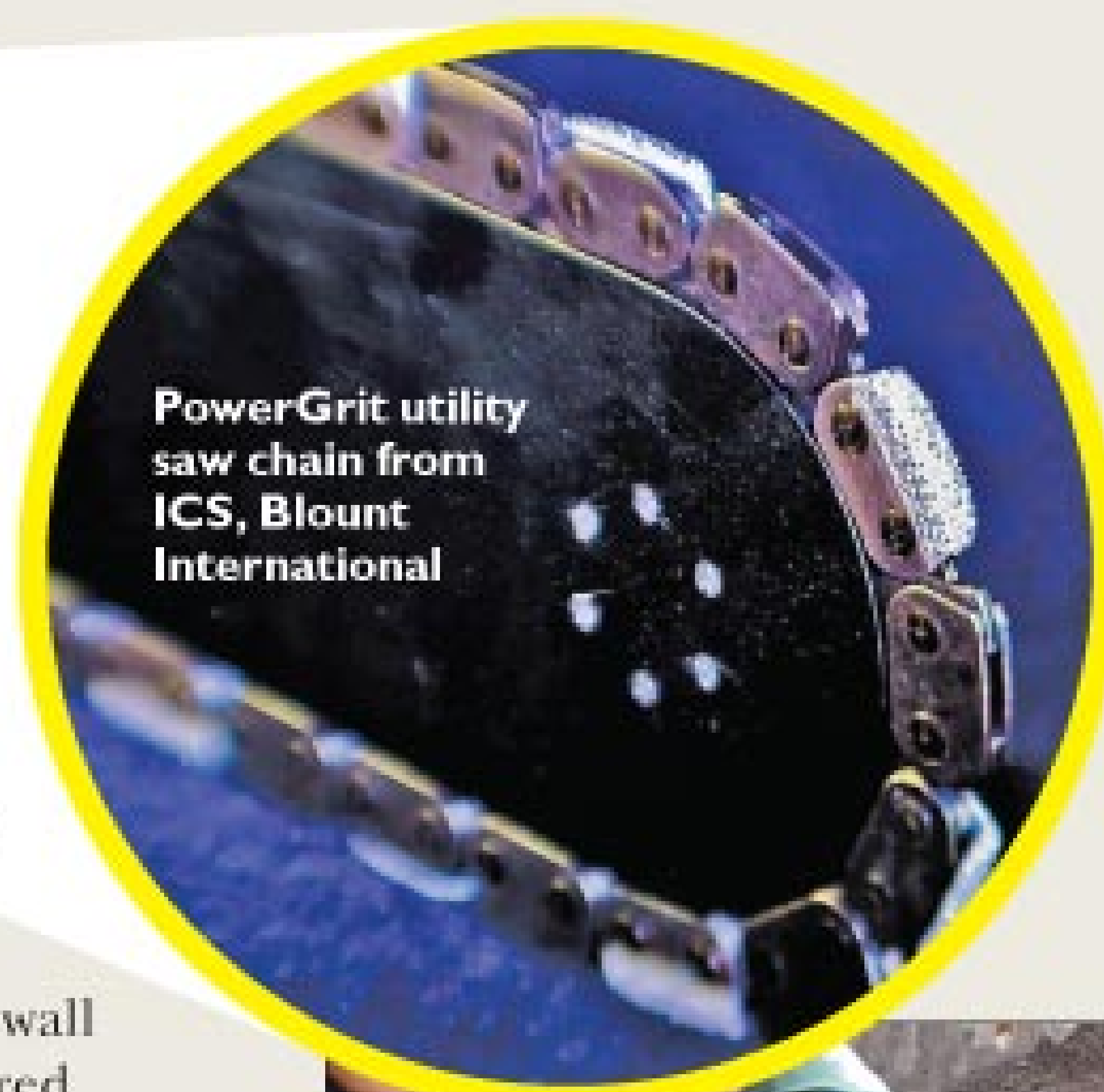
"The most common sizes of pipe can be cut from one side," says Joe Taccogna, marketing services manager. "That reduces the amount of excavation. A lot of pipe is laid on bedrock, making it extremely difficult to excavate under it. Cutting from above makes a difficult situation a lot easier."

The saw chain can make more than 30 cuts through 10-inch ductile iron pipe, depending on pipe wall thickness, hardness, position in the trench, and operator experience. An alternative to gasoline-powered cut-off saws with circular abrasive or diamond blades, the chain also makes cutting safer. "Often, operators using a circular saw will rotate the blade guard completely out of the way to get the blade under the pipe, and that's fairly dangerous," says Taccogna.

The saw chain is designed for use with the ICS 695F4 gasoline-powered chainsaw with 16-inch bar or the ICS 880F4 hydraulic chainsaw with 15- or 20-inch bar. The chain needs about 1 gpm of water at 20 psi, supplied by a common building faucet, water truck, or mobile tank.

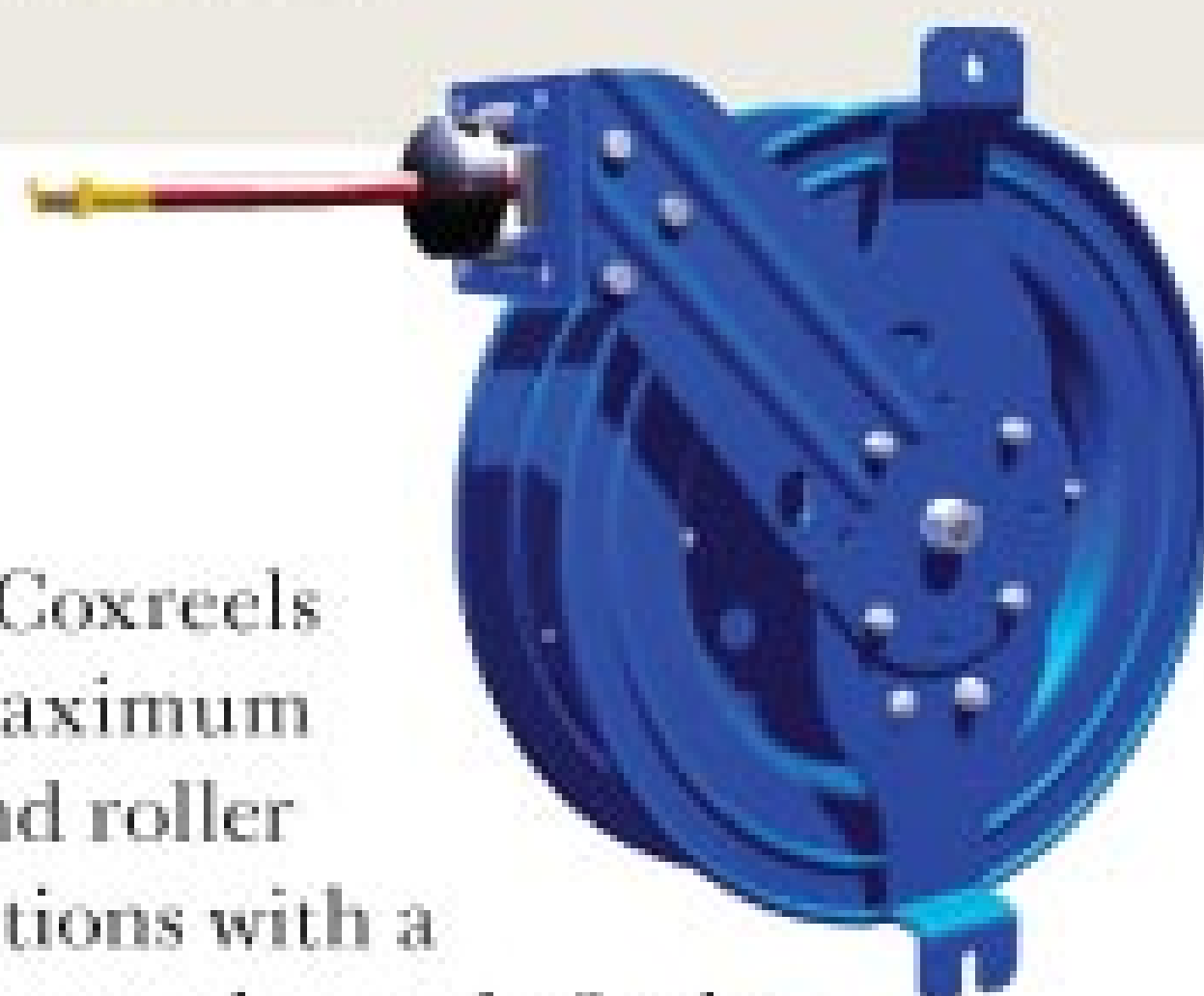
Much like a concrete saw, the chain grinds rather than chips through pipe, eliminating the rotational kick-back of woodcutting chainsaws. While either ICS saw can be used freehand, an accessory clamp for 4- to 12-inch pipe is available with the hydraulic model.

A small, weight-supporting axle attaches to the saw, providing a stable and accurate cut and improving ease of use. "Some might say it's also safer because it limits the movement of the saw, making it easier to control," Taccogna says. **800/321-1240; www.powergrit.com.**



Coxreels Introduces Multi-Position Guide Arm

The Side Mount Series of reels from Coxreels feature a multi-position guide arm for maximum hose control. The outfitted guide arm and roller assembly can be moved six different positions with a standard 1/2-inch wrench. The side mount reels, made for low-, medium- and high-pressure use, can handle 50 feet of 1/4-, 3/8- and 1/2-inch hose I.D. as well as 75 feet of 1/4-inch twin-line oxy-acetylene or T-grade welding hose. **800/269-7335; www.coxreels.com, Expo booth 3057.**



ADS Offers Hykron Leak Listening System

The Hykron Leak Listening System from ADS LLC provides high acoustic sensitivity for checking leak noises at water fittings, hydrants and valves. The entry-level system includes handheld electronic sensor,

amplifier with belt attachment, extension rods, magnet attachment, high-quality headphones and carrying case. **800/633-7246; www.adsenv.com.**

RapidView Introduces Rear-Viewing Camera Connector

The RETRUS rear-viewing camera connector from RapidView IBAK North America connects between the cable and the tractor on IBAK mainline pipeline inspection systems. The unit features LED lighting and full-color image quality for a clear view behind the inspection crawler during retrieval. **800/656-4225; www.rapidview.com, Expo booth 2130.**



RIDGID Introduces Inspection System with Locator

The SeeSnake microDrain D65S inspection camera system with Scout locator from RIDGID is designed for precise inspection of lines up to 3 inches in diameter. The unit can navigate 1.5-inch pressurized lines and make 90-degree turns typical in pool piping. The inspection system has a 65-foot flexible cable and 22-mm-diameter camera head. A locatable sonde enables users to

pinpoint problems with the locator. The unit stands 17.5 inches tall, 6.6 inches wide and weighs 9.8 pounds. **800/769-7743; www.ridgid.com, Expo booth 7115.**

Greyline Introduces DLT 2.0 Level Controller

The DLT 2.0 controller from Greyline can measure both differential level at a bar screen and open channel flow through a flume. The unit features two non-contacting ultrasonic sensors. One sensor is installed upstream from the bar screen and a second downstream for differential level control. It also can be installed in a flume to control and transmit differential level control plus flow. The unit includes relays for bar screen rake and level control as well as three 4-20 mA outputs (upstream level, differential level, downstream level or flow). The backlit LCD displays level, differential level, flow and total flow. Intrinsically safe sensors and data logger are available. **315/788-9500; www.greyline.com.**



Envirosight Introduces ClipStream Viewer, Recorder

The ClipStream digital viewer and recorder from Envirosight LLC clamps to the pole of a QuickView zoom survey camera, displaying real-time manhole- and pipe-inspection video.

The unit features a monitor with wide viewing angle and tilt mount, enabling the user to see footage even when the camera is deeply extended or used overhead. The monitor also

unlocks for up to 32 feet of wireless viewing. The viewer/recorder captures up to 16 GB (approximately 12 hours) of AVI video and JPEG still images to a micro SD card. Footage can be viewed directly on the system's 3.6-inch color LCD or transferred to a computer or smart phone by ejecting the card or tethering via USB. The unit runs on four AA batteries or connects to a power source using the optional AC adapter. **866/936-8476; www.envirosight.com, Expo booth 1130.**

HEMCO Offers Emergency Decontamination Shower

The Emergency Shower Decontamination Booth from HEMCO Corp. is designed to immediately drench personnel who have been exposed to hazardous chemicals. Made in compliance with ANSI and OSHA requirements, the unit is equipped with a pull-rod activated shower and push-handle eye/face wash for quick rinsing of eyes, face and body. The optional audio and visual alarm notifies other personnel of an injured worker. The booth has a lipped front edge to contain water and a drain to connect to plumbing. The showers are fully assembled. Accessories include grab bars and handheld body wash. **800/779-4362; www.hemcocorp.com.**



EonCoat Introduces No-VOC Ceramic Coating

EonCoat inorganic ceramic coating from EonCoat LLC provides fire, abrasion, chemical, temperature and corrosion resistance in a single coat without VOCs, HAPs or odor. The coating can resist temperatures up to 1,000 degrees F and has a flame-spread rating of zero. It requires no primer and dries within seconds for high-build coatings. **252/360-3110; www.eoncoat.com.**



Wohler Introduces VIS 340 Series Inspection Camera

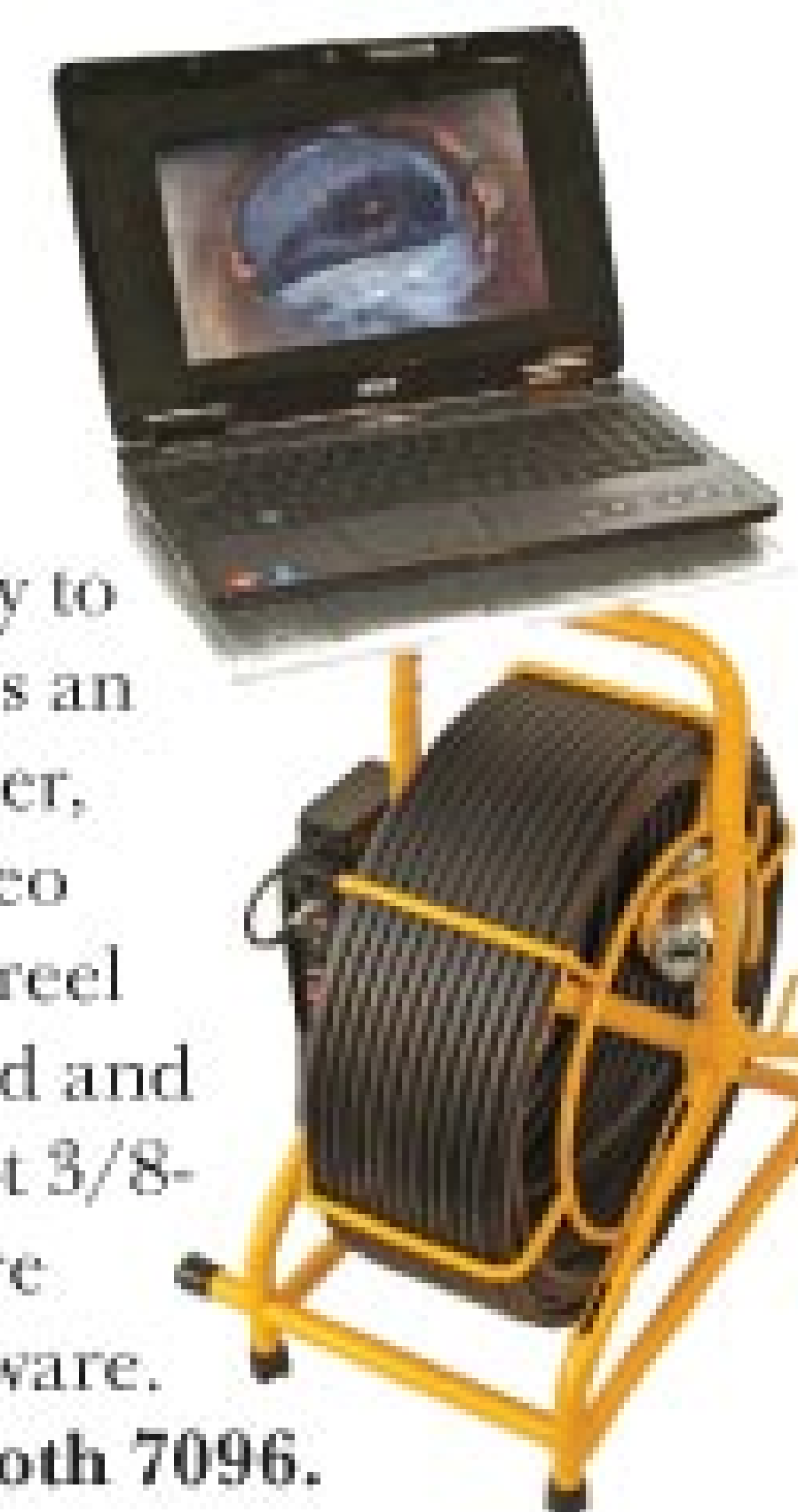
The VIS 340 Series inspection system from Wohler USA features digital memory and 180-degree pan and 360-degree tilt camera.

The waterproof camera with LED head measures 1 1/2 inches, while its 100-foot flexible cable enables it to navigate 90-degree

bends. Images are viewed on the widescreen TFT monitor, which comes in a heavy-duty carrying case. The system has a digital distance measuring capability of 0.05-foot resolution. A built-in RCA video output and integrated SD card are standard. The unit's NiMH battery pack offers up to 90 minutes of continuous viewing. **978/750-9876; www.wohlerusa.com, Expo booth 4042.**

Hathorn Introduces Laptop Interface

The Magnum Interface from Hathorn Corp. enables users to connect their own laptop directly to the cable reel via a USB port. The system includes an aluminum platform with onscreen footage counter, external keyboard plug and analog-to-digital video converter built in to the reel. The mid-size cable reel comes with 200 feet of 1/2-inch-diameter pushrod and stainless steel self-leveling camera head. A 200-foot 3/8-inch-diameter pushrod and color mini camera are available, as well as downloadable recording software. **905/886-2835; www.hathorncorp.com, Expo booth 7096.**



Grundfos Unveils Submersible Pumps

SLV and SL1 model submersible wastewater pumps from Grundfos are designed for network pumping stations and wastewater treatment plants. The pumps are engineered to handle municipal or industrial wastewater, wastewater with fibers, drainage and groundwater, process and cooling water. The SL pumps have a SuperVortex impeller (SLV) for free passage of solids up to 4 inches in diameter and Channel impeller (SL1) for large flows of raw sewage. Features include Eff1-type motor, moisture-proof plug, short rotor shaft, double mechanical shaft seal and easy-to-open clamp. **913/227-3400; www.grundfos.us. ♦**



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Sewer Equipment Company Trailer Jet Model 747: Diesel with 394 hrs., 35 gpm @ 2000 psi, 500' new hose, city owned. See pictures at www.empireequip.com.

.....\$13,500

Leroy at 714-639-8352 CA C02



(2) 1999 Sterling LT9501: Cat 3126 @ 230 HP, Allison A/T, spring susp., 86K miles and 82K miles, disc wheels.....\$19,500 Choice

715-546-2680 WI MBM



2001 Peterbilt 357 Vac Truck: C-10, 127K miles, 21/46 axles, Fuller 8LL, ATRO susp., PTO, front floats, cruise, NVE pump, Keith Huber tank, 3,200 gallon cap.....\$69,500

715-546-2680 WI MBM



2001 Vac-Con Water Jet on International 4700: 50 gpm @ 3000 psi, 1600 gal. plastic water tank, city owned. More pictures at www.KHTrucks.com.....\$24,500

972-938-1905 TX C02



2001 Sterling LT9500: Cat C-12 @ 395 HP, 97K miles, shows 7K hours, 20/46 axles, spring susp., 273" WB, 22.5 tires, disc wheels, VacCon end dump, Dresser rotating lobe blower.....\$79,500

715-546-2680 WI MBM



2006 UD Truck with Clean Earth Jet: 65 gpm @ 2000 psi, \$45K. Pipe bursting trailer, 30-ton puller, all necessary equipment, \$25K. 1997 Jet Vac 65 gpm @ 2000 psi, \$45K. Dump truck & excavator, TV truck 35K.....\$18,000

Bob @ 609-332-4149 NJ C01

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

PEOPLE/AWARDS

Joanne Salge and **Amanda Cabazos**, employees of the Corpus Christi (Texas) Water Department and Storm Water Department, received the At Your Service Award for assisting a distressed driver from the city's Solid Waste Department.

John R. Lollis Jr. of West Anderson Water District was named the South Carolina Rural Water Association Treatment-Distribution Operator of the Year for 2010.

Mesa Consolidated Water District (Calif.) celebrated its 50th anniversary Oct. 13 with a VIP event attended by Congressman Dana Rohrabacher, Costa Mesa Mayor Allan Mansoor and more than 80 community leaders.

The **American Public Works Association** announced appointments to leadership positions: George Crombie, president; Diane Linderman, Cora Jackson-Fossett and Tommy Brown, board of directors; Daryl Grigsby, director-at-large, environmental management; Susan Hann, director-at-large, transportation; Elizabeth Treadway, director, Region III; Jimmy Foster, director, Region VII.

The **American Society of Civil Engineers** announced appointments to leadership positions: Andrew W. Herrmann, president-elect; Christine Andersen, at-large director-elect; Leonard Cilli and Lauren Swett, Region 1 governors-elect; Robert Victor, Region 2 director-elect; John Grieshaber and Bernard Telatovich, Region 2 governors-elect; Kevin Carpenter and Allen Staron, Region 3 governors-elect; Charles Black Jr., John Fleming and Theresa Harrison, Region 4 governors-elect; Jason Haeseler and Melissa Sue Wheeler, Region 5 governors-elect; Martha Juch, Region 6 director-elect; D. Vaughan Griffiths, Region 7 director-elect; Bruce Berdanier and Amber Kauffman, Region 7 governors-elect; Patrick White

CALENDAR

Jan. 12-13

Impaired Waters Symposium 2011: Spanning the Water Quality Continuum – From Standards to TMDLs, Hilton Miami Downtown Hotel, Miami, Fla. Visit www.wef.org.

Jan. 18-21

National Utility Contractors Association's Utility Construction EXPO 2011: The Executive Experience, Las Croabas, Puerto Rico. Visit www.nuca.com.

Feb. 8-11

Utility Management Conference, Denver, Colo. Visit www.awwa.org.

Feb. 20-23

IECA Annual Conference, Disney's Coronado Springs Resort, Orlando, Fla. Visit www.ieca.org.

Feb. 24-25

International Conference on Stormwater and Urban Water Systems Modeling, Toronto, Ont. Visit www.asce.org.

March 2-5

Pumper & Cleaner Environmental Expo International, Kentucky Exposition Center, Louisville, Ky. Call 800/257-7222 or visit www.pumpershow.com.

and Allan J. Smolko, Region 8 governors-elect; Farced Pittalwala and Brent Siemer, Region 9 governors-elect; Albert Yeung, Region 10 governor-elect; Peggy Johnson, EWRI vice president-elect.

LEARNING OPPORTUNITIES

APWA

The American Public Works Association is offering the following audio/Web broadcast courses:

- Jan. 11 – Electric Vehicles and Plug-In Networks: Are You Ready?
- Feb. 24 – Managing Team Dynamics in Public Works

Visit www.apwa.net.

ASCE

The American Society of Civil Engineers is offering these webinars:

- Jan. 11 – Interviewing Skills for an Evolving Workplace
- Jan. 13 – Bioretentional Facilities for Sustainable Stormwater Management
- Jan. 18 – If You Haven't Planned It, You Can't Control It
- Jan. 25 – Project Team and People Management
- Jan. 26 – Innovative Water Supply Strategies
- Jan. 31 – Sustainable Stormwater Hydrology

Visit www.asce.org.

Wisconsin

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

- Jan. 12-14 – Improving Public Works Construction Inspection Skills, Madison
- Jan. 20-21 – Using WinSLAMM to Meet TMDL, LID and MS4 Stormwater Requirements

Visit www.epdweb.engr.wisc.edu.

The Wisconsin Department of Natural Resources is offering these courses:

- Jan. 26-27 – Distribution, West Bend
- Feb. 1-3, 8-10 – Groundwater Supply and Distribution, Green Bay
- Feb. 15 – Water Supply Safety, Chippewa Falls
- Feb. 16 – Advanced Water Treatment Strategies, Chippewa Falls
- Feb. 17 – Security and Emergency Planning for Utilities, Chippewa Falls
- Feb. 22-23 – Iron, Zeolite and VOC, Madison

Visit www.dnr.state.wi.us. ♦



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Green Bay, Wisconsin Area Septic & Drain Business For Sale. Solid and steady revenue history and nearly 20 years established. Excellent opportunity to expand or start your own business. Includes very well-maintained 3,800 gallon septic service truck, fully outfitted 2002 Chevy drain service van, drain & sewer equipment, all office equipment and computers, 2,700+ customer list, and more - a true turn-key or easy expansion opportunity. Very meticulously maintained equipment all kept inside a heated shop. Current owner is retiring. Large shop and real estate is also available if desired at additional cost. **Offered at \$249,000.** E-mail jeffb@colepublishing.com, or call 800-257-7222 and ask for Jeff Bruss for more details. **A B2 Business Brokerage Listing; www.BTwo.biz.** (MBM)

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Successful business with a large amount of equipment and inventory. Profitable sewer and septic business in central Pennsylvania. Increasing revenue over the past 3 years and a large amount of equipment and inventory. Equipment is a mix of old and new, but all is working and making money. Selling price \$349,000. E-mail jeffb@colepublishing.com or call 800-257-7222 and ask for Jeff Bruss for more details. **A B2 Business Brokerage Listing - www.BTwo.biz.** (MBM)

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Chicago-Area Biosolids, Land Application, Dredging and Industrial Services Business. Established in 1985, owner is retiring. Reputable business includes real estate servicing the entire Chicago-Land area with sludge and biosolids disposal and treatment services. Real estate and shop included with sale valued at \$750,000, business grosses in excess of \$3 million annually, \$6.3 million in equipment and assets including several Terra-Gators, Vac Trailers, dump trailers, loaders and much more. Offered at \$4,900,000 - huge potential, good profit and priced right. Non-Disclosure Agreement required, all P&L statements, list of assets, and financials available to qualified buyers. E-mail jeffb@colepublishing.com or call 800-257-7222 and ask for Jeff Bruss for more details. **A B2 Business Brokerage Listing - www.BTwo.biz.** (MBM)

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Very successful established Midwest based full service Trenchless Sewer Company with municipal and industrial experience and contacts available for acquisition. Serious confidential inquiries only. Please respond to P.O. Box 154283, Irving, TX 75015-4283 or email: clppcompany@yahoo.com. (CMBM)

Dallas/Fort Worth, Texas Area Sewer/Rehab Business For Sale. Drain Cleaning, TV inspection, Pipeline & Manhole Rehab/Relining, Municipal Cleaning and Maintenance business for sale. Excellent opportunity to expand or start your own business. Good revenue history and priced to sell. Includes all equipment to get started. **Offered at \$150,000.** E-mail jeffb@colepublishing.com, visit www.Btwo.biz, or call 800-257-7222 and ask for Jeff Bruss for more details. **A B2 Business Brokerage Listing.** (MBM)

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Xtreme Flow Cold Jetter - New! Model # CJ85-3600TU, tandem axle trailer, 35 HP Vanguard, 8.5 gpm @ 3,600 psi, 325 gal. water tank, 300' hose, General pump. List \$19,995. **Sale only \$14,995. Fully loaded!** 800-624-8186; www.hotjetusa.com. (MBM)

ASHBROOK-SIMON HARTLEY BELT FILTER PRESS: SIZE: 1 Klampress Type 85. SERIAL #: KP5895. Many parts included w/ manuals and history of repairs. \$10,000 OBO. Hooksett NH Wastewater. 603-485-7000 or email hooksettsewer@comcast.net. (M01)

JET VACS

2008 Sterling LT7501 with a VacAll AJV1015, 10-yd. debris body, 1500 gal. water, combination vacuum/jetting unit. (Stock #13366) **www.VacuumSalesInc.com, (888) VAC-UNIT (822-8648).** (M01)

JETTERS: TRUCKS

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1992 Ford L8000 cab and chassis with an enclosed Sewer Equipment Co. jetting unit with a Myers D-65 hydraulically driven water-cooled pump. (Stock #1505C) **www.VacuumSalesInc.com, (888) VAC-UNIT (822-8648).** (M01)

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