

# Cleaner

FOR DRAIN AND PIPE CLEANING, INSPECTION AND REHABILITATION PROFESSIONALS

FEBRUARY 2016

  
wwett  
Water & Wastewater Equipment,  
Treatment & Transport Show

SHOW  
ISSUE

## LATERAL PROGRESSION

MINNEAPOLIS CONTRACTOR ADOPTS NEW  
TECHNOLOGY AND SHIFTS BUSINESS FOCUS  
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**WWETT PREVIEW**  
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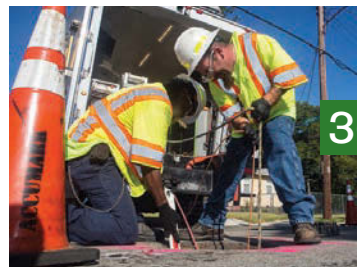
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#### Chemical and Mechanical Root Control

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### ON THE COVER:

Troy Ouverson grew up installing sewer laterals with his father in suburban Minneapolis. Now he's running the show, and Ouverson Sewer and Water has shifted its focus to rehabilitating many of those same laterals. (Photo by Brad Stauffer)

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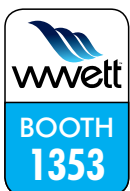
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# Happy to be Back

The WWETT Show is the one event that brings the whole industry together

By Luke Laggis

**W**elcome to the 2016 Water & Wastewater Equipment, Treatment & Transport (WWETT) Show issue of *Cleaner*. I hope you're gearing up for Indy and are excited to take in everything the show has to offer.

We've gone back to our Wednesday-through-Saturday schedule to make it easier for you, and we've added new components to make the show even better. It's the biggest show we've ever put on, and I think it's going to be the best you've ever attended.

I can remember how impressed I was with the size and scope of the show floor on my first trip to Indy, but after five shows, I realize it's not the trucks and equipment that make it so impressive. It's the people. I'm looking forward to talking to as many of you as possible, getting your feedback, listening to

the issues you're facing, and hearing your stories. Of course, I'm excited to check out all the new tools, trucks and equipment, too, but it's really your stories I'm interested in.

This is an industry with a surprisingly high level of technology and innovation, yet it's also one driven by so many small family businesses. I enjoy that facet of this industry, and I appreciate that sometimes it's the mom-and-pop shops that figure out how to build a better mousetrap.

That's part of what makes the WWETT Show such a great experience — seeing mom and dad and the kids, all dressed in matching company shirts, checking out new state-of-the-art inspection equipment or kicking the tires on a half-million-dollar hydroexcavator. You don't see that everywhere, and it's a big part of what makes this whole industry such a close-knit family.

That family atmosphere will be on display all week. Whether you're in your hotel, the convention center or out to dinner, you'll have no problem striking up conversations with your peers. So take advantage — the insight you gain could help you solve a recurring problem or chart an entirely new course for your business.

You'll have plenty of opportunities to help your business while you're in Indy. You'll also have plenty of opportunities to relax and enjoy yourself. Make sure all of the following are on your itinerary:

**Education Day.** You don't have to spend all day in the classroom, but be sure to pick out at least a couple classes that address questions, areas of interest or new opportunities you've been eyeing. The level of instruction is excellent, and knowledge is good for business.

**Kickoff Party.** Get on the dance floor! No, it's not that kind of party, but there will be free food and drinks. And you'll be able to hang out and chat with some of the smartest people in the industry. That's a nice (and productive) way to cap off Education Day.

**Walking the floor.** OK, this one is obvious, but make sure you see everything on the show floor. You don't know where you might find inspiration or the next big profit generator for your business, and there's some pretty cool stuff to see.

**Sewer History Exhibit.** Get a look at where it all began. NASSCO and the Arizona Water Association brought their Sewer History Exhibit to the show for the first time last year, and it's back again. It's an impressive display of early ingenuity and a great look at how far the industry has come.

**Industry Appreciation Party.** Jerrod Niemann is playing. And beer only costs a quarter. Enough said. Don't miss out.

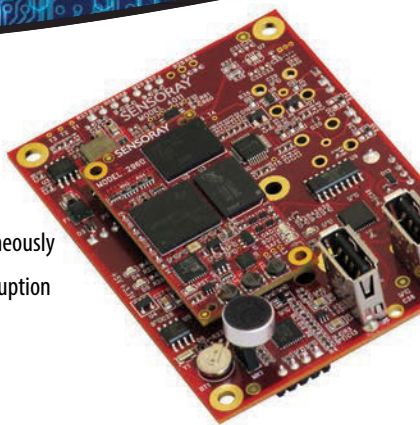
It's not easy to boil the whole week down to a few items on your itinerary, and really, why would you want to? There's so much more to see and do. Take it all in, and enjoy the show.

Welcome to Indy! **C**

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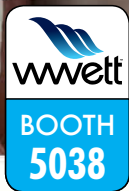
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## DO YOUR HOMEWORK

### 4 Questions to Consider When Choosing an Inspection System

Pipe inspection and locating systems represent a significant investment for most small businesses. Choosing the right system for your needs is a task that should be taken with a serious attention to detail to avoid a costly mistake.

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## MOBILE MARKETING

### A Nice Van Can Boost Your Brand

You don't get a second chance to make a good first impression. Building a recognizable brand with a positive image is important, and it's often the difference between a new customer calling you or your competitor. "Nowadays, it's all how you present yourself," says Dickenschrauf Plumbing Solutions co-owner Ryan Schraufnagel.

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## OVERHEARD ONLINE

“It used to be you had the old guy that ran the truck, and he was very good at teaching the new guy. It seems we've fallen into this rut where we just push buttons, and we don't put hands on things anymore; it's made a big difference on how proper maintenance is handled.”

— Hands-On Jetter Hose Maintenance

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FLU SEASON AHEAD

## ILL PREPARED

### How to Handle Employees Calling in Sick

The problem of absenteeism and lost productivity is a reality that all businesses must deal with, but it can be especially costly for small- to mid-sized sewer and drain cleaning contractors. Learn how effective communication can cut down on employees abusing sick leave policies. [>>cleaner.com/featured](http://cleaner.com/featured)



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3/16"*	\$21.23	\$26.95	\$33.60	\$44.89	\$56.84	\$68.80	\$80.75	\$92.71	\$104.66	\$116.63	\$128.58	\$140.54	\$152.50
1/4"	\$29.85	-	\$55.85	\$81.82	\$107.77	\$126.38	\$150.52	\$174.65	\$198.77	\$222.89	\$247.02	\$271.15	\$295.28
3/8"	\$62.08	\$91.28	\$105.54	\$151.12	\$215.06	\$259.57	\$304.05	\$347.48	\$382.09	\$425.75	\$469.43	\$513.11	\$556.77
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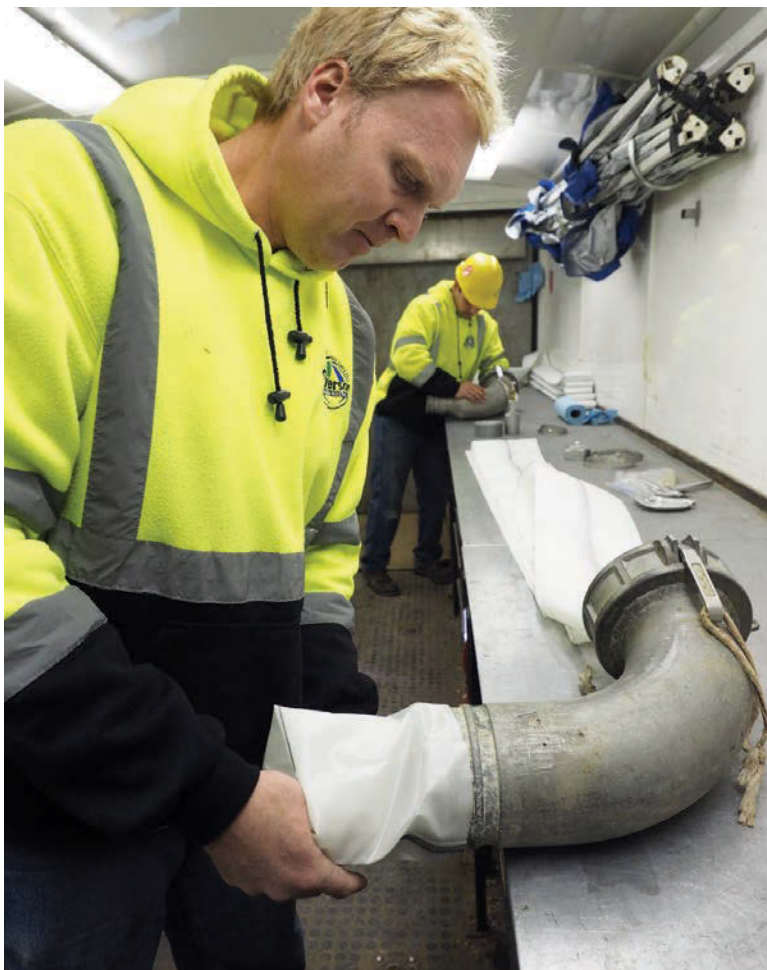
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MINNEAPOLIS CONTRACTOR ADOPTS NEW TECHNOLOGY AND SHIFTS BUSINESS FOCUS FROM INSTALLATION TO REHABILITATION

# LATERAL PROGRESSION

BY KEN WYSOCKY | PHOTOGRAPHY BY BRAD STAUFFER



Ouverson Sewer and Water owner Troy Ouverson prepares a calibration tube inside his lining trailer before rehabilitating a residential lateral line.

DOUG OUVERSON CAPITALIZED ON WESTERN MINNEAPOLIS' DECADES-LONG SUBURBAN HOUSING BOOM BY BUILDING A COMPANY FOCUSED ON LATERAL LINE INSTALLATION. TODAY, HIS SON, TROY, NOW THE OWNER OF OUVERSON SEWER AND WATER, CONTINUES TO BUILD ON THE FAMILY LEGACY BY LINING MANY OF THE SAME LATERALS HIS FATHER INSTALLED YEARS AGO.

The irony isn't lost on the younger Ouverson, age 36, who took over the business in 2007 when his father retired. At that point, the company's business focus took a sharp 180-degree turn. Instead of primarily installing laterals for new houses, the company embraced trenchless technology and began spot-repairing and lining failing laterals.

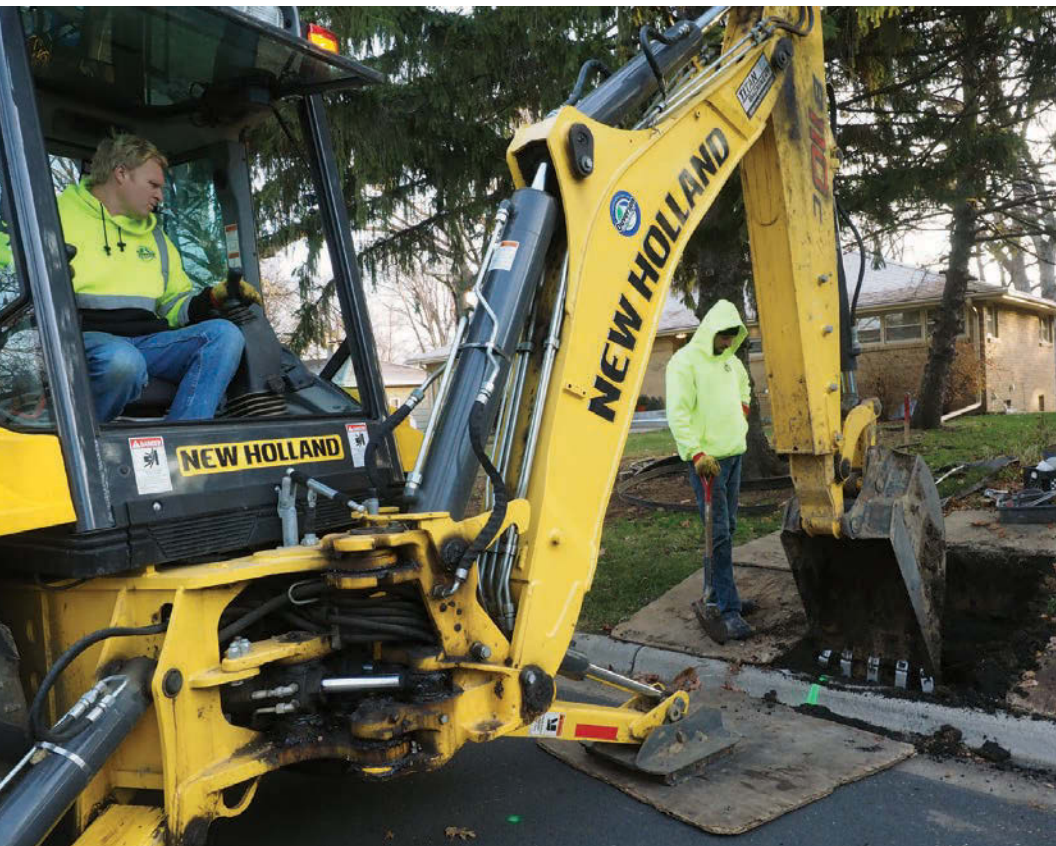
The Ouversons' business U-turn underscores the importance of keeping up with technological advancements and spotting potential markets in which to apply them. In addition, it reflects the benefits of taking calculated risks based on a combination of sound research and gut instinct.

In another ironic twist, it was the elder Ouverson, not Troy, who strongly advocated for the change. "We saw lateral spot-repair technology at a trade show, and it was funny because Dad said, 'What a great idea,'" Ouverson recalls. "You'd think it would've been the other way around. I thought it involved too much messing around.

"But on the other hand, I could see what was going on in Minneapolis, where infrastructure needed rehabbing," Ouverson says. "Dad was also fed up with the cutthroat pricing — always doing more work for less money — and the cyclical market swings in new housing. So we figured it was time to make a change and get into pipe lining."

Ouverson Sewer and Water technician Scott Theisen (left) feeds a MyTana MY30CSL inspection camera into a lateral line while Troy Ouverson watches its progress on the monitor.





◀ LEFT: Troy Ouverson digs an access pit for a lateral lining job with a New Holland TLB excavator.

ABOVE: David Allen unloads equipment from the lining trailer at a residential job site. The equipment includes a Dewalt air compressor, a MyTana MY30CSL Professional Video Inspection camera, a Perma-Liner Stinger Mini Steam Cure Unit, and a Boss Air 70 cfm air compressor.

In a perfect example of the old adage that timing is everything, the company made the switch in 2007, just before the deep recession hit full-force. “Kind of by luck, we got out just before the new-home market crashed,” Ouverson notes. Today, nearly all of the company’s revenue comes from lateral repairs and lining.

profile

## OUVERSON SEWER AND WATER INC., MINNEAPOLIS, MINNESOTA

FOUNDED: 1969

OWNER: Troy Ouverson

EMPLOYEES: 4

SPECIALTIES: Residential lateral lining and repair

SERVICE AREA: Minneapolis west metro area

WEBSITE: [www.linemysewer.com](http://www.linemysewer.com)



### STEEP LEARNING CURVE

For decades, even with cyclical ups and downs, the installation business seemed as solid as a cast iron lateral line. “When my dad started out, there were many subdivisions converting from septic systems to sewers, so there was high demand for lateral installations for existing homes, as well as for new homes,” Ouverson recalls. “It was a very promising market; it seemed like it would never end.”

But when it did, the Ouversons’ adoption of new technology positioned the company to survive. It was not, however, an easy transition. “It was really



Ouverson’s 2015 Ford F-450 box truck leaves the company’s Loretto, Minnesota, headquarters pulling the 24-foot lining trailer.

Technician Matt Allen carries gear back to Ouverson's lining trailer on a job site in Crystal, Minnesota.



difficult,” Ouverson says. “My dad and I had worked together for all those years. ... Everything was easy for us. He’d been doing it forever and I’d been tagging along with him since I was 12 years old. We didn’t need to talk about things while working; I knew what his move was and he knew my move without speaking a word.”

Getting the hang of pipe lining was a different story; the learning curve was steep. Many times, Ouverson says, he and his father didn’t get back from jobs until midnight because a pipe liner didn’t cure out as fast as they expected. That wasn’t the fault of the system they used, made by

“At the time, customers were dumbfounded that this technology was available. It wasn’t that tough a sell. The product sells itself — it really does.”

Troy Ouverson

Perma-Liner Industries, he emphasizes. Instead, it was a factor of not realizing that each job required different applications, such as using the correct resins for various air temperatures.

“Say it’s 90 degrees outside and you need to leave plenty of time to wet-out the liner,” Ouverson explains. “Then you put it in the pipe, where it’s maybe only 57 degrees. Now you have hot resin in a cool pipe, so it takes a lot longer to cure. At times, some jobs took seven hours to cure out. After a year, I thought I felt comfortable shooting liners. But looking back now and being more realistic, I’d say it took about three or four years.”

The company uses Perma-Liner technology for lining long pipe runs; for spot repairs, it uses a system made by RS Technik. Crews perform liner wet-out operations in a 24-foot cargo trailer made by Interstate Cargo Group, towed by a 2015 Ford F-450 equipped with a Knapheide Mfg service body.

In addition, the company owns four mainline pipe inspection cameras and one mini-camera made by MyTana Mfg. Company; a 2012 Isuzu NPR service truck featuring a box body made by Delta-Waseca; a tractor/loader backhoe built by New Holland and carried on a 24-foot Towmaster flatbed trailer; a 1998 International 4800 with a J-Craft dump box; two large drain cleaning machines (for 4- and 6-inch pipes) made by General Pipe Cleaners; and a 2013 Ford Econoline service van.



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## GROUND BREAKING TECHNOLOGY

On the plus side, it was easy to convince customers that trenchless lateral rehab was a superior option to open-cut repairs. “At the time, customers



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Technicians David Allen (left) and Matt Allen set up for the preliminary cleaning and inspection of a lateral line before repairing it with CIPP.

“If you’re a carpenter and you cut a two-by-four wrong, you just go and grab another one. But if you make a mistake while lining a pipe under a highway, you end up excavating under a highway (to repair a mistake), and it takes a lot of jobs to make up for that one mistake.”

Troy Ouverson

were dumbfounded that this technology was available,” Ouverson says. “It wasn’t that tough a sell. The product sells itself — it really does.”

The immediate appeal: no yard excavation or ripped-up landscaping. In addition, unless a customer has a small yard with no trees, sidewalks or other obstructions, pipe lining is generally less expensive than pipe replacement, he explains.

Competition was fierce early on as other contractors also decided to get into pipe lining. That resulted in project bidding wars, which eroded profit margins. Determination to do jobs right is what set Ouverson apart. “We always feel like we should do a job the way we’d do it for ourselves,” he says. “We’re still like that. We do the job right, no matter what it takes.”

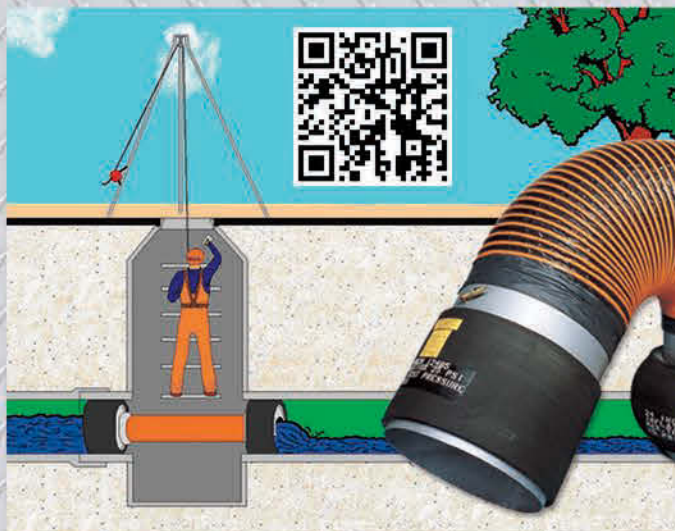
After the recession, many competitors dropped pipe lining and either went back to what they did before or opted to enter completely different markets. The fact that Ouverson remained illustrates the importance of hiring good employees and giving them proper training. “People didn’t realize how important it was to have a good lead person and a good crew,” Ouverson says. “If you’re a carpenter and you cut a two-by-four wrong, you just go and grab another one. But if you make a mistake while lining a pipe under a highway,

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Early last summer, Troy Ouverson — the owner of Ouverson Sewer and Water, a pipe lining and repair company in Minneapolis — encountered a job that tested his employees' skill and mettle.

The problem: a ruptured 4-inch-diameter residential lateral line that apparently had been leaking for years. For starters, the lateral configuration was unusual, to say the least. Two lateral lines — one running from each of two adjoining houses — merged inside a private manhole, then continued as one pipe from there out to the main sewer line. "In all, there was a total of 400 feet of pipe," Ouverson says, noting that the laterals were made out of asbestos-cement, then switched to 6-inch-diameter clay pipe from the curb to the mainline.

The leak was so bad that raw sewage was actually bubbling up through cracks in the street. "The soil was saturated with raw sewage that had never made it to the mainline for years and years — it was just leaching into the surrounding sandy soil," he says. "One of the homeowners discovered the leak only because a friend had dumped waste from an RV into the manhole, which apparently was too much for the system to handle."

To try to save the customer money, Ouverson felt obligated to first try lining the lateral, which was leaking at every elbow joint from the manhole to the mainline — including one that was so badly deteriorated that he feared it would not allow the liner to pass. The fact that the mainline was 22 feet deep only added to the project's complexity.

"I was nervous because this one 90-degree elbow was so broken up that I didn't think the liner would get through," he recalls. "But somehow — I don't know how — it could not have turned out better. Both homeowners were out there and they applauded when we finished shooting the line. It was a big deal to them."

The Ouverson crew arrived on the job at 7 a.m. They finally closed up the street after midnight. "We felt we could not leave those two houses without sewer service overnight," Ouverson says. "I always ask the guys if they want to finish a job that day or go home and finish the next morning. But we're usually on the same page: 'Let's get this done.'"

"In this case, we were really determined to finish the job that night," he adds. "No one said, 'Come on, it's 8 o'clock at night — let's just go home.'"

In the end, the depth of his employees' experience carried the day, Ouverson says. That and a little bit of good luck.

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The Oувerson Sewer and Water team includes (from left) technicians David Allen, Matt Allen and Scott Theisen, and owner Troy Oувerson.

you end up excavating under a highway (to repair a mistake), and it takes a lot of jobs to make up for that one mistake.”

Initially, Oувerson says it was difficult to find good workers. But over time, the company was able to find great employees. “I can’t say enough good things about our current crew,” he says, referring to technicians Scott Theisen, Matt Allen and Allen’s cousin, David Allen. “The other day a customer gave us a tip and said he couldn’t believe how well we all work together — everyone anticipating each other’s moves.”

**“I learned from my dad that you do things one way — the right way. When I was a kid, he’d always say, ‘Remember, we’re not digging this up again, so do it right.’ That’s stuck with me for all these years.”**

Troy Oувerson

Oувerson says thorough training and bonuses help retain good employees. Another benefit: Employees get January, February and part of March off because it’s too cold to line pipes. “Seasonal work is an incentive for them because they know they’ve got a break coming up in winter,” he says.

### KEYS TO SUCCESS

Oувerson is quick to credit his father for the company’s success. He says his father ingrained in him the value of doing things correctly — no shortcuts allowed. “I’m a perfectionist,” he says. “I learned from my dad that you do things one way — the right way. When I was a kid, he’d always say, ‘Remember, we’re not digging this up again, so do it right.’ That’s stuck with me for all these years.”

Another thing that differentiates the company: Oувerson makes a point of working on each job. That’s not because his crew needs a lot of supervision; he just believes that homeowners and contractors like to see the business owner on the job. While that eats up a lot of valuable time that could be spent doing other things, and as such makes for longer days, he believes the

personal connection with customers makes it worthwhile. “It’s a hard thing for me, trying to be a million places at one time,” he admits. “But at the same time, it’s also a good thing.”

Oувerson also believes that projecting a professional image is paramount to obtaining word-of-mouth referrals from customers. Employees wear matching T-shirts and sweatshirts and they regularly clean the company’s vehicles and equipment. “We get a lot of comments about those things,” he notes. “It’s hard to quantify, but I feel it’s important — and it’s overlooked by a lot of contractors. It just projects an image that your company cares.”

To buttress marketing and branding efforts, all of the company’s trailers and vehicles are lettered and vinyl wrapped the same way. Image, Oувerson notes, is everything. “We get comments about our vehicles all the time,” he says. “We don’t have 1,000 trucks running around, but people say they see our trucks all over town ... and think we have many different crews working around town.”

Looking back, Oувerson is grateful that the company made the shift from lateral installation to rehabilitation. “Lining is so different because every day we’re working with a new customer,” he says. “And 99.9 percent of them are happy we’re there and give us compliments at the end of the day. It’s very rewarding work.” **C**

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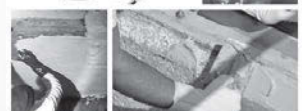
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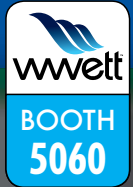


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# Education Day Sessions

Wednesday, February 17, 2016

## NAWT

National Association of Wastewater Technicians

Rooms 234-236

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

## SSPMA

Sump and Sewage Pump Manufacturers Association

Rooms 133-135

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

## Business Strategies

Rooms 140-142

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

## Industry Safety

Rooms 237-239

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

## SSCSC

Southern Section Collection Systems Committee

Rooms 231-233

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

## NOWRA

National Onsite Wastewater Recycling Association

Rooms 240-242

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

## Portable Sanitation

Rooms 136-138

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

## NASSCO

National Association of Sewer Service Companies

Rooms 130-132

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

## Treatment Plant Operator

Rooms 243-245

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

## WJTA-IMCA

Water Jet Technology Assoc. - Industrial Municipal Cleaning Assoc.

Rooms 237-239

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

## Women in Business

Rooms 136-138

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

## Vacuum Truck Equipment and Operation Training

presented by NAWT National Association of Wastewater Technicians

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

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



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# Time to Unwind

Country artist Jerrod Niemann ready to give WWETT Show attendees a night of music and fun

By Cory Dellenbach

It doesn't matter if you're a country music fan. Jerrod Niemann is going to draw you in when he hits the Industry Appreciation Party stage Feb. 19.

"You have to be aware of what you're around," says Niemann, country music star and entertainer for the party. "If you're doing your own show or people are there just because of you it's one thing. If you are part of a party that has already existed for many years, we try to be a chameleon of sorts. We'll do our own songs, but we'll also throw in a couple different ones, too, from rock and blues and everything."

No matter what he sings, Niemann promises a fun time for everyone at the Indiana Convention Center's Sagamore Ballroom.

"There's just something to be said about being around people who are pretty much just like you — hardworking, small-town Americans," Niemann says. "For me, I love being out there and hanging out with everybody."

## IN HIS BLOOD

Country music has always been in Niemann's blood, and he thanks his mother for that: "I was doomed from the beginning hearing country music from the womb. My parents ran a bar when my mom was pregnant with me and I think hearing all those country songs on the jukebox got me going."

From an early age, Niemann was influenced by country acts such as Lefty Frizzell, Keith Whitley and George Strait. After graduating from high school, he attended South Plains College in Levelland, Texas, pursuing an Associate of Arts degree. He began his professional career by singing and playing acoustic guitar in Texas clubs and bars.

"I did that for about a year, just my guitar and me," he says. "Then I moved to Nashville and started working out there. Music is one of those

## THE BASICS

### INDUSTRY APPRECIATION PARTY

**WHEN:** Friday, Feb. 19  
**WHERE:** Sagamore Ballroom,  
Indiana Convention Center, Indianapolis  
**TIME:** 5 p.m. doors open;  
7 p.m. Jerrod Niemann

things where it's such an amazing thing to be a part of that once you've been bitten by the bug, there is no way out of it. It's just who you are."

In 2010, Niemann signed with record label Arista Nashville and released his debut single, "Lover, Lover." It became his first Top 40 single on the country music charts, and in August 2010 it hit No. 1.

Since then, Niemann has released four albums — *Judge Jerrod & the Hung Jury*; *Free the Music*; *Yellow Brick Road*; and *High Noon*. In 2013, his single "Drink to That All Night" hit No. 4 on the U.S. country charts and No. 1 on U.S. country airplay charts.

"I got my foot in the door writing songs in Nashville, and it's always fun being able to write your own material," Niemann says. "Every once in a while you find a song you wish you had written."



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## **NEW MUSIC**

One of those songs is “Blue Bandana,” his newest single released in July. The song will be a part of his new album set for release later this year.

“When I heard the song it just took me to so many cool places and really took me to a lot of cool faces, too,” Niemann says. The song tells the story of a fan attending concerts wearing the same blue bandana and the singer noticing it each time. “Just traveling this country you see a lot of people who are kind enough to pack up in their cars and do a road trip spending their hard-earned money to see us. I’ve never really done a song that is a thank-you to those folks out there, but this song does that.”

The new album will combine music he’s done before — a country/rock mix — and the more traditional country sound. “It’s a wide array of music,” Niemann says.

He’ll perform some of the new songs from that album at the WWETT Show and hopes everyone can relax and get their minds off work and anything else going on in their lives.

“The real world can be quite a hard place at times for people, and if we can be the guys to get that off their minds for at least 90 minutes, then we’ve done our jobs,” Niemann says. “I just always try to keep a thread of laughter and craziness at our shows if we can.” **C**

## **THREE NIGHTS OF WWETT SHOW FUN**

By Luke Laggis

You come to Indy for the tools and equipment, the people and excitement. It’s the one time of the year when the whole industry comes together. So let’s have a party.

COLE Publishing celebrates the occasion every year with the Industry Appreciation Party. It’s a chance for everyone to relax and enjoy themselves. This year, the WWETT Show Kickoff Party will give you two nights to enjoy leading up to the Industry Appreciation Party.

It all starts Wednesday night. After the final bell rings on Education Day, you can head over to Lucas Oil Stadium, connected to the Indiana Convention Center, for a cold beverage and complimentary hors d’oeuvres while you network with manufacturers and peers. The event will be held Feb. 17-18 from 5 to 8 p.m.

Exhibitors have been invited to co-host the event along with COLE Publishing, and the COLE Pub truck will return to serve as the central bar. Attendees and exhibitors can kick back, relax, share stories or solve problems with industry peers.

“We are very excited to see how creative the co-hosts decide to be,” says Brad Bisnette, the show’s coordinator. “All will be providing a good time for sure.”

On Friday night, the focus will shift from Lucas Oil to the Sagamore Ballroom in the Indiana Convention Center for the Industry Appreciation Party. Country music star Jerrod Niemann will perform an up-close and personal concert for WWETT attendees. Beers are a quarter and the show is free, so you really can’t go wrong.

Visit [www.wwettshow.com](http://www.wwettshow.com) for complete details on the show. The Kickoff and Industry Appreciation parties are free for all registered attendees.

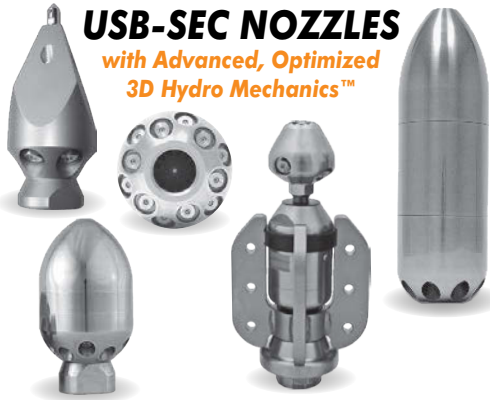


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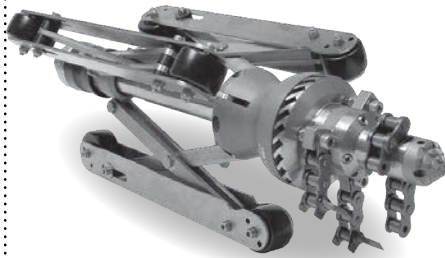
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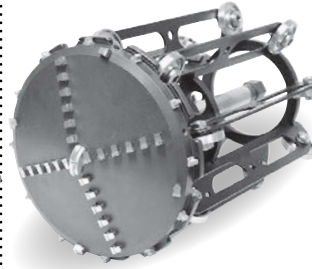


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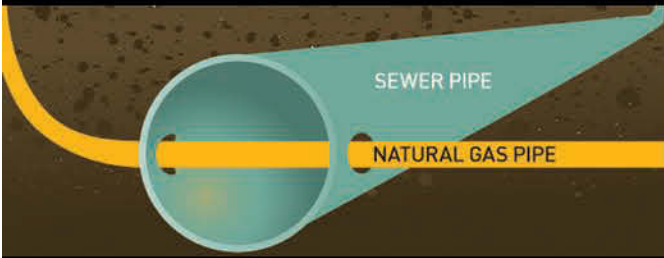
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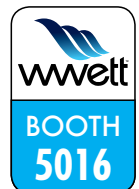
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EQUIPMENT AND TRAINING KEY RAPID GROWTH  
FOR INSPECTION AND REHABILITATION CONTRACTOR

BY KEN WYSOCKY | PHOTOGRAPHY BY KEVIN MANNING

Pipevision Vactor truck operator Tommy Kennedy marks the position of a camera in an underground line while head technician Robert Wilson stands by at the manhole.

EVER SINCE PIPEVISION OPENED ITS DOORS IN 2010, THE PIPELINE INSPECTION AND REHAB COMPANY HAS OPERATED ON A SINGULAR PRINCIPLE: **CONTINUALLY INVEST IN RELIABLE, TOP-NOTCH EQUIPMENT THAT SIGNIFICANTLY IMPROVES PRODUCTIVITY AND KEEPS CUSTOMERS SATISFIED.**

Based in Ashland, Virginia, the company — a wholly owned subsidiary of Accumark Inc., a subsurface utility locating and services company — has invested more than \$3 million in equipment since its inception. Coupled with an emphasis on highly trained and professionally certified employees, this two-pronged strategy has enabled the company to grow exponentially from just one camera truck and one vacuum truck to a large fleet of equipment in just five years, says Craig Martin, president and co-owner of the company. The other co-owner, Dan Clatterbuck, serves as vice president.

“Our business on the camera side (Pipevision) has grown more than 400 percent in the last five years,” Martin says. The key to such rapid growth? “Building

relationships,” he says. “People trust that we’ll do a good job for them — that we’ll be on time and charge a fair market price. And provide high-quality work.”

“We’re constantly reinvesting in equipment,” Clatterbuck adds. “We’re always trying to find the best equipment that can help us limit confined-space entry and optimize time in the field — get as much done as possible in the shortest amount of time. Ultimately, that allows us to provide clients with very competitive prices. In addition, newer equipment breaks down less frequently, which increases customer satisfaction.”

Four 2100 PD combination sewer vacuum trucks built by Vactor Manufacturing (a subsidiary of Federal Signal Corp.) form the backbone of the company’s equipment fleet. The units are built on tandem-axle



The Pipevision team includes (from left) field supervisor Victor Reyes, head technician Robert Wilson, owner and Vice President Dan Clatterbuck, owner and President Craig Martin, Vactor truck operator Tommy Kennedy and camera operator Bryan Reese.



Tommy Kennedy uses a Radiodetection RD4000 locator to mark sewer lines for a natural gas company.

truck chassis made by International, Kenworth and Freightliner. Each truck features a 12-cubic-yard debris tank, a 1,500-gallon water tank, a water pump that generates pressure of 2,000 psi and flow of 80 gpm, and a 5,000 cfm

**“We’re always trying to find the best equipment that can help us limit confined-space entry and optimize time in the field — get as much done as possible in the shortest amount of time.”**

Dan Clatterbuck

blower built by Roots Systems. In addition, two of the trucks are equipped with hydroexcavation packages, which help crews install clean-outs more efficiently, Martin says.

The company’s motto is, “Discover the unexpected.” To accomplish that, Pipevision also invests heavily in pipeline inspection camera systems from Envirosight. That includes four CCTV camera trucks outfitted by Envirosight; three Rovver X SAT lateral launch cameras; one Rovver 125 crawler camera;

profile

## PIPEVISION LLC,

ASHLAND, VIRGINIA

**OWNERS:** Craig Martin and Dan Clatterbuck

**FOUNDED:** 2010

**EMPLOYEES:** 16

**SERVICES:** Pipeline inspections and cleaning

**SERVICE AREA:** Virginia, Maryland, North Carolina and Washington, D.C.

**WEBSITE:** [www.pipevisionllc.com](http://www.pipevisionllc.com)



three VeriSight Pro push cameras; several QuickView pole cameras, which minimize the need for confined-space entry; and four JetScan high-definition cameras that fit on the end of the vacuum trucks’ jetting nozzles, providing dual inspection/cleaning capability.

Work in the municipal sector generates about 40 percent of the company’s annual gross revenue. That includes a large on-call contract with the City of Richmond. The balance stems from work performed for land development companies, industrial facilities and general contractors that install water and sewer lines.

## A QUICK START

Pipevision was born after Accumark officials decided to diversify the company's subsurface inspection services. In 2010, Martin and Clatterbuck decided to make Pipevision a stand-alone company.

"Getting started wasn't all that difficult," Martin says, noting that the company relied on the same formula that made Accumark successful: fair pricing and great customer service. "We came out of the gates running. The biggest challenge was just getting our name out there, but it helped that we were able to leverage our existing customer base. That's what enabled us to get things going ... gave us the confidence to buy our first vacuum truck and start building from there."

Two other factors converged to jump-start Pipevision's growth: aging water and sewer infrastructure in the areas the company serves (Virginia, Maryland, North Carolina and Washington, D.C.), coupled with an improving economy that's spurring land development — and the underground infrastructure that accompanies that development, Clatterbuck says.

Investments in new, technologically advanced equipment also help the company attract new clients. "The appearance of your equipment when you come on a job site speaks to quality of work and the quality of the employees you have working for you," Clatterbuck says. "I remember a trial run we did with a lining company for which we now do a lot of work. We went out on the job with our best equipment, and now we have a contract to work for them."



**ABOVE:** Tommy Kennedy (left) and head technician Robert Wilson prepare to launch an EnviroSight Rover X sewer camera on a sewer cleaning and locating project for Columbia Gas.

**BELOW:** The camera is pulled back up the manhole alongside the Vactor's vacuum tube after an inspection.



"They were ecstatic when they saw our equipment because the company they used before had equipment with hydraulic oil leaks," he adds. "Sometimes that equipment would run and sometimes it wouldn't."

## ADVANCED TECHNOLOGY

Moreover, customers are impressed when a contractor can provide convenient services such as live video feeds of pipeline inspections, an advanced feature on some EnviroSight camera systems. Operators can also email videos to clients right after inspections. "That way, even if the client is out of state, they can quickly start an action plan without any delays," Clatterbuck explains.

Furthermore, project delays are a profitability and goodwill killer for any contractor. "If you miss a deadline in a time-critical project, it doesn't

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look good for anybody,” he says. “I’d say that probably 90 percent of our work requires us to get in and get out as quickly as possible. We can’t afford breakdowns.”

To keep projects running on schedule, the company also focuses on making sure all employees can operate the same equipment. For example, all field employees can operate the various inspection camera systems, so projects aren’t delayed if one employee calls in sick or has to leave work early, Clatterbuck says. “We can keep on working and meet the finish dates for our clients,” he notes.

A stable of great equipment offers another benefit, too: It helps the company attract and retain good workers. “We think it’s very important to provide our people with the best equipment we can find,” Martin explains. “Typically, if you give people good equipment to work with that doesn’t break down all the time, they stay motivated to provide quality work.”

One particularly difficult project underscores the benefits of investing in quality equipment, Clatterbuck says. The project centered on 2,500 feet of 54-inch-diameter, state-owned pipe that was continually backing up during heavy rains, which produced ponding on a nearby roadway. The pipeline was located in a swampy area that made access extremely difficult.

But Pipevision had the right equipment to get the job done, including a Gator all-terrain vehicle, made by Deere & Co., that was able to negotiate the swampy terrain and

CONTINUED >>



Robert Wilson (left) and Bryan Reese maneuver an inspection camera into a raised sewer line along Union Street in Richmond, Virginia.

## INVESTING IN EMPLOYEES MINIMIZES JOB TURNOVER

Like many companies that rely on skilled labor, finding experienced, qualified employees is one of the most difficult challenges faced by Pipevision, a pipeline inspection and rehabilitation business based in Ashland, Virginia.

“We get a lot of applicants when we have job openings, but the majority of them are not qualified,” says Dan Clatterbuck, vice president and co-owner of the company. “And the average person with little experience will struggle to do what we do.”

To attract and retain workers, the company emphasizes comprehensive employee training that includes professional certifications in a variety of operational areas. This focus on job training also pays off by making operations more efficient while at the same time fostering employee loyalty, Clatterbuck says.

All employees receive training in first aid (including CPR certification), defensive driving and confined-space entry. In addition, they complete the following certifications: Pipeline Assessment and Certification Program (PACP), Manhole Assessment and Certification Program (MACP) and Lateral Assessment and Certification Program (LACP), all offered by the National Association of Sewer Service Companies. Employees are also required to earn the Hazardous Waste Operations and Emergency Response Standard (HAZWOPER) certification, says Craig Martin, co-owner and president.

“It costs about \$850 per person to obtain three of those certifications (PACP, MACP and LACP),” Clatterbuck says. “But it’s a great investment for our clients — and our employees. It also is a selling point for clients. It’s one of the reasons we win so many contracts. ... We’re qualified to do work that other companies aren’t.”

The comprehensive training also contributes greatly to job safety, which is critical for both business and ethical reasons. First of all, contractors with poor safety records don’t last long in any industry. “And our clients’ safety record is impacted by our safety record,” Clatterbuck points out. But even more importantly, the company’s No. 1 priority is sending its workers home safely to their families every day, Clatterbuck notes.

In addition, the company also pays 80 percent of employees’ health care insurance premiums. The end result of all these efforts? Martin says that despite the company’s rapid growth, only two people have left the company since its inception.

“Our workforce understands what they have,” he says. “If you invest in your employees, they respond accordingly.”



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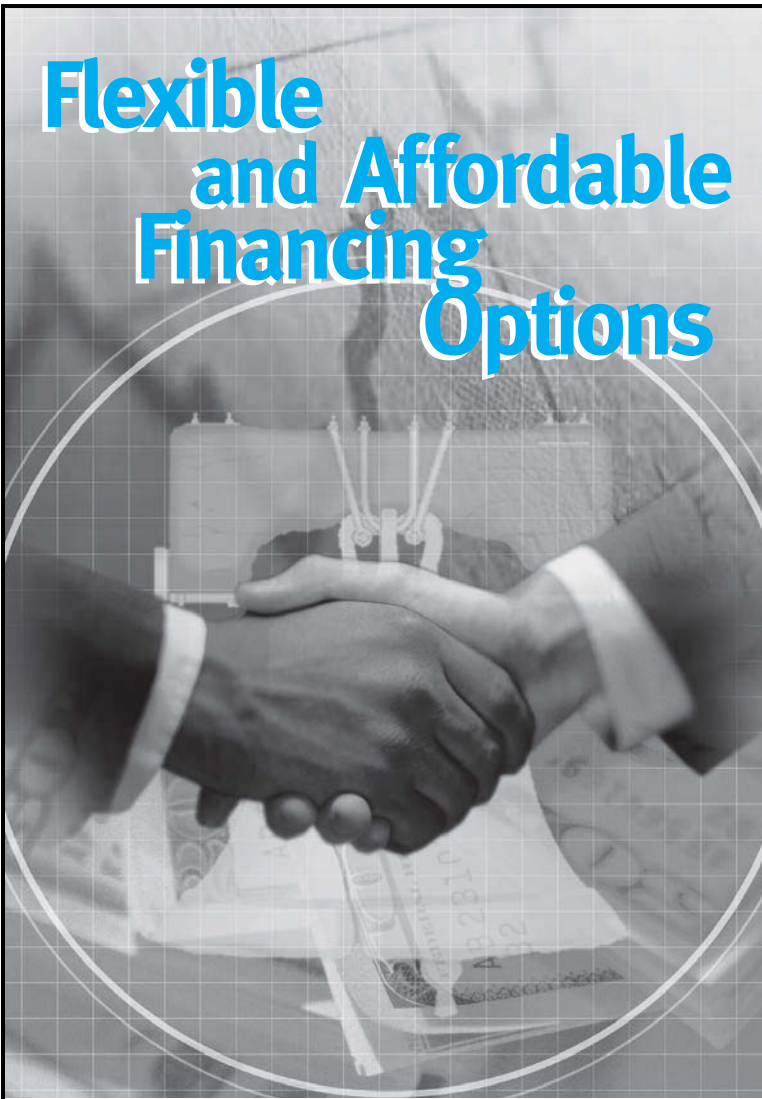
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**“If you miss a deadline in a time-critical project, it doesn’t look good for anybody. I’d say that probably 90 percent of our work requires us to get in and get out as quickly as possible. We can’t afford breakdowns.”**

Dan Clatterbuck

carry a Rovver X inspection camera out to hard-to-access manholes.

“They thought the problem was a maintenance issue involving tree root intrusions, but an inspection revealed that the pipe itself needed to be relined,” Clatterbuck recalls. “Some of the pipe joints had slipped and dropped down, so there was a lot of groundwater infiltrating the pipe.”

### GOOD OUTLOOK

As for the future, Martin and Clatterbuck envision further growth but in a measured and controlled fashion, nothing like the exponential business increase the company has experienced during the last five years or so. “We would like to broaden our client list a little bit and aside from that, just keep going, going and going,” Clatterbuck says. **c**

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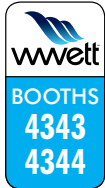
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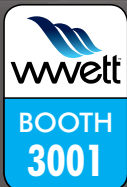
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# No Water? No Problem.

Innovative combo truck is always ready to start working — even with an empty water tank

By Ken Wysocky

Imagine a combination truck that could head out every day with an empty water tank — and never require stops to fill up, either.

Without time-consuming water refill runs, productivity and its close relative, profitability, would jump dramatically. With less cargo, gas mileage would improve while expenses such as fuel and water would decrease. Moreover, you could market your company as a truly sustainable, green-minded business that significantly contributes to conserving a precious natural resource.

Henry Sorensen, fleet manager for Cleveland-based C&K Industrial Services, doesn't have to imagine all that. It's his reality every day, courtesy of the RECYcler 315, an innovative water reclamation vac truck built by J. Hvidtved Larsen A/S in Denmark.

"There's no need to stop and hook the truck up to a fire hydrant," Sorensen explains. "Instead, the truck removes water from debris we take from a sewer line, then cleans it and reuses it. And we don't have to pay for water that comes from a sewer, which is significant to us because we can spend anywhere from \$1,200 to \$1,600 a week on water (for the company's 18 conventional vac trucks).

"We don't have to shut down on a job site to refill the water tank," he continues. "That's critical because sometimes we aren't close to a fire hydrant ... and you can waste half a day driving back and forth to fill up with water. As such, the RECYcler can usually outwork two of our other vac trucks — double our productivity."

C&K bought the RECYcler 315 about a year ago after seeing one at the Water & Wastewater Equipment, Treatment & Transport (WWETT) Show. The unit features a 2014 Kenworth T-800 truck chassis; a water pump made by Chemac Inc (URACA) (124 gpm at 2,175 psi); a vacuum pump made by CVS Engineering (1,825 cfm at 25 inches Hg); a hydraulic, swiveling hose reel that carries 660 feet of 1 1/4-inch-diameter hose; and a second hose reel for smaller-diameter hoses.

But two features set the machine apart from conventional vacuum trucks. The first is the water-recycling system. Here's a simplified explanation of how it works: The truck vacuums up water-filled sludge into the debris tank. The reclamation system sucks that water out of the debris, then sends it through a set of filters and cyclones that separate heavy solid particles. From there, the solids go into the sludge tank and water is pushed into the water tank, where it travels through another set of even finer filters. Then it's ready to be used for waterjetting operations, Sorensen says.

"It takes about 15 minutes to clean enough water to start jetting," Sorensen says.

"But we have to be cleaning a sewer with running water in it. If it's a dry



The RECYcler 315 jet/vac truck from J. Hvidtved Larsen A/S eliminates the need to stop working to refill the water tank. Instead, the truck removes water from debris, then cleans it and reuses it.

## money machines

**OWNER:** C&K Industrial Services, Inc.

**MACHINE:** RECYcler 315 water-recycling combo vacuum truck built by J. Hvidtved Larsen A/S

**FUNCTION:** Cleaning municipal sewer lines

**FEATURES:** 2014 Kenworth T-800 chassis; 13-cubic-yard debris tank with a moveable partition that increases debris capacity and decreases water capacity as needed, or vice versa; a water pump made by Chemac Inc (URACA) (124 gpm at 2,175 psi); a vacuum pump made by CVS Engineering (1,825 cfm at 25 inches Hg); hydraulic-powered, swiveling hose reel that carries 660 feet of hose

**COST:** About \$600,000

sewer, we have to bring water along. But if it has decent flow, there's no problem starting a job without any water in the tank." When a cleaning operation concludes, any water still in the tank gets dumped back into the sewer system.

The truck offers another unique feature: a pneumatically operated partition that allows the operator to make the water tank bigger and the debris tank smaller, or vice versa, as needed. At the start of a cleaning operation, the partition is positioned as far back as possible to allow for more water and less debris capacity. But the partition gets moved forward as work progresses, so the debris section gets bigger and the water section gets smaller. When crews complete a typical line cleaning, two-thirds of the tank is devoted to debris and the remaining third to water, he explains.

In addition to its water recycling capabilities, the RECYcler 315 features a pneumatically operated partition that allows the operator to make the water tank bigger and the debris tank smaller, or vice versa, as needed.



Moreover, in a typical cleaning, 90 percent of the debris is so dry that it's ready to be hauled straight to a landfill, with no need for time-consuming decanting, Sorensen says. "Eliminating that step makes us more cost-effective for customers," he notes.

In addition, the RECYcler 315's gas mileage is nearly twice as good as a conventional vac truck. And it operates so quietly that workers can talk to each other while standing next to it — a feature that allows C&K to do more nighttime work in residential neighborhoods, he adds.

"It's totally different to operate compared to a conventional truck," Sorensen points out. "It takes about two weeks of training for our employees to learn how to operate it. But they love the truck," he adds, noting another feature: a hydraulically powered suction hose that comes out the boom with no manual handling required. "No one needs to manhandle the hose — the machine does all the work."

All that efficiency and productivity carries a price tag of about \$600,000. But Sorensen says the investment is well worth it. The truck will pay for itself eventually through reduced operating expenses and increased productivity, and customers already are specifically asking C&K to use the RECYcler 315 on their jobs, he notes.

"Is it a game-changer? Absolutely," Sorensen says, noting that C&K — which also offers industrial cleaning services and operates in Indiana, Kentucky, New York, Ohio, Pennsylvania and West Virginia — recently placed an order for two more RECYcler 315s. "That should tell you how happy we are with this machine. It helps us tremendously in many ways, from job efficiency to sales efforts; once customers see what it can do, it sells itself. This is the future of vacuum trucks." **c**

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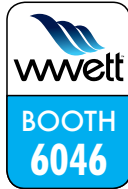
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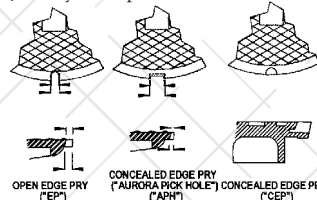
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# There's No Excuse for Trenching Accidents

Having a trained, competent person at the work site is critical to ensure worker safety

By Doug Day

**T**he risks, including death, are well known. Despite being easily prevented, cave-ins during trenching and excavation work continue to occur, killing an average of 40 workers every year. Whenever he hears of an incident, Ronnie Perkins says, "The first thing that comes to my mind is 'competent person.'"

Perkins, safety and education director for Associated General Contractors of Kentucky, stresses that a competent person is the last line of defense for workers and a company.

**"A lot of it is production related: There are only so many hours and minutes in a day. They figure all the extra work to do trench shielding or some kind of protective system is just not necessary, so they take a shortcut and it comes back to haunt them."**

Ronnie Perkins

"There's really not an excuse for anyone being injured in a trench accident," Perkins says. "When you trace it all back, you usually find that they either didn't have a competent person or that the person really didn't meet the definition. If you have a competent person who has thoroughly inspected the site, classified the soil, chosen the correct type of protective system, and trained all applicable employees in excavation and trenching safety, there should be no trenching accidents."



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Soil is very heavy; a cubic foot of soil can weigh over 100 pounds. Just 1 cubic yard of soil can weigh more than 2,700 pounds and easily kill or injure someone.

A competent person, says Perkins, is someone who is capable of identifying existing and predictable hazards or working conditions, and has been given authority by their employer to immediately correct any hazards. The competent person must be knowledgeable about the OSHA standards and the protective systems they choose to use, and must be able to:

- Classify soil
- Determine the correct type of protective system
- Monitor water removal equipment
- Test for atmospheric hazards when applicable
- Train all applicable employees in excavation and trenching safety

### PRODUCTION OVER SAFETY

Perkins says schedule pressure is a common cause of skipping steps that can easily eliminate the danger.

"A lot of it is production related: There are only so many hours and minutes in a day," Perkins says. "They figure all the extra work to do trench shielding or some kind of protective system is just not necessary, so they take a shortcut and it comes back to haunt them."

The consequences can be serious, obviously. Two companies were fined \$140,000 each last summer for the death of a 22-year-old worker killed in a Manhattan cave-in. Because they were aware of the situation and failed to remove employees even after being warned by safety officials on the project, officials of both companies were also indicted on manslaughter and other charges. Two companies in Texas were fined \$70,000 and \$18,000 in September for violations even though no accident occurred. In California, two construction companies that ignored OSHA stop-work orders in April were fined more than \$164,000 and \$140,000 for sending workers back into unprotected 11-foot excavations. "Safety has to be a line item in the budget. It has to be accounted for," says Perkins.

But it's not just a financial or production issue. "The first ramification is dealing with the families of the victims," adds Perkins. "What a company owner has to go through dealing with an employee's family far exceeds any kind of an OSHA penalty." **c**

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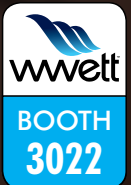
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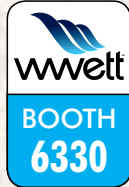
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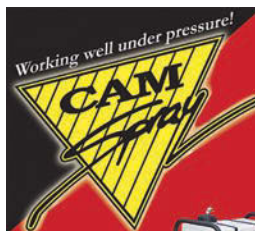
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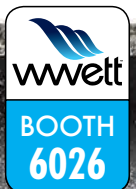


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# 8 Tips for Effective Delegation

Giving your team more responsibility will help your whole operation run smoother

By Eric Bloom

**Y**ou can't do everything yourself, no matter how good you are at your job. As a manager, you must delegate various tasks to your staff in order to do your job efficiently and effectively.

If you're on a lateral lining job, you're obviously not handling everything yourself. But you can't be on the job site and in the office at the same time, so sometimes you have to delegate. If you don't, you'll be overworked and your staff will be underutilized. In fact, you do a disservice to your staff if you don't delegate because it inhibits their ability to learn new things and grow as professionals.

Like all management activities, delegation must be done in a thoughtful and forward-thinking manner. To that end, consider the following tips when delegating tasks to your staff.

## 1. Clearly define what can and cannot be delegated

As a manager, be mindful of what should and should not be delegated. There are some tasks that your team members may not be qualified to perform, which is setting them up for failure. You don't want to just randomly

send one of your technicians out to do a job estimate if he or she has never had that responsibility.

Delegation is a powerful tool to maximize your team's productivity, enhance their skill set, help them grow professionally and free you up to perform higher level tasks. All that said — make sure you are delegating the right tasks for the right reasons. Don't just dump unwanted activities onto your staff to get them off your plate. Your team will eventually figure that out and it will hurt your credibility as a manager.

## 2. Create a prioritized delegation plan

Once you know what to delegate, your next step is to develop a plan outlining what tasks should be delegated to which staff member. When determining who gets which tasks, you should consider the following:

- Who is fully qualified to perform the task?
- Who could perform the task with proper instruction and mentoring with the goal of enhancing their skill set?
- Who should not be given the task because of their professional weaknesses and/or other attributes?
- Who deserves the task based on seniority, past performance and relevant considerations?

Delegating the right tasks to the right people is not always easy or popular, but if you do it with transparency, fairness, consistency and for the good of the company, your staff will learn to respect your decisions.

## 3. Provide clear instructions and define specific expectations

There is nothing worse than being delegated a task, not given instructions on how the task should be performed and what is expected, then working diligently to complete the task only to find out it isn't what was wanted. Give specific instructions and clearly explain your expectations. This combination of instructions and expectations provides the correct delegation framework and establishes criteria as to how your employee will be judged when the task is completed.

## 4. Provide a safety net

When delegating tasks — particularly if it's a new responsibility for the employee — as the manager, you must be willing to provide an appropriate level of management support to help ensure success.



If you delegate a task and then micromanage it to the extent that you have actually performed it yourself, it's not delegation. But don't totally divest yourself from the task either, because you're ultimately still responsible.



Create a safety net of help and protection by:

- Providing the needed resources and training.
- Allowing time to properly perform the delegated tasks.
- Helping employees navigate company politics.
- Providing instructions on how tasks should be performed.

#### 5. Let go and allow people to do their work

If you delegate a task and then micromanage it to the extent that you have actually performed the task yourself, it's not delegation. Neither should you totally divest yourself from the delegated task because, as the manager, you are still ultimately responsible for all work performed within your department. The trick is to walk that fine line between being overbearing and non-participatory.

#### 6. Be mentoring and instructive

This step provides direct instruction and advice to the person performing a specific delegated task. This type of task-based instruction provides an environment where employees can learn how to perform a specific task or deal with a specific situation.

The level of instruction and advice to be provided should be based on the combination of the person's specific experience and the task difficulty and importance.

#### 7. Give credit to those doing the work

As a manager, you should adhere to the philosophy of "it's the team's success or my failure." This philosophy causes you to raise the visibility of your staff's good work within the organization, which motivates them and helps instill loyalty toward you. This approach also helps remind you that you are ultimately responsible for both your team's growth and your department's productivity and performance.

#### 8. Actively solicit feedback from your team

Asking the members of your team if they believe you have delegated the right tasks to the right people has the following advantages:

- Helps you grow as a manager by learning how you are perceived as a manager.
- Helps improve your team's performance by providing you with insights on better ways to delegate and support your staff.
- Shows your staff that you are willing to accept their suggestions, making you more approachable as a manager.

For those not comfortable delegating tasks to others, be willing to go outside your comfort zone. Your willingness to take this leap will enhance your

department's productivity, enhance your managerial ability, and help your team expand their knowledge and skill. **C**

#### ABOUT THE AUTHOR

*Eric P. Bloom is the president and founder of Manager Mechanics LLC, a nationally recognized speaker, and author of the forthcoming book Productivity Driven Success: Hidden Secrets of Organizational Efficiency.*



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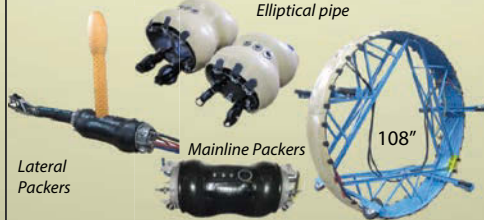
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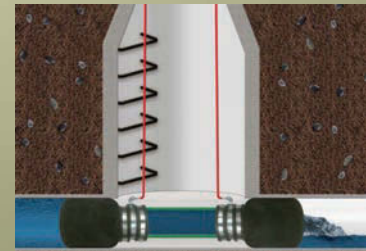
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# Pressure and Flow

Determining which water jetter best suits your needs requires some calculated thinking and an eye to the future

By Ken Wysocky

**T**he right jetter can have a direct and significant impact on your bottom line, but knowing which is the right jetter requires an understanding of functions, features and your own needs.

First, it's important to understand the basic principles of waterjetting — pressure and flow. Measured in psi, pressure refers to the force with which the water is propelled through a hose via a high-pressure pump. Water is forced through small holes in a nozzle/cutting head that does the cleaning. Flow, measured in gpm, is a function of horsepower and pressure and refers to the volume of water going through the hose, which carries away dislodged debris.

In general terms, larger-diameter pipes require higher flow, while smaller pipes require higher pressure.

Brian Gilbert, the national sales manager for Harben, which builds a wide range of water jetters, says contractors need to think carefully about the future. “You might be interested in just residential work right now, cleaning only 3- to 6-inch-diameter lines, but where do you see your company in five years?” he asks. “Do you want to bid on municipal or commercial jobs with 10- to 12-inch drainlines or larger industrial pipes? And what about storm drains, which are up to 36 inches in diameter? You can't do that with a machine that generates 4,000 psi at 18 gpm. Bigger pipes require more flow, so 4,000 psi at 25 gpm would work better for some of those applications.”

The bottom line: Don't buy an undersized machine, Gilbert advises. “You need to try to look into the future, which isn't easy to do.”

## MODIFICATIONS AND CONSIDERATIONS

But if contractors invest in a much larger unit, don't they give up the option of cleaning smaller lines? Not necessarily, Gilbert says, thanks to a technological advancement called a flow diverter. A flow diverter can be set to divert a specified amount of water back to the water tank, which reduces the flow output. This enables a contractor with, say, a 4,000 psi/25 gpm water jetter to drop the flow down far enough to switch to a 1/4-inch hose and clean smaller-diameter pipes. “It essentially gives you more versatility,” Gilbert says.

Spartan jetters basically accomplish the same thing via an unloader valve, also known as a pressure-relief valve. It can reduce the flow on a large jetter from 18 gpm down to 3 gpm, for instance — low enough to switch from a 1/2-inch-diameter hose to a 1/4-inch hose that can be used to clean a kitchen sink drainline, for example.

“The unloader regulates what you need and sends any extra water into a holding tank,” Gage says. “Then you can use an auxiliary reel to step the larger hose down to a smaller hose with a smaller nozzle.”

Other factors require some thought, too. What kind of material or debris and what size pipes will you be dealing with the most? If it's 3- to 4-inch lines filled with rock and sludge, a smaller cart-mounted, electric-powered jetter won't do the trick. Do you often have to cut through tree roots? If so, you'll need a powerful, high-pressure unit. And how long of a hose run will your typical jobs require? Since water pressure tends to drop as the hose run increases, a more powerful unit is needed to compensate for longer runs, Gage notes.

“You also need to keep in mind that our jetters' pressure ratings are measured at the end of the hose,” he says. “If you're looking at a machine with 4 gpm at 3,000 psi — which usually comes with 200 feet of hose — that 3,000 psi is measured at the end of the hose. If you add more hose, you lose about 1 pound per foot, on average. A lot of jets are rated right at the pump, so guys looking at getting into jetting should ask where the water pressure is rated at, the pump or at the end of the hose.”

**“Do you want to bid on municipal or commercial jobs with 10- to 12-inch drainlines or larger industrial pipes? And what about storm drains, which are up to 36 inches in diameter? You can't do that with a machine that generates 4,000 psi at 18 gpm.”**

Brian Gilbert

“If you mainly clean bigger lines, you need more flow to flush out all the debris,” says Tim Gage, the Ohio territory manager for Spartan Tool, which offers a full line of jetters aimed at various applications. “For smaller lines, you usually want more pressure, especially if you're cleaning heavy greases or clearing tree roots.”

A smaller cart-mounted jetter with a 1.5 hp electric motor generates about 1,500 psi at 1.5 to 2.25 gpm and is suitable for cleaning pipes up to 4 inches in diameter. In other words, these smaller units are best suited for cleaning interior residential lines. If you mostly tackle lines up to 6 inches in diameter, a 13 hp unit (with a gas-powered engine) that generates 3,000 psi at 4 gpm should do the trick. And to clean lines ranging from 3 to 12 inches in diameter, you'll need an even larger trailer-mounted unit with a gas engine that ranges from 19 to 40 hp and produces anywhere from 2,000 to 4,000 psi at about 12 gpm. For even larger pipes, the horsepower and gpm metrics increase exponentially while the pressure specs remain in the 3,000 to 4,000 psi range.

The kind of pipes commonly found in your area could also influence your decision. PVC pipe can withstand higher-pressure jetting. Old Orangeburg pipes? Don't even think about it. "And if you run into a lot of galvanized pipes, especially in restaurants, they often develop 'bellies' where the pipe has been eaten away," Gage says. "Sometimes a jetter will cut right through there."

If you buy a bigger trailer-mounted jetter, you also have to consider your vehicle's towing capability. "Some of our larger water tanks go up to 600 gallons, which comes out to 8 pounds per gallon for just the water alone, not including the tank," Gage says. So you may need to factor the cost of a new truck into your decision. On the other hand, you can typically charge customers more money when using a larger jetter, plus they enable you to finish jobs faster. That, in turn, allows you to do more jobs per year and make more money, he says.

"On our website, we have a calculation chart that allows you to enter the (monthly) payments for a machine, plus estimate material and labor costs, and it calculates what the machine can earn for each job," Gage says. "So if a guy is looking at a \$20,000 machine but really wants a \$40,000 machine, he can do the calculations and maybe he finds out it costs only \$100 a month more for the larger machine."

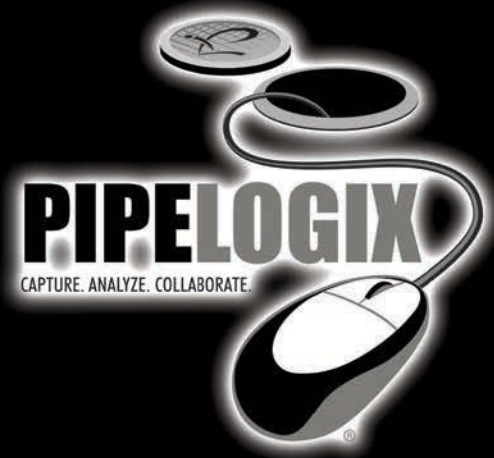
Gilbert also recommends considering more than just the jetter's price. "First of all, you get what you pay for," he says. "Price is always a factor, but at the same time make sure you study and learn what everyone is producing. Look at warranties. Talk to others who have purchased and operated the same machine. Get references. Do your homework. Don't buy a machine just because it's \$3,000 cheaper than another one."

Contractors also need to consider the cost of ownership. For example, one jetter may cost less than

another, but the lower-cost model might include a less durable pump that will incur ongoing costs for periodic rebuilding or even replacement, Gilbert says. "There's also a cost to the resulting downtime for repairs." **C**

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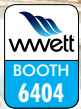


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# Mainline Inspection in a Compact Package

IRIS robotic crawler camera provides versatile solution for inspecting range of pipe sizes

By Craig Mandli

**W**hen drain cleaners perform mainline pipe inspections, equipment that provides ease of use and versatility is the name of the game.

That's the message Insight Vision Cameras is sending out with the introduction of the IRIS (Integrated Remote Inspection System) mainline crawler camera. The unit was featured at Insight Vision's booth at the 2015 Water & Wastewater Equipment, Treatment & Transport (WWETT) Show.

"This is a system that was designed for budget-challenged municipalities, municipal contractors and larger plumbing operations," says Bob Masse, Insight Vision's sales manager. "It's a system that has many different uses and functions, and can take the place of several camera systems."

**"This is a system that was designed for budget-challenged municipalities, municipal contractors and larger plumbing operations. It's a system that has many different uses and functions, and can take the place of several camera systems."**

Bob Masse

The IRIS Windows app-operated mainline crawler can be used to inspect pipes from 6 to 12 inches, and up to 18 inches with a larger wheel set. The ultra-portable and heavy-duty unit comes with 1,000 feet of advanced tether cable, pan-and-tilt capability, and a 10-inch LCD touch screen. The system includes a six-wheel-drive transporter and uses four powerful LED lights to illuminate a large area. Video will display on the reel unit as well as an external monitor via HDMI or a dedicated Wi-Fi-enabled Windows tablet, allowing easy file management and post-software reporting.

"This system allows a technician to stream the inspection feed directly to the touch screen in real time, or to a customer's laptop, PC or tablet via the HDMI hookup," says Masse. "In essence, the system itself serves as a computer. We believe that keeping the customer in the loop from the beginning is very important."

The camera and transporter are controlled via a hand-held pendant. The crawler has various wheel size packages available, and its high-grip rubber wheels allow it to traverse demanding conditions and terrain. It has an automatic free-wheel clutch for simple usage, and a manual lift comes standard. The motorized drum holds the flexible multi-conductor video cable and can operate automatically when in rewind mode, allowing the cable to be rewound at the same speed as the crawler to avoid running over the cable.



Peter Chandler, left, manufacturing manager for Insight Vision Cameras, explains the features of the IRIS mainline crawler app to an attendee at WWETT 2015. The inspection system offers compatibility with smart devices. (Photo by Craig Mandli)

The motorized drum is built with a telescopic handle and wheels for easy portability.

"We designed the IRIS to be easily portable and able to be operated by a two-man crew," says Masse. "It is the culmination of everything our customers say they want in a portable mainline inspection system."

Masse says the company decided to roll out its marketing campaign on the IRIS at the WWETT Show mainly to get feedback from what he called his company's "core audience."

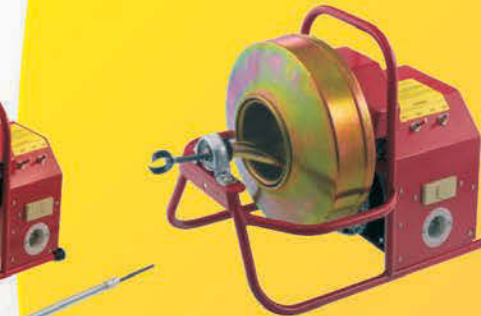
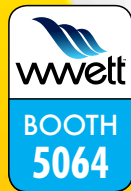
"The attendees at WWETT are definitely the people we're marketing this system to, so this was the perfect opportunity to get it out there and talk about it," he says. "The people I talked with were excited about the portability of the system and the price point. We wanted to get people talking, and we certainly accomplished that."

Masse says the company plans to use the feedback received at WWETT to upgrade its product line. "We want to increase the functionality of the app and how it integrates smart technology into the system," he says. "We are planning some subtle changes to the crawler on the unit, too, that will make it more user-friendly. We plan on rolling those changes out at the 2016 show. We're looking forward to it." 800/488-8177; [www.insightvisioncameras.com](http://www.insightvisioncameras.com). **c**



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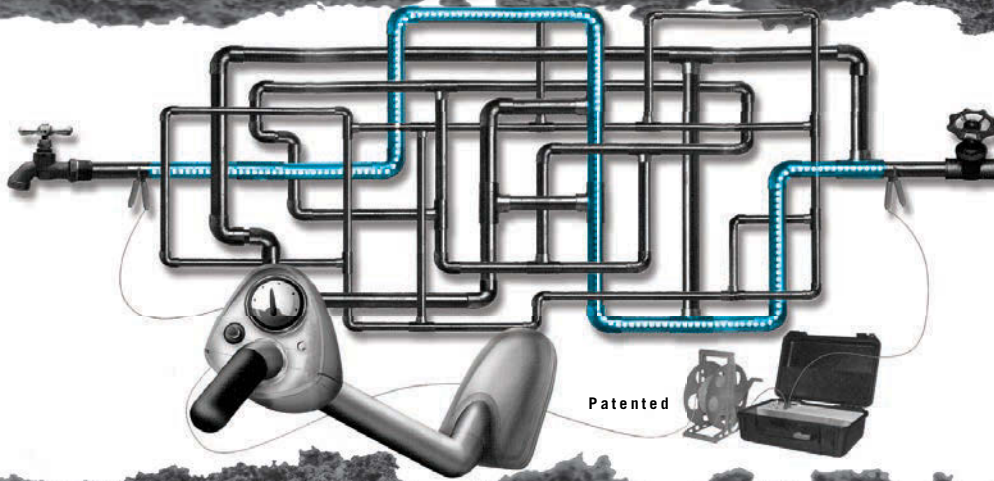
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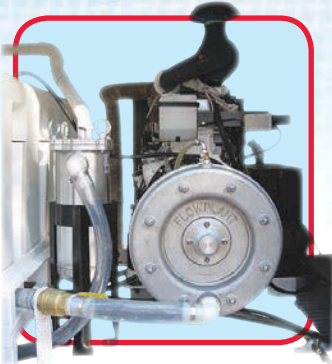
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Erik Gunn is a magazine writer and editor in Racine, Wisconsin.

# Whom Should You Trust With Your Money?

When it comes to managing your retirement funds, know the differences between a fee-only financial planner and a commission broker

By Erik Gunn

**Y**our business is growing, and you're earning enough money to set aside and begin building some wealth.

Sticking it in your mattress is just an old cliché, banks don't pay much interest, and while the broker down the street may help point you to a great stock pick, that's still just a piecemeal approach to managing your money for the long term.

So when it comes to gaining the big-picture perspective, where do you turn for advice? If you're hiring a professional to help you protect and grow your personal wealth, you have a couple of basic choices.

Many people simply turn for investment advice to that same (successful, we hope) broker, buying or selling stocks or other securities based on that person's recommendations. The broker might even offer a big-picture approach, helping choose investments that are more secure as you age so that the downside risk to your nest egg declines as retirement nears.

There's no doubt that many such professionals try to do their best to make fair and thoughtful decisions for their clients. And since they're paid largely on commission with each trade or within mutual fund charges, it's easy to feel like their service is practically free. It's not, of course. Commissions themselves amount to something, however small. But there are bigger reasons to consider an alternative approach: the fee-only financial planner.

## PAID FOR TIME, NOT FOR TRADES

The term means just what it says. Fee-only planners get paid *not* for buying or selling investments on your behalf, but for reviewing your financial assets and goals and making recommendations accordingly. Those recommendations are based on their knowledge of the investment markets and their understanding of your particular circumstances.

Yet how they're paid just scratches the surface when it comes to really understanding the difference, says Michael Haubrich, financial advisor based in southeastern Wisconsin and member of the National Association of Personal Financial Advisors (NAPFA.org).

"The bigger distinction is not the compensation, but what it really is, is the person you're dealing with acting as a fiduciary," Haubrich points out. To put it in plain English — is the professional required under the law to act in the client's best interest?

The traditional stockbroker is governed by the federal Securities Exchange Act passed in 1934. That law requires the broker to fully inform clients about the "suitability" of an investment, including pointing out the risk that any particular investment might wind up becoming worthless.

A separate law passed in 1940 sets a higher standard for *registered investment advisors*, a group that includes fee-only planners; they are obliged to tailor their advice to the client's best interest. Simply disclosing risk and

advising investors to consider the suitability of a particular investment isn't enough.

"We do a deep dive into what the client's objectives are and what their risk tolerance is," explains Haubrich, whose business is Financial Service Group Inc. "We can be held liable if we can't demonstrate that the advice we give is in the best interest of the client."

Based on information collected from the client, a fee-only planner might recommend a particular stock, but she or he won't get paid differently based on whether the client decides to follow through on the recommendation. As a consequence, the planner has no incentive to push any particular investment.

## METHODS OF PAYMENT

Of course, the planner gets paid in some way — and typically up front, so their services cost more at the outset. Some planner fees are structured on the basis of hourly charges or through a system of retainers that cover a certain amount of service before they must be renewed — just as business lawyers typically are.

Most planners, though, set their fees on the basis of a percentage tied to the total value of the assets managed for the client. A 2013 survey by the trade publication *Investment News* found that fees go down as the assets under management go up; for \$100,000 to \$500,000 in assets, expect to pay about 1.5 percent per year; people with \$5 million under management paid on average less than 1 percent per year.

That brings up another wrinkle in the ever-evolving investment advisor world, Haubrich notes.

Many brokerage houses, recognizing the concerns people may have about the objectivity of advice coming directly from a securities dealer, are establishing separate arms staffed by advisors paid ostensibly solely on the basis of a percentage charged against the assets they're managing, like fee-only planners.

He points out, however, that those advisors often get some form of additional commission relating to investments that are conducted through their employers, distinguishing them from the true fee-only planner.

"From the consumer's point of view, they all look the same," Haubrich observes. "They all wear suits, they all wear ties." But when it comes to the way they're actually paid — and the incentives that might influence their advice — "that is not a subtle difference."

Wall Street, he notes, has been lobbying heavily to derail proposed federal Labor Department regulations affecting businesses marketing investment platforms for company 401(k) defined contribution pension plans. The feds are arguing those firms should be held to the fiduciary standard — serving participants according to their best interests — rather than the less strict

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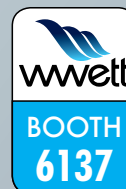
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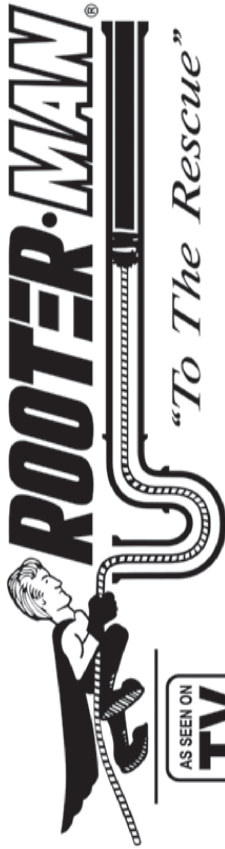


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disclosure and suitability standard; the industry behind those plans, of course, would prefer a less strict standard.

**THE BIGGER PICTURE**

Finally, fee-only planners do a lot more than simply tell you what stocks or bonds to buy or sell.

Indeed, as more and more average people are getting comfortable with discount, do-it-yourself brokerage services, and as even more complex financial advice is starting to become automated in the form of online calculators that help people begin to understand the big picture of their own financial condition, some fee-only planners are offering a more comprehensive approach.

Haubrich, for example, views himself these days as helping clients with “life transitions.”

“We’re financial life planners,” he says. “We really focus on the client’s life, where they want to go and what they want to do in their life. Then we align their resources, not only their financial resources but their career assets, to make sure there’s good alignment to help them get through whatever life transitions they’re in now.”

That can include not just giving advice about investments but connecting clients with other sources of guidance such as work and career counselors and other kinds of advisors.

Such broadly based advice may be a lot more than you’re looking for, of course.

Still, if you’re in the fortunate position to have assets in need of management, it behooves you to think carefully about what sort of advice you want, and how you want to pay for it. **C**

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By Craig Mandli

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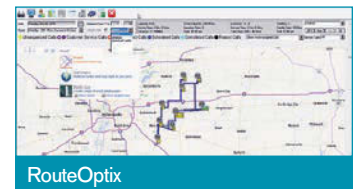


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**AssetWorks Field Service Solution** is a combination of cloud-based software, mobile applications and in-vehicle hardware that improves the efficiency and safety of fleet-based operations. It delivers automatic vehicle location, driver safety, and management of driver behaviors. It combines real-time location tracking, driver behavior dashboard, a comprehensive reporting tool and vehicle history/breadcrumb tracking capabilities. It offers work-order dispatching/field ticketing capabilities where **Android**-based mobile applications provide real-time work dispatch and job status updates while eliminating paperwork and duplicate data entry. With further expansion modules that offer electronic driver logs, vehicle pre/post-trip inspection, lone worker monitoring and APIs for integration with other key business systems at your organization, it provides a single platform for both fleet and work management. **403/705-3880; www.assetworks.com.**



AssetWorks

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### CUES WIRELESS GPS MAPPING STICK

The **Wireless GPS Mapping Stick** from **CUES** works with Granite XP Asset Inspection & Decision Support Software, in conjunction with the Esri Module, to provide locating and positioning solutions. The unit provides the ability to display and record sewer (manhole and lateral assets), storm, fiber and gas pipeline coordinates from a GPS receiver, and transfer this information seamlessly to Granite XP to map the location of these assets. The kit includes a Trimble Pro 6T receiver for a complete turnkey solution. **800/327-7791; www.cuesinc.com.**



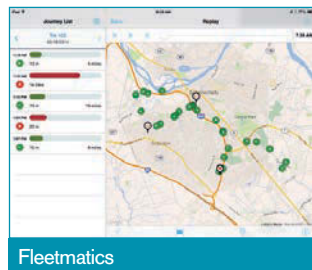
### DPL TELEMATICS TRACKALL OBDII

The **Trackall OBDII** from **DPL Telematics** combines compact GPS tracking and integrated OBDII, so management knows not only where vehicles are, but exactly what they are doing and how they are operating. By remotely capturing vehicle OBD activity, they can evaluate real-time and historical operational data to proactively diagnose vehicle issues, efficiently schedule repairs, and pass emission tests. The unit provides real-time visibility into improper or inefficient use of vehicles, as well as safety concerns such as excessive speeding, harsh braking or unnecessary idling. For the vehicle owner, this is a complete telematic solution to increase driver safety and productivity while decreasing the costs and risk of unauthorized asset use. **800/897-8093; www.dpltel.com.**



### FLEETMATICS REVEAL

The **Reveal** GPS vehicle-tracking system from **Fleetmatics** is designed to improve productivity for virtually any mobile workforce. The cloud-based platform includes native apps for iOS and Android, providing visibility of field activity and actionable insight into driver behavior and workforce productivity. **704/716-7646; www.fleetmatics.com.**

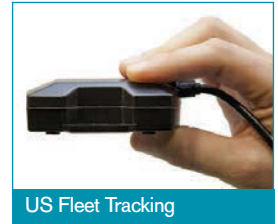


### RIDGID RIDGIDTRAX

**RIDGIDtrax**, a locating app from **RIDGID**, brings maps of a work site's underground utilities to a user's mobile phone or tablet. Using integrated Bluetooth communications, the SR-24 Line Locator pairs with the RIDGIDtrax app to display GPS position and depth of the target utilities. If there are multiple types of utilities, such as water, gas and electric, users are able to identify and display them all within the same map. A finished map can be saved and viewed within the app, or exported to a KMZ file to be used with Google Earth. It is designed for use on the iPhone, iPad or Android, and provides basic utility mapping for mobile devices. **800/769-7743; www.ridgid.com.**

### US FLEET TRACKING AT-V3

The **AT-V3** live vehicle and asset GPS tracker from **US Fleet Tracking** can be used with any Web browser or smartphone, viewing turn-for-turn live movements, allowing the user to verify employee location, confirm service occurred, or optimize the fleet and decrease overhead. It is configurable for five- or 10-second live tracking updates for accurate mileage reporting. Its compact 2 1/2-inch width by 3 1/8-inch length by 7/8-inch height makes it ideal for tight installations. It has a rugged water-resistant IP66 housing and solid-state circuitry. **405/726-9900; www.usfleettracking.com.**



### DISPATCH SYSTEMS

#### CHEVIN FLEET SOLUTIONS FLEETWAVE MOBILE

**FleetWave Mobile** from **Chevin Fleet Solutions** bridges the gap between field workers and the office. It provides a simple-to-use solution for field workers to collect and transfer data to a centralized system or the office quickly and securely with or without an Internet connection. Using almost any hand-held device, it can be tailored to capture, collect and transmit almost any type of data from structured information to signatures and pictures, and will automate and streamline almost any field function, from compliance-related tasks such as vehicle inspections and mileage capture, to process automation including work order creation and service receipts. **781/793-0788; www.chevinfleet.com.**



#### PEDIGREE TECHNOLOGIES ONEVIEW

The **OneView** platform from **Pedigree Technologies** allows management to make real-time changes to routing, update stops, and communicate safely with mobile workers via two-way messaging. The system works with an in-cab work order system, allowing management to dispatch drivers and field service workers in response to the latest job information. Capabilities include worker dispatch, route optimization, turn-by-turn directions, two-way messaging, and vehicle status updates. **800/470-6581; www.pedigreetechnologies.com.**



#### NEXTRAQ FLEET TRACKING SYSTEM

The **NexTraQ Fleet Tracking System** is a cloud-based, comprehensive fleet tracking solution that allows management to easily schedule jobs, dispatch them to vehicles and send messages to and from workers in the field. Included is the NexTraQ Job Schedule Board, which shows all pending jobs and appointments, as well as employees' availability and status of their current jobs. Immediately contact teams in the field to clock work hours, assign jobs, and find the easiest route to



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### RITAM TECHNOLOGIES SUMMIT AUTOMATIC DECISION MAPPING AND DISPATCH

The **Summit Automatic Decision Mapping and Dispatch** tool from **Ritam Technologies** provides customer accounting and operations management for near-effortless billing. One click sends service data to the Automatic Decision Mapping, and it balances loads between drivers, considers truck capacity, respects customer time commitments, minimizes overtime, and optimizes routes for most efficient travel. The results are sent to drivers' mobile devices (smartphone, iPhone, tablet, Garmin). Instantly, drivers have their routes with best service sequence, voice navigation, and digital customer signatures or driver confirmation of service completed. In the office, view information instantly, dispatch emergency services, and monitor real-time GPS-type tracking of drivers on street-level maps. No special hardware is required. 800/662-8471; [www.ritam.com](http://www.ritam.com).



Ritam Technologies

### SKYPATROL FLEET COMMAND

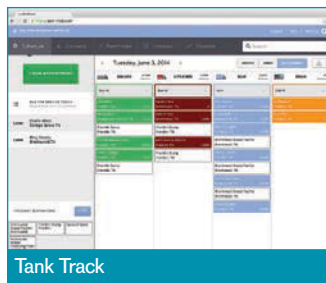
**Fleet Command** from **Skypatrol** can help effectively monitor and manage a fleet, easily accessing critical data and performance metrics. Fleet managers can locate all vehicles 24/7 and analyze custom, real-time key performance metrics. With detailed mapping, current vehicle information and tailored reports, it facilitates rapid data analysis that makes way for informed decisions that improve fleet performance and move the bottom line. The platform provides the operator with enhanced monitoring and control over driver activity. 800/369-5007; [www.skypatrol.com](http://www.skypatrol.com).



Skypatrol

### TANK TRACK SOFTWARE

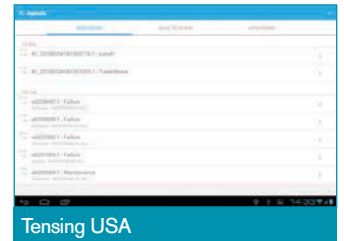
**Tank Track** software is designed to be user-friendly and equip business owners to manage customer information and schedule appointments quickly and easily. Users can customize invoice details, track property information, map truck routes, see when properties are due for service, generate pumping and dumping reports, and print invoices. The online format allows secure access from any Internet location. The program allows users to track multiple service due dates for each property and automatically schedule repeat appointments. 888/704-1335; [www.tank-track.com](http://www.tank-track.com).



Tank Track

### TENSING USA FMP360

**FMP360** from **Tensing USA** is a standardized mobile workforce management solution that contains all back-office and mid-office connectivity straight out of the box. Within a single app, the configuration of multiple business processes and workflows can be drag-and-drop configured in hours. FMPmaps adds the ability for field workers to have real-time access to back-office GIS information, system of record maps, and asset work history from any modern hand-held device, with or without an Internet connection. A system of record maps can be displayed right on the field worker's smart device, eliminating the need for paper maps or printouts. [www.tensing.com](http://www.tensing.com).



Tensing USA

### VEHICLE TRACKING SOLUTIONS SILENT PASSENGER

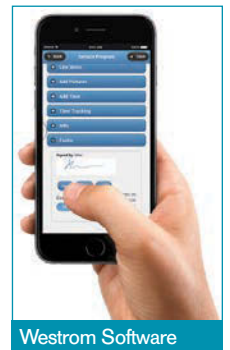
**Silent Passenger** fleet management software from **Vehicle Tracking Solutions** is user-friendly and offers a suite of tools that delivers actionable reports by allowing users to view current and/or historical data, as well as receive mobile-friendly alerts (texts, emails) that are easily configurable to a myriad of vehicles. It can significantly increase a company's bottom line by improving safety, minimizing fuel costs, aiding in theft recovery, lowering operational costs, and increasing overall productivity. 631/492-1148; [www.vehicletracking.com](http://www.vehicletracking.com).



Vehicle Tracking Solutions

### WESTROM SOFTWARE THE SERVICE PROGRAM

**The Service Program** from **Westrom Software** is QuickBooks-compatible software that helps schedule work orders and equipment, track and send recurring annual service reminders, and track customer equipment and tank locations. It works on popular iOS and Android devices, providing signature capture and email invoices in the field, and taking pictures after a job is complete. The software is installed on the same computer or network as QuickBooks, allowing databases to sync directly with QuickBooks software. The Mobile Solution option can increase employee productivity. Employees and field techs using the Mobile Solution cannot change or modify QuickBooks because all of the data filters back to The Service Program software. An optional customer portal and custom-branded app increases customer satisfaction and retention. The app is available at both Apple iTunes and Google Play. 866/480-1879; [www.theserviceprogram.com](http://www.theserviceprogram.com). ©



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## IMPORTANT MESSAGE!!!

Some of our competitors are selling very poor quality sewer/drain cameras, which look very similar with Forbest Cameras. Always remember you get what you pay for when you choose price over quality

Compare Forbest Cameras with similar cameras

Features	FORBEST CAMERAS	SIMILAR CAMERAS
<b>Recording</b>	With both USB & SD card	with SD Card only
<b>Operation</b>	Has function buttons on the front panel and has a remote control	Only with remote control
<b>Cable</b>	Strong and solid	Fragile and easily broken
<b>Battery</b>	Safety Test Certificates	No Certificate
<b>512HZ Transmitter</b>	Strong signals and easier to be located	Not easily located
<b>Picture</b>	Very clear - High resolution	Not steady

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**FB-PIC3188/3188D/3188DN**

Specs:

- 65FT/100FT/130FT Cable & Reel
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- 7" LCD Monitor w or w/o DVR & MIC
- Aluminium Case or Waterproof Case
- Option 1:** upgrade to Color Camera Head w/Built-in 512HZ Sonde Transmitter
- Option 2:** upgrade to 130FT Cable & Reel w/**Meter Counter (New)**



### Luxury Portable Sewer/Drain Camera

**FB-PIC4188M/4188H**

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- 130FT Cable & Reel w or w/o Meter Counter
- Color Camera Head w/Built-in 512HZ Sonde Transmitter
- 10" LCD Monitor w/DVR & MIC
- Recording with USB Flash Drive & SD Card
- Heavy Duty Waterproof Case



### Layflat Pipe Inspection Camera

**FB-PIC3588A/3588BT**

- 7"/10" LCD Control Station with Built-in USB Flash and SD Card Recorders and Li-Ion Battery
- 3/8" 150FT /200FT Cable & Reel w/Meter Counter
- 7/8" Stainless Steel Color Camera Head w/ Built-in 512HZ Sonde Transmitter for 3588A (1.5" Stainless Steel Color Camera Head w/Built in 512HZ Sonde Transmitter for 3588BT)



### Mid-Range Pipe Inspection Camera

**FB-PIC3388M/3388MT**

Specs:

- 200FT Cable & Reel w/ Meter Counter
- Self Leveling Camera Head w/ or w/o Built-in 512HZ Sonde Transmitter
- 10" LCD Monitor w/DVR & MIC
- Heavy Duty Waterproof Case



### Long Range Pipe Inspection Camera

**FB-PIC3288T/3488T**

Specs:

- 300FT/400FT Cable & Reel w/Meter Counter
- Self Leveling Camera Head w/Built-in 512HZ Sonde Transmitter
- 10" LCD Monitor w/ DVR & MIC
- Heavy Duty Waterproof Case



### Pan-Tilt 360°/180° Camera System

**FB-PIC3688C**

Specs:

- 400FT Cable & Reel w/Meter Counter
- Pan-Tilt 360°/180° Color Waterproof Camera Head w/Manual Zooming
- 7"/10" LCD Monitor w/DVR & MIC.
- Recording with USB Flash Drive & SD Card
- Crawler for easier push



### Economic Full Function Inspection System

Specs:

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- 65FT/100FT/130FT cable for option



### Multi-Function Control Station

Specs:

- Compatible with all Forbest systems
- Recording with both USB memory and SD Card
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### Mini- Self-Leveling Camera Head

Specs:

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## CASE STUDY

# Field and Office Technology

By Craig Mandli

## MOBILE AND WEB TECHNOLOGIES CREATE EFFICIENCIES FOR GREASE BUSINESS

### PROBLEM

All American Grease Services of New Orleans crafted plans for substantial growth. The company's controller, Bobbie Breaux, knew that operational inefficiencies would pose challenges.



### SOLUTION

Breaux was referred to **Web App Express**, which delivered a comprehensive Web and mobile software system that takes care of every aspect of the company's operations, including scheduling drivers' work and routes, and report writing. Manual processes and paper have been almost completely eliminated, and drivers are more productive. "In the past we printed out tickets for drivers. Today they use an intuitive mobile app," says Breaux. "Drivers worried about moving to the new system, but the app is so easy to use and saves so much time that now you can't get it away from them. Before they were inundated with paper, but now they just use a tablet."

### RESULT

Customers are happier. They get invoices quicker and that are more accurate. The system has increased customer loyalty and made it easier to attract new clients. The system even allows customers to remotely view service and scheduling-related data, as desired. "It's a big winner for us," says Breaux. "Processes that took days are now done in minutes and integrated with our accounting software, making it seamless." When All American initially partnered with Web App Express, its primary service area was New Orleans. Today it provides services across nine states. 800/699-4840; [www.webappexpress.com](http://www.webappexpress.com). c



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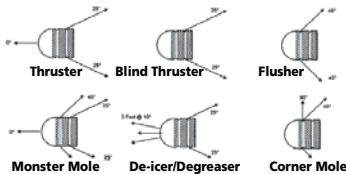


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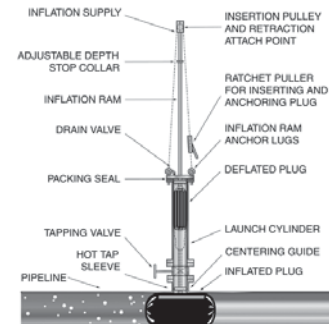
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PRODUCT SPOTLIGHT

**HammerHead Sidewalker redesign adds convenience, power and speed**

By Luke LeNoble



The Sidewalker piercing tool from HammerHead Trenchless Equipment is designed for installing short utility runs beneath landscaping, driveways and sidewalks.

Upgrades to the 2 1/2- and 3-inch models have increased efficiencies in design and pneumatics, including the quarter-turn Power Port Reverse feature that boosts impact power by up to 25 percent. The 3-inch Sidewalker has a uniform profile along its entire length, increasing striker size.

“The models that these tools replace in our previous fleet are tools that were ‘bulbed,’” Josh Hood, product manager for HammerHead, says. “This means that the previous tools were small tools with a larger-diameter bulb on the backside of the tool. A new 3-inch Sidewalker tool has the power of a 3-inch tool versus the power of a 2 1/2-inch tool with a bulb.”

The tools are designed for contractors who typically do short shots, such as small irrigation or water services with minimal pit dimensions. They have traditionally been used to install 3- to 20-foot underground runs of gas, water and other utility lines in tight urban areas.

Since the tools’ body lengths are just under 34 and 42 inches, they require much smaller working pits than standard-length piercing tools.

“Because of the significant reduction in length, it makes it a great tool for driveway and sidewalk crossings as the pit required to launch the tool can be reduced by as much as 30 percent,” says Hood. “The longer a tool is, the more accurate the shot will be as there is more surface area that maintains the path, hence the fact these tools are for short shots.”

Shorter tools tend to have less overall power than longer tools as the stroke of the internal piston is shorter and has less mass, Hood says. The Sidewalker overcomes that issue by increasing the strokes per minute by as much as 40 percent.

The piercing tools, which operate at 110 psi, include the Debris Free Tailcone, decreasing the amount of foreign matter entering the tool body, increasing overall production and extending the life of the tool.

As with all HammerHead models, a clamped rear anvil provides 200 percent more clamp load than other designs, yet makes the tools easy to maintain. 800/331-6653; [www.hammerheadtrenchless.com](http://www.hammerheadtrenchless.com).



1



2



3

**1 MR. MANHOLE MANHOLE CUTTER**

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**2 HILTI MODULE DIAMOND CORE BITS**

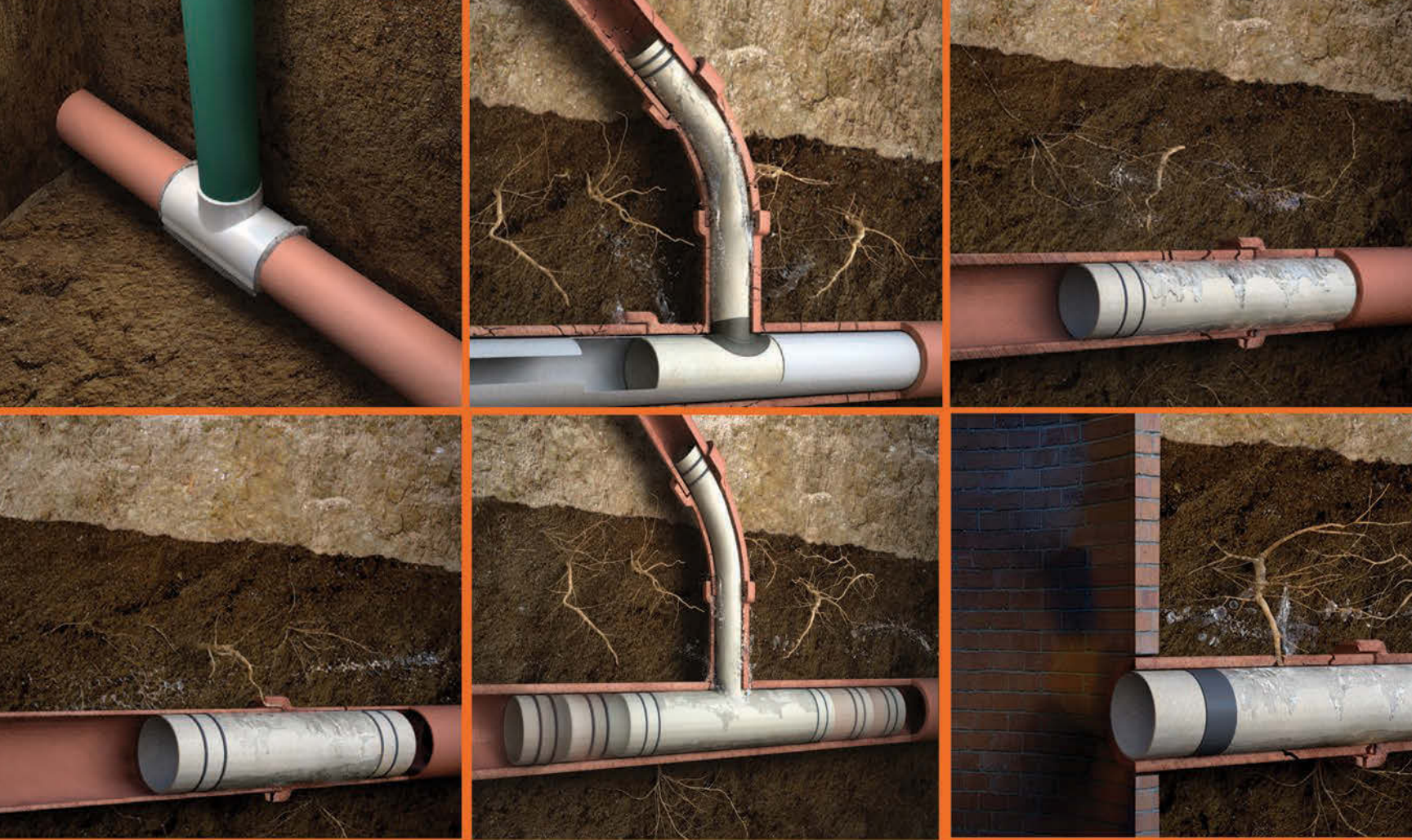
The X-Change module (X-CM) core bits by Hilti can be re-tipped on the job site in just a few minutes using a screwdriver, allowing operators to replace a worn X-CM module with a new module instead of replacing the

entire core bit in the event a bit becomes stuck in concrete. All modules are easier to store and transport than complete drill bits, and are available in diameters ranging from 2 to 8 inches. 800/879-8000; [www.us.hilti.com](http://www.us.hilti.com).

**3 COXREELS EZ-COIL SAFETY SYSTEM**

The EZ-Coil safety system from COXREELS was developed exclusively for spring-retractable lines and retracts up to 80 percent slower than conventional reels. It works unidirectionally without any increase to the amount of resistance when pulling out the hose, cord or cable. When engaged upon recoil, this safety system controls the aggressive spring motor energy resulting in a reel that retracts at a safe and steady pace, enhancing operator safety. 800/269-7335; [www.coxreels.com](http://www.coxreels.com).

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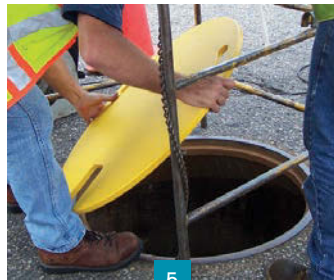


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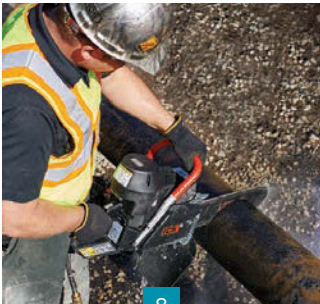
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#### 4 WATER CANNON JETTER TRAILER

The 16T52, two-wheel commercial jetter trailer from Water Cannon has 500-foot by 3/8-inch hose reel capacity, 200-gallon water tank with float valve, polyurethane toolbox, lights, front jack with wheel, safety chains, and aluminum fenders. The commercial high-pressure jetter has a Vanguard 18 hp electric-start engine with 15-gallon fuel tank, TS Series General triplex plunger pump (5.5 gpm, 3,500 psi), 8-foot jumper hoses, and three jetter nozzles (penetrator, flusher and degreaser/deicer). **800/333-9274; [www.watercannon.com](http://www.watercannon.com).**

#### 5 U-TECK TEMPORARY MANHOLE COVERS

Safe-T Lid temporary covers from U-TECK provide fall-in protection while the manhole or hand-hole lid is removed. Made from high-impact-resistant composite, the lids support 400 pounds of direct weight. Openings along the edge accommodate cables, ducts or hoses. Hand openings allow for easy transport, placement and removal. **800/542-7011; [www.uteck.com](http://www.uteck.com).**

#### 6 ELECTRIC EEL PIPELINE INSPECTION CAMERA

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

#### 7 GOULDS END SUCTION CENTRIFUGAL PUMP

The 316L stainless steel end suction centrifugal pump from Goulds Water Technology - a xylem brand is designed for water circulation, booster service, spray system, washing/cleaning system, air scrubbers and general water services. The pumps can be mounted horizontally or vertically. The standard

NEMA single- or three-phase motors are made for continuous duty under all conditions. **866/325-4210; [www.goulds.com](http://www.goulds.com).**

#### 8 ICS PIPE CUTTER

The 680PG-10 PowerGrit Utility Saw from ICS, a Blount International Brand, is a pipe cutter designed to cut plastic pipe to ductile iron pipe up to 10 inches in diameter. The new 680ES engine platform features a 76.5 cc, 5 hp engine and a direct-drive clutch, so the drive belt doesn't slip in wet conditions, unlike most circular cut-off saws. **800/321-1240; [www.icsdiamondtools.com](http://www.icsdiamondtools.com).**

#### 9 BAYCO LED WORK LIGHTS

The SL-1500 Series LED work lights from Bayco Products are constructed with a rear multi-fin heat sink that keeps the fixtures cool to the touch. Each single fixture work light produces 2,200 lumens of light. The SL-1522 has dual light fixtures for a combined output of 4,400 lumens. Fixtures can be tilted or swiveled independently allowing the user to position the fixture where light is needed. **800/233-2155; [www.baycoproducts.com](http://www.baycoproducts.com).**

#### 10 OPTRONICS MINIATURE LED WORK LAMPS

The Opti-Brite TLL30FB Series of miniature LED work lamps by Optronics International measure 3 1/4 inches in diameter with the capacity to produce a raw lumen output of 960. It can be mounted on any vehicle with 4 1/2 inches of clearance and comes stocked with a stainless steel mounting bracket. The lamp is designed to accommodate both 12- and 24-volt systems. A lifetime warranty replaces the lamp even if one diode fails. **800/364-5483; [www.optronics.com](http://www.optronics.com).**

#### 11 DITCH WITCH MINI SKID-STEER

The SK752 from Ditch Witch, a Charles Machine Works Company, is a new, construction-grade mini skid-steer that features a 24.8 hp Kubota diesel engine. The machine has an 860-pound operating capacity and

CONTINUED >>

# NEW LISY 3.2

Introducing the new LISY 3.2 Lateral Launch System by IBAK. The LISY 3.2 is the latest evolution in the industry's most advanced lateral launching system. Trusted by most major contractors and large cities throughout the world, the LISY has always provided you with superior production capabilities.

The front articulation arm of the LISY 3.2 has been redesigned for greater strength and lower weight. The geometry of the front end has been altered to avoid debris and water retention during operations. Cable routing has been improved to protect critical cables. The entire drive system was revamped with a larger drive motor and more efficient pressure wheels to increase the launch speed by up to **4 times faster** than other lateral launchers!

With faster launch speeds, shorter more flexible front connector options, and smaller launch cameras, the LISY 3.2 is perfect for your more demanding projects, including reverse-launches.

The new LISY 3.2 was designed to work with the new **3-D GeoSense® system** from IBAK. This revolutionary system from IBAK gives you the power to map lateral pipelines with accuracy and speed. The new 3-D GeoSense® sensor tracks the movement of the camera as it travels through the lateral, capturing distance, position and depth in three dimensional space. This data is captured and displayed by your data logging software. **Finally, there is no more guessing. You no longer have to track the system above ground with a locator, simply conduct your inspection and collect the positional data. This is the perfect system for cross-bore analysis!**



Currently integrated with WinCan Vx. Other integrations in preparation.



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## Pushrod, Tractor or Lateral Launch CAPABLE!

Camera Dimensions	
Length	84mm / 3.30"
Diameter	47mm / 1.85"

Technical Specifications	
Pan Range	+/- 120°
Angle of View	+/- 150°
Rotation	Continuous
Pressure Protection	Standard
Operating Range	2" and up
Upright Picture	Automatic
Lateral Launch Capability	Yes
Pushrod Deployment	Yes
Tractor Deployment	Yes
Laser Measurement	Diameter, Deflection, Defect
Location Transmitter	33 kHz



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increased hinge-pin height to 83 inches for more efficient loading. It features an ergonomic operator's station with standard dual-lever ground drive controls, an operational joystick and two-way auxiliary foot pedal. The platform measures 74 square inches. **800/654-6481; [www.ditchwitch.com](http://www.ditchwitch.com).**

## 12 HACKNEY VAN SHELVING

Hackney is releasing both aluminum and steel shelving lines beginning with the Ford Transit, targeting contractor service markets with an emphasis on simplifying the buying process. Aluminum shelving is lightweight with adjustable shelves designed to hold Hackney's storage trays or tools. The Inventory Management Shelving (IMS) system is a heavy-duty steel shelving solution that offers both driver- and passenger-side packages, or as a complete package with top-shelf storage for ladders and pipe. **252/946-6521; [www.hackneyservice.com](http://www.hackneyservice.com).**

## 13 HOT JET USA TRAILER-MOUNTED JETTER

The HotJet III from Hot Jet USA is a trailer-mounted water jetter with two 35 hp Vanguard engines, featuring 20 gpm of hot or cold water at 3,850 psi. It is designed to clean lines from 2 to 24 inches with the proper nozzles and features a wireless remote control with a range of up to 300 feet, and includes 500 feet of 1/2-inch hose, 300 feet of 3/8-inch hose and 100 feet of sanitary hose; 1/4-inch line is also included for laterals. Included is the choice of a 300- or 660-gallon water tank and a 5-foot by 14-foot tandem-axle diamond plate trailer. **800/624-8186; [www.hotjetusa.com](http://www.hotjetusa.com).**

## 14 PERMA-LINER LATERAL CONNECTION SOLUTION

InnerSeal is an engineered solution from Perma-Liner Industries for repairing defective laterals and the connection to the mainline. It is a one-piece, structural and continuous main-to-lateral CIPP that completely seals the connection while simultaneously renewing the lateral. It was designed using the standard practice for the rehabilitation of sewer service laterals — ASTM F2561-11. **866/336-2568; [www.perma-liner.com](http://www.perma-liner.com).**

## 15 TECHSPRAY CLEANING SOLVENT

PWR-4 Maintenance Cleaner from Techspray is a cleaning solvent engineered to be a safer alternative to common industrial solvents

like n-propylbromide. It quickly dissolves oils, greases, fluxes, silicones, dirt and grime. Fast evaporation and high-dielectric strength allows work to be completed quickly. The solvent is designed for wiping down ultrasonic cleaning equipment and vapor-degreaser equipment, and comes in 1-gallon, 5-gallon or 55-gallon drums. **800/858-4043; [www.techspray.com](http://www.techspray.com).**

## 16 CHEMTRONICS CLEANING SOLVENTS

Delta Precision Solvents from Chemtronics are nonflammable cleaning solvents designed to replace AK225 and other engineered cleaning solutions. Flux-Off Delta Flux Remover removes encrusted and oxidized flux deposits. Electro-Wash Delta Cleaner Degreaser removes all contaminants with solvency for heavily oxidized hydrocarbon or silicone grease and oil residues. Pow-R-Wash Delta Electronics Contact Cleaner is designed for electrical and electronic components and assemblies. Choose from aerosol packaging or bulk liquid in 1-gallon, 5-gallon or 55-gallon drum packaging for cold cleaning and ultrasonic cleaning. **800/645-5244; [www.chemtronics.com](http://www.chemtronics.com).**

## 17 ALLIED EQUIPMENT & RENTALS SAFETY SCREEN

The Stump'R Guard from Allied Equipment & Rentals is a safety screen for the hydroexcavation industry. Each screen is 5 feet high and expands to 12 feet wide. Made out of construction-grade, vinyl-coated mesh, it is rated at 200 psi burst strength. It weighs less than 16 pounds and collapses to 8 inches in diameter for easy storage. Install with five steel stakes into the ground or optional bases available for use on hard surfaces. It is available in orange or galactic green. **414/322-4973; [www.alliedequipmentrental.com](http://www.alliedequipmentrental.com).**

## 18 INFRASTRUCTURE REPAIR SYSTEMS ELBOW SPOT REPAIR SYSTEM

The Trenchless 90-Degree Elbow Spot Repair System from Infrastructure Repair Systems is an elbow spot repair system to seal joints, cracks or missing sections within the 90-degree curve of any 4- to 6-inch pipe. **877/327-4216; [www.irsi.net](http://www.irsi.net). c**





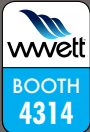
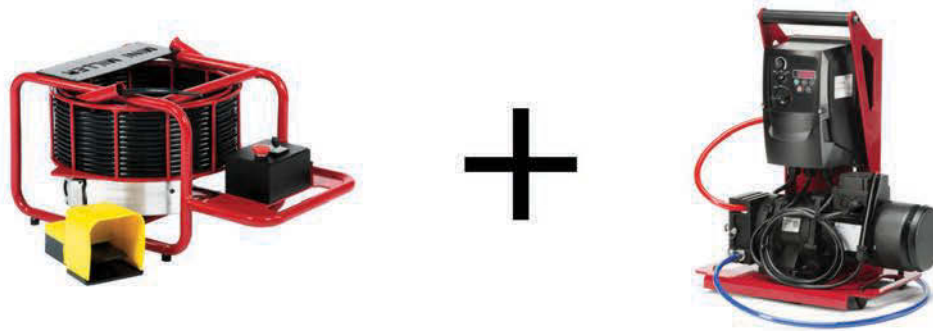
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**3/4-1"**  
40-160 gpm/1500-4000 psi

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Tim Jones, owner of Eastern Sewer Jetting*

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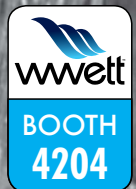
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**MARK DIMICHELE,**  
Owner, D & D Water & Sewer, Canton MI



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**Quam Construction joins list of LMK licensed contractors**

Quam Construction, based in Willmar, Minnesota, has joined LMK Technologies' network of independent licensed contractors for the T-Liner Main-to-Lateral Connection Lining System. As part of its underground utilities division that services municipal, commercial and residential areas, Quam has announced plans to become licensed in LMK's Performance Liner Sectional Spot Repair, cured-in-place manhole rehabilitation, and VAC-A-TEE clean-out systems.

**Researcher receives ADS achievement award**

Rafael Munoz-Carpena of the University of Florida-Gainesville received the American Society of Agricultural and Biological Engineers (ASABE) 2015 Advanced Drainage Systems Soil and Water Engineering Award. The ADS-sponsored award recognizes Munoz-Carpena for his research, methodology and educational contributions in the development and advancement of integrated hydrologic and water-quality modeling.

**Grundfos holds annual Walk for Water event**

About 175 Grundfos Pumps employees joined family, friends and corporate partners for their annual Walk for Water event held in Kansas City, Missouri, and Aurora, Illinois. The initiative was designed to raise awareness about the global water crises and to raise funds for safe, sustainable water solutions in developing countries. Grundfos first held the event in 2012 and to date has raised more than \$200,000 for Water Missions International.



**Cloverleaf Tool Co. purchases Jetter Parts Depot**

Cloverleaf Tool Co., which is based in Sarasota, Florida, and manufactures and distributes pipeline and sewer cleaning and maintenance equipment for jetters and jet/vacs, has purchased Jetter Parts Depot of Orlando, Florida.

**Allstate Power-Vac announces new equity investor**

Allstate Power-Vac announced Nov. 2 that the company has finalized a strategic partnership with Kinderhook Industries and its affiliates. As a result of the partnership, Kinderhook, a private equity firm based in New York, has completed a significant equity investment in APV. The partnership will provide APV with access to new capital.

**RapidView names new training and installation expert**

RapidView IBAK North America has announced the appointment of Richie Notz as the company's new training and installation expert. Notz, who has years of experience in pipeline inspection and training, was previously a field supervisor for a pipeline inspection company.



Richie Notz

**McElroy adds new distributor in Louisiana**

McElroy Manufacturing has announced the addition of a new distributor, Industrial Municipal Supply Co. of Geismar, Louisiana, to service pipe fusion machine customers throughout the state. IMSCO has 40 years of experience in custom fusion service, on-site fabrication and maintenance on McElroy machines in addition to being a supplier of HDPE pipe, valves and fittings.

**Vanair announces expansion**

Vanair Manufacturing announced the acquisition of an 80,000-square-foot manufacturing facility in Michigan City, Indiana, to accommodate increased growth and future expansion. The acquisition brings the company's total production and office space to over 160,000 square feet. The new space will provide capacity for increased manufacturing, training, support, service and leadership functions across the company.

**WSSC approves infrastructure repair solutions from LMK Technologies**

The Washington Suburban Sanitary Commission, one of the largest water and wastewater utilities in the United States, has approved two infrastructure repair solutions from LMK Technologies — the Insignia End Seal Sleeve and the LMT (Lined Main Tap) Saddle — for use in sewer systems in Maryland's Montgomery and Prince George's counties.

**Vermeer names Andringa president, CEO**

Jason Andringa assumed the role of president and CEO at Vermeer effective Nov. 1. The announcement was first made in August as part of the company's family-succession planning process. Andringa previously served as president and COO, in addition to a number of other roles since joining the company in 2005.



Jason Andringa

**Continental reaches 1 million retreads milestone, partners with CMC Tire**

Continental Tire North America set a new record of 1 million retreads on Oct. 29 at its ContiLifeCycle facility located in Morelia, Mexico. The company also announced a partnership with CMC Tire to expand its retreading network, including the opening of its first commercial tire retread facility in Las Vegas. The new retread facility can produce up to 24,000 retreads annually with the capacity to grow to 48,000.

**Hanson Building Products announces company name change**

Hanson Building Products has changed its name to Forterra following the recent sale of the company. The company will continue to operate its five U.S. and Canadian divisions as well as its building products division in the United Kingdom. Plans are to continue production of all existing product lines through its more than 130 facilities.

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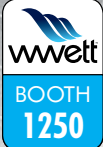
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### Trelleborg Pipe Seals expands operations in Lithuania

Trelleborg's Pipe Seals operation has recently integrated additional pipe liner production capabilities at its manufacturing facility in Taurage, Lithuania. The new technology was obtained from TWE/Trelit along with its customer base. The new manufacturing line started production in November and added a new product to the company's pipe liner portfolio, the Drainliner PP.



### Envirosight names channel development manager

Envirosight has announced the hire of Steve Webster as channel development manager. Webster will split his time between product and service management for the company's regional sales partners. With over 32 years of industry experience, he'll be tasked with conducting product launches and product demos.



### Ditch Witch annual international customer event draws largest attendance

Ditch Witch, a Charles Machine Works Company, hosted its annual internal customer event at the Ditch Witch Barcelona Support Center on Oct. 23. The event set a record with nearly 300 customers and staff from more than 20 countries.

### Aclara to acquire GE Grid Solutions' electricity meter business

Aclara has announced that its affiliate has signed an agreement to acquire the electricity meter business currently operating within GE Energy Management's Grid Solutions subdivision, also known as GE Meters. Terms of the transaction were not disclosed. **C**

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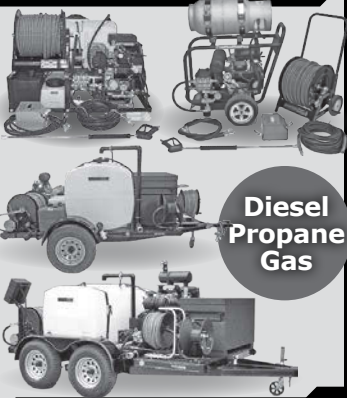
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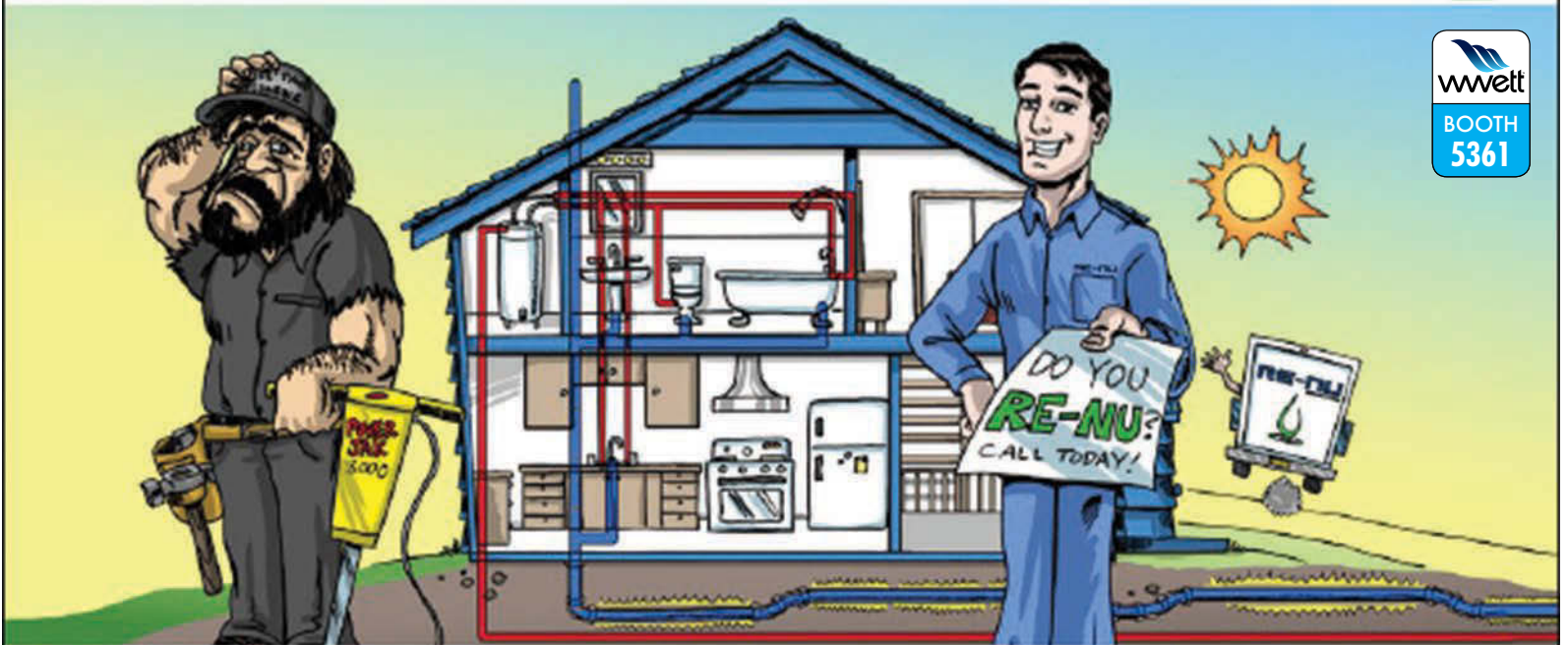
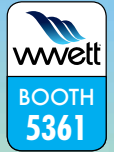
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2004 Sterling Camel Hydrovac Automatic, 10-wheeler, 46,651 miles 80gpm, 400' hose, mid-mount reel. One owner. \$60,000. Pictures upon request @ [cdscar@aol.com](mailto:cdscar@aol.com). Carroll 916-747-3819 (C02)

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## DRAIN/SEWER CLEANING EQUIPMENT



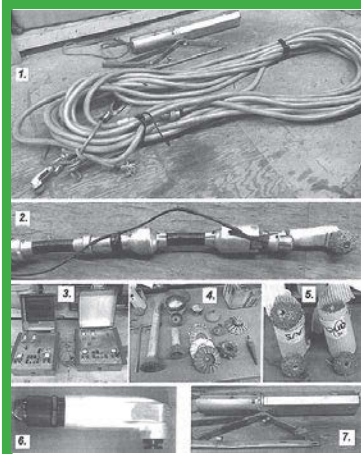
**2003 Sterling 12-Yard Vac-Con Combo Unit:** CAT C12 engine, Eaton-Fuller transmission, Myers water pump, Rexroth hydro pump, Parker hydro motor, etc. \$99,000. For more info and pics, call

**904-284-2141, FL** C03



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**2003 Isuzu Harben 4018** Hatz 300-gallon diesel silent pack 18gpm @ 4,000 psi. Super clean. Ex-city, low-mile truck. Work ready. ....\$23,900

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**1991 Ford Vactor:** L8000, 2112, PD blower, 12-yard. 80gpm w/ 2,000psi. Ex-city unit. Clean and work-ready. End-of-year sale ..... \$19,900

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2002 Vac-Con Sterling 21,703 hours. Front axles 20,000, mid 20,000, rear 20,000. Gross axles 60,000. Side motor Cummins. Good running truck. New tires. Asking price \$45,000 USD. 905-809-1478 (C04)

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2002 Sterling LT7501 Vac-Con Model V390LHA combination sewer cleaning truck: Freshly painted white. CAT 3126 - 275hp engine, 3-stage fan, 1,000-gallon water tanks, pump off option available. 10' telescopic boom. FMC water pump - 65gpm @ 3,000psi. Articulating hose reel with 600 feet of new 1" hose. 84,316 miles. Located in Orange, CA. \$79,900. Contact Craig: 714-639-8352. Additional details at [www.empireequip.com](http://www.empireequip.com) (CBM)

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Vac-Con V390LHA combination unit with Roots 827 blower, 1999 International Model 2554 cab and chassis. (Stock #3918C) [www.VacuumSalesInc.com](http://www.VacuumSalesInc.com), (888) VAC-UNIT (822-8648). (CBM)

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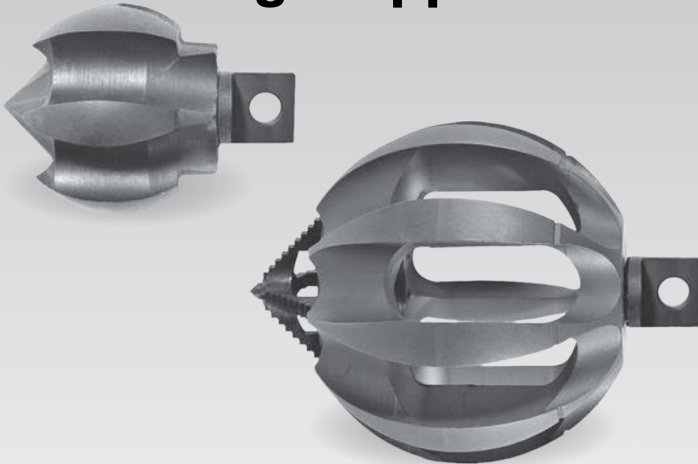
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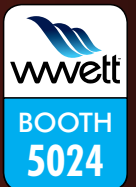


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