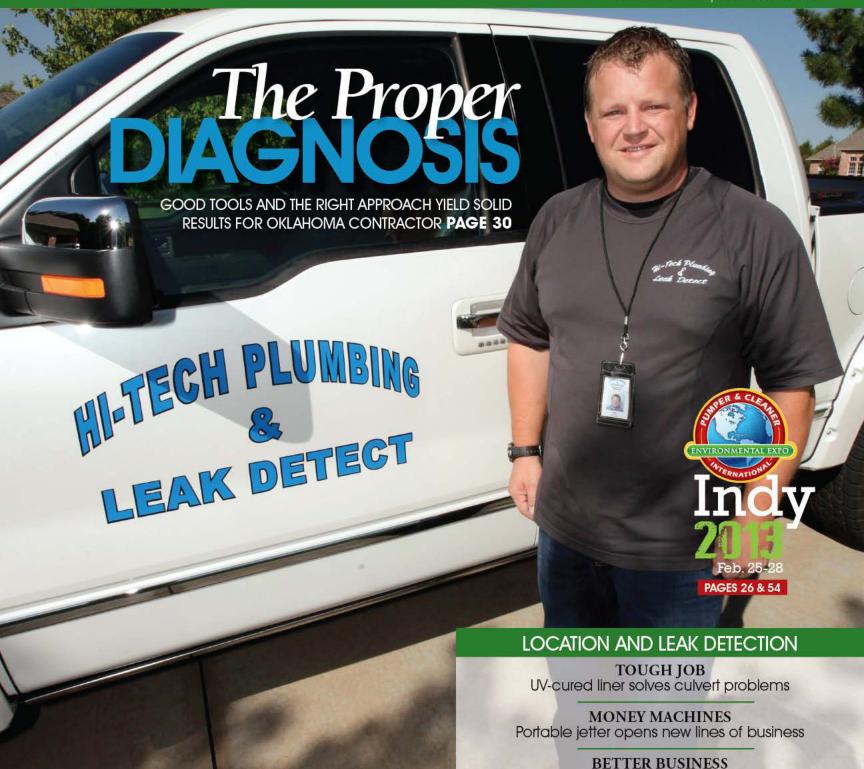
FOR DRAIN AND PIPE CLEANING, INSPECTION AND REHABILITATION PROFESSIONALS

www.cleaner.com

Make sure your name is legally protected

JANUARY 2013



"This machine always works the way I do hard!"

Jeff Wall, Wall Septic & Drain Cleaning Co., Harwichport, MA – and friend.



General's Mini-Rooter XP™

A drain cleaning professional for over 30 years, Jeff Wall likes to push his equipment to the limit. "Nothing in its class matches the Mini-Rooter XP for power and torque" Jeff claims. "And Flexicore cable even lets me use it for root cutting – although General said the Mini-Rooter XP isn't designed for that!"

That's because Mini-Rooter XP is no 90 lb weakling! It unclogs drains from rooftop to basement – including kitchen, bath and laundry lines.

"It's tough equipment, priced right." Wall adds. "That machine is my friend!"

The XP carries 75 ft. of 3/8" or 1/2" Flexicore® cable to clear most 2" to 4" drain lines. The Power Cable Feed drives and retrieves the cable at up to 16 ft. per minute. The XP rolls to the job on 8" semi-pneumatic wheels, and its easy-grip handle folds down to fit in your truck.

"I swear by Flexicore – and General cutters," Wall says. "All my equipment is General!"

Put General durability and reliability to work for you, too. For details, contact the Drain Brains® at General at 800-245-6200, or visit www.drainbrain.com/XP













EXPERTISE

TECHNOLOGY

RESPONSIBILITY



Flex Your Muscles

What if we told you that we could offer even more flexibility to our Vac-Con product line by increasing the mobility, reach and flexibility of our telescopic boom? We have done just that with the Vac-Con Power Flex Boom! The new Power Flex Boom extends up to 28.5 ft. from the machine and rotates up to 315 degrees. On top of that, the boom articulates up to 110 degrees and will lift up to 34 ft. into the air.

This new feature, that can be mounted on a Vac-Con combination sewer cleaner, X-Cavator™ and industrial machine, truly illustrates the expertise of the innovative Vac-Con team. Are you ready to flex your muscles?

To learn more about the Vac-Con Power Flex Boom, go to our website at Vac-con.com

Scan the QR Code to view a short product demonstration video!

A HOLDEN CINDUSTRIES Company







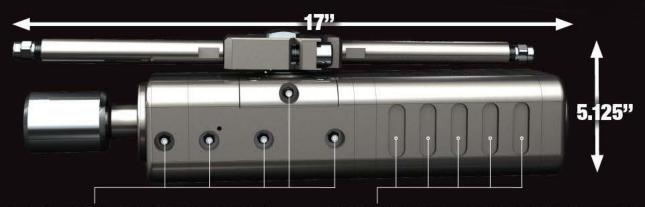
NEW FOR 2013 THE STANK & VESSEL CLEANING

KEY FEATURES

- All external parts are now machined and bolt together.
 No welded body parts.
- All external parts are now sealed with a captive o-ring between machined surfaces.
- Improved seal design protects gearing and internal components from water intrusion
- The number of weep holes have been increased from 4 to 12 total. Weep locations have also been relocated to easily identify a worn seal.
- Both high-pressure seals are accessible by removing only 4 cap screws.
- Synthetic 5W-20 oil is now used to lubricate the brake rather than conventional ATF—decreasing temperatures and improving brake life.

BIGGER ISN'T ALWAYS BETTER

The new **TORUS TR130** is over **20% SMALLER** than its predecessor. Allowing much greater accessibility to smaller tank openings.



ALL GREASE FITTINGS ARE DIRECTLY ACCESSIBLE







MAXIMUM FLEXIBILITY - ONE TOOL DOES IT ALL INTELLI-

Four inlet couplings and four bolt-on manifolds allow for quick and easy adaptation to different pumps, working pressures and cleaning applications. Interchangeable stainless steel nipple extensions allow maximum jet power and debris removal by placing the nozzles close to the target surface.



INTELLI-TORQ GEARING

If the arms hit an obstruction, the tool simply stops rotating so there are no broken gears to repair. The result is longer tool life and less maintenance.



OCV CARBIDE NOZZLES

The highest quality, longest lasting nozzles available ensure excellent jetting results and hours of trouble-free operation.





GET THE INDUSTRY'S MOST EFFECTIVE 3-D TANK CLEANING TOOLS

1-866-795-1586 · WWW.STONEAGETOOLS.COM



water bridge free to be set it - 19 mg/ power (1)

When pipe condition is up to you, trust the leading inspection brand to understand what's underground.





crawl

ROVVER X records digital video, generates reports, and links to asset software. It adapts in seconds to inspect any size pipe, and is based on digital architecture that lets you monitor onboard sensors, automate tasks, and measure pipe features. ROVVER X supports side-scanning, laser profiling and other innovative technologies, and automatically updates its firmware to always offer the latest features.



push

VeriSight Pro lets you inspect pipe, document findings, and create reports for on-site delivery. It captures detailed footage under punishing conditions, and accepts USB and SD media for easy transfer of data, video, images and reports.



zoom

QuickView surveys pipes and manholes from street level. With it, a city can assess an entire collection system to identify and prioritize maintenance needs, and a contractor can accurately bid and document services.



share

WinCan delivers the intelligence needed to make key maintenance decisions. It supports new technologies like GIS integration, virtual 3D, side scanning and laser profiling, as well as popular defect catalogs like PACP and WRc.



www.envirosight.com • 973.252.6700

January 2013

features

The Proper Diagnosis By Marian Bond



On the cover: Hi-Tech Plumbing & Leak Detect owner Jamey Mullin opened his specialized leak detection business in 2001. He now employs 15 people and covers the entire state of Oklahoma, providing leak detection, plumbing, drain cleaning and relining services. (Photography by Stephen Houser)

Lessons Learned

An experienced plumber and businessman draws on ideas shared by fellow franchisees to grow his business. By Pete Litterski

Tech Perspective: Tier 4 Without Tears

By 2015 all new off-road diesel equipment will be Tier 4 compliant, requiring additional maintenance considerations By Peter Kenter

Expo Preview: Learn and Grow at the Expo

Expo education seminars offer cutting edge information on the tools, techniques and best practices to build your cleaning business. By Luke Laggis

Expo Preview: Military Honors

Indianapolis has the distinction of being second to Washington, D.C., in building war memorials. By Sharon Verbeten

departments

10 From the Editor: Looking Forward to February Expo provides insight and knowledge to help

you establish new connections and improve your business. By Luke Laggis

Safety First: Training to Avoid Injury

Expanding availability of safety training materials is good for workers and employers. By Luke Laggis

Money Manager: Cover Your Assets

Understanding what you have to lose is the first step in determining how much liability insurance you need. By Erik Gunn

Tough Job: Call for Reinforcement

A UV-cured lining system enables a contractor to successfully rehabilitate a culvert without contaminating Sulfur Creek. By Scottie Dayton

Better Business: Protect Your Name

Whether your company's handle is a clever play on words or uses a common surname, consider measures to protect an important small business identity. By Fred S. Steingold

Money Machines: New Lines of Business

Portable hot-water jetter opens up additional opportunities for Colorado contractor. By Ken Wysocky

Product Focus: Location and Leak Detection By Briana Jones

76 Case Studies: Location and Leak Detection By Scottie Dayton

Industry News

78 **Product News**

Product Spotlight: Dedicated laser accessory captures, analyzes pipeline data By Ed Wodalski

COMING IN FEBRUARY

Special issue: Field & Office Technology

- Profile: Environmental Pipe Cleaning, Richmond, Va.
- Profile: Mr. Rooter Plumbing of Tri-Cities, Benton City, Wash.
- Better Business: A handbook for employees
- Money Manager: Business credit cards

AND REHABILITATION PROFESSIONALS

www.cleaner.com

Published monthly by:





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

> © Copyright 2013 COLE Publishing Inc. No part may be reproduced without permission of the publisher.

In U.S. or Canada call Toll-free 800-257-7222 Elsewhere call 715-546-3346 Email: Info@cleaner.com Web: www.cleaner.com Fax: 715-546-3786

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

SUBSCRIPTION INFORMATION: A one year (12 issue) subscription to Cleaner in the United States or Canada is free to qualified subscribers. A qualified subscriber is any individual or company in the United States or Canada that is involved in the inspection, cleaning, repair and installation of residential and commercial sewer lines. Non-qualified subscriptions are available at a cost of \$60 per year in the United States and Canada/ Mexico. Subscriptions to all other foreign countries cost \$80 per year. To qualify, visit www.cleaner.com/order/subscription or call 800-257-7222.

Our subscriber list is occasionally made available to carefully selected companies whose products or services may be of interest to you. Your privacy is important to us. If you prefer not to be a part of these lists, please contact Nicole at nicolel@ colepublishing.com.

CLASSIFIED ADVERTISING: RATE: No Photo Classified \$25 for 20 words, each additional word \$1. All classified advertising must be PAID IN ADVANCE. DEADLINE: Classifieds must be received by the first of the month for insertion in the next month's edition. PHONE-IN ADS ARE NOT ACCEPTED. Ads may be faxed only when charging to MasterCard, VISA, Amex or Discover. Please supply all credit card information with faxed ads. Be sure to include your phone number (with area code) in your ad. Make checks payable to COLE Publishing Inc. and mail with classified ad to the address above. CLASSIFIED ADVERTISING APPEARS NATIONWIDE AND ON THE INTERNET. Not responsible for errors beyond first insertion.

DISPLAY ADVERTISING: Contact one of our sales staff below at 800-994-7990. Publisher reserves the right to reject advertising which in its opinion is misleading, unfair or incompatible with the character of the publication.





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

CIRCULATION: Circulation averages 27,338 copies per month. This figure includes both U.S. and international distribution.



PUMPER & CLEANER ENVIRONMENTAL EXPO INTERNATIONAL

Education Day: February 25, 2013 Exhibits Open: February 26 - 28, 2013

Indiana Convention Center

www.pumpershow.com



Getting to the problem won't be a problem.

It's compact for easy storage...lightweight for easy transport... and versatile for easy use. The SeeSnake® microReel System from RIDGID® is the perfect solution for inspecting lines up to 4" in diameter and 100' in length. Getting to the problem has never been easier.

Learn more and schedule demonstrations: 800.769.7743 or RIDGID.com



Modular



Digital Recording



Optional Distance Counter



RIDGIDConnec Enabled









Advertiser Index
Allan J. Coleman Co
AMAZING MACHINERY
Amazing Machinery, Inc64
MOLE
Aqua Mole Technologies, Inc70
ARIES
Aries Industries, Inc33
В
BANDLOCK AMESBURY GROUP
Bandlock Corp79
Southern Tool Confee age
& Systems Pourman Tool Co. 9. Customs (C)
Bowman Tool Co. & Systems
Cable Center, The
CAMAZ
Cam Spray24
CENTRAL ORLANDIA Winnelson
Central Oklahoma Winnelson
Root Rat.
Chempure Products Corp60
CIPP Services, LLC
Cloverleaf Tool Co46, 70
LONGUE WASTER
Coast Manufacturing63
"The Dissellation of the tricking"
CUES
D
DRAINCABLES direct
Draincables Direct
Manufacturing Company
Duracable Manufacturing Co38
E
Easy Liner
(Gadmon Industries)82, 83, 84

i	
	Slectric Sel Electric Eel Mfg55
	Envirosight
	enz:
	F. S. Solutions
	G
	GapVax, Inc87
	CD
	GARDNER DENVER Gardner Denver Waterjetting Systems41
	General Pipe Cleaners/ General Wire Spring2
	GORLITZ SEWER INC.
	Gorlitz Sewer & Drain, Inc21
	GUEZIER Guzzler Manufacturing, Inc15
	н
	HammerHead Trenchless Equipment19 Hannay Reels
	Hannay Reels18
	Harben, Inc53
	Hathorn Corporation49
	Jack Doheny Supplies43
	Jetstream **
	Jetstream of Houston18, 22, 37, 47
	K
	Ken-Way Corporation60
	Kroy Industries28
	L.
	LaPlace Equipment Co70

M	
Masterliner Incorporated1	6
MSP	
Milwaukee Rubber Products6	5
105	
MyTana MyTana Mfg. Company, Inc5	7
STORY .	
N	
NAWT NAWT, Inc	7
AD 1950	1
NLB Corp.	
NLB Corp5	6
NozzTeq.	
NozzTeq, Inc6 Nu Flow Technologies, Inc3	
Na riow reciniologics, inc	*
O OgeanQuip LLC	
Oceanquip, LLC2	8
P	
PAT'S PUMP + BLOWER	
Pat's Pump & Blower2	4
DUSTRIES 30	e.
Perma-Liner Industries	9
PHCC-GLAA6	5
PIPELOGIK	
	1
PripeLogix, Inc	
Prototek	
Corporation	Λ
Prototek Corporation	4
Pulsar 2000, Inc2	3
R	
Marie	
RapidView IBAK North America3	0
ralech	2
ELECTRONICS	0
Ratech Electronics, Ltd1	0
RIDGID	5
RODDIE, Inc	
RooterNOW®	U
THE SINGLE A SOLUTION	2
RS Technical Services, Inc5	2

S
SCA
Safety Corporation of America22
Scooter Video61
Southland Tool Mfg., Inc31
SPARTAN
Spartan Tool, LLC88
StoneAge , Inc
TOT TOOLS
T&T Tools, Inc64
TRY TEK Machine Works, Inc
25
US Jetting, LLC11
05 Acting, Ecc
V
Vac-con Vac-Con, Inc
VAR CO
VAR Co60
Vivax-Metrotech Corp52
VSI Rentals71
XXX
Westmoor Ltd38
Wohler USA, Inc
Marketplace
回談神画



Scan the code with your smartphone



Is Your Crew Installing <u>and</u> Curing Liners in <u>40-Minutes</u>? If you're not, it's time to become more profitable with Perma-Liner's cutting edge technology.





Perma-Lateral™ Air Inversion Lining

- 2" 8" Pipe Diameters
- Eliminates Root Intrusion, Stops Infiltration & Exfiltration
- Ability to Line 22, 45 and Sweeping 90 Degree Bends with ease
- Stand Alone Design, No Host Pipe Needed
- 100% Solids Epoxy
- Renews Pipe Life to Minimum 50-Years per ASTM F1216
- IAPMO, NSF, ICC Approved



No Territories!
No Franchise Fees!
No Licensing Fees!

Pull-In-Place Pipelining

- 3" 36" Pipe Diameters
- Eliminates Root Intrustion,
 Stops Infiltration & Exfiltration
- Ability to Line 22, 45 and Sweeping 90 Degree Bends with ease
- Perfect for Vertical Stacks
- Unique Design Allows Starting and Stopping anywhere in the line



Contact us today for a LIVE DEMONSTRATION!

Perma-Patch Spot Repair

- 3" to 24" Pipe Diameters
- · Sold in Complete Kit
- Sodium Silicates allow maximum working time while achieving a short cure time
- Two Man Crew can install several Perma-Patch Kits in a single day



Training & Certification 24/7 Technical Support Marketing Support





Visit: www.perma-liner.com

Call: 1-866-336-2568 Toll Free / 1-727-507-9749 Int'l



Looking Forward to February



Luke Laggls editor@cleaner.com

EXPO PROVIDES INSIGHT AND KNOWLEDGE TO HELP YOU ESTABLISH NEW CONNECTIONS AND IMPROVE YOUR BUSINESS

BY LUKE LAGGIS

ou've been reading about the 2013 Pumper & Cleaner Environmental Expo in the last couple issues of *Cleaner*, and this month's issue serves up two more stories. One of them, "Military Honors," highlights Indy's many tributes to our men and women in uniform. The other, "Learn and Grow at the Expo," provides a detailed overview of the many learning opportunities at this year's Expo.

The learning opportunities are perhaps the easiest way to justify a trip to Indianapolis for the 2013 Expo. The show kicks off with Education Day on Feb. 25, a full day dedicated to sharing knowledge and growing within the industry. Educational seminars are also slated for Tuesday and Wednesday, and Roundtable Discussions will be held Thursday morning. In fact, this year's Expo features one of the most expansive lineups of educational opportunities

in the event's 33-year history. And on top of it all, Expo education courses count toward continuing education credits in many states. Check out the Expo website (www.pumpershow.com) for specific information on your state.

When class lets out, the massive display of tools, trucks and technology will take center stage. You can do all the research when you're looking to buy a new truck or jetting equipment, but until you get a chance to kick the tires on that truck or see the manufacturers' new lines of nozzles, it's difficult to really get a handle on it. The Expo gives you that opportunity.

If you're going to be in Indy, track me down on the show floor or anywhere else you see me and introduce yourself. Cleaner is all about the people who are driving this industry forward, and I'd love to hear your story.

I attended the Expo for the first time in 2012 and I'm looking forward to returning in 2013. The chance to meet more of the people who are pushing the industry forward is a great opportunity. Building relationships with operators, contractors and manufacturers helps make this magazine a better resource for our readers, just as building those relationships yourselves makes your businesses better.

If you're going to be in Indy, track me down on the show floor or anywhere else you see me and introduce yourself. Cleaner is all about the people who are driving this industry forward, and I'd love to hear your story.

For those of you who haven't yet made plans to attend the Expo, jump on the website and check out everything it can offer you and your business. It's easy to plan the trip right down to your hourly day-by-day itinerary, and you'll walk away with a better perspective on your business and the industry as a whole.

If you're not already signed up, consider attending this year's Expo, and enjoy this month's issue of *Cleaner*.







Ready, Set, Jet



www.usjetting.com 1-800-538-8464 sales@usjetting.com 1-800-jetting



- 300 or 600 Water Storage Tanks
- 7-Position Swivel Hose Reel
- Jump-Jet Pulsation System
- Electric Shore Power Heater
- Gen 4 Wireless Remote Control
- Self-Contained Anti-Freeze System

- Power Pull-Out Hose Reel
- Horizontal or Vertical Tanks
- Secure Front Storage Area
- Insulated Trailer
- Laminated Walls & Ceiling
- Up to 800' Of Jetting Hose

Lessons LEARNED

AN EXPERIENCED PLUMBER AND BUSINESSMAN DRAWS ON IDEAS SHARED BY FELLOW FRANCHISEES TO GROW HIS BUSINESS BY PETE LITTERSKI

Rick Joy has had plenty of time to learn the plumbing business. The 57-year-old owner of Mr. Rooter of Southwest Florida bought his first business at the age of 21 and even then he was an experienced hand at cleaning and repairing drains.

Joy, who was 12 years old when he started helping his father on Saturday calls, was so young when his father started sending him out on his own that he couldn't even drive the service truck. "Just before I got my driver's license, my dad got me a driver to take me around to calls."



Joy's father was a Roto-Rooter franchisee in New Jersey, and when Rick was 21 he bought the Roto-Rooter franchise adjacent to his father's territory. Joy built his business over the course of a decade and was enjoying success when he and his wife decided to make a big move.

NEW TERRITORY

"In 1989, we came down to Florida on vacation and I just decided that I wanted to live here," Joy says. "The kids were young at the time so we thought that if we were going to make the move, it was the right time."

Mr. Rooter of Southwest Florida service technician John Gresham uses a Rycom model 8872 512 Hz locator wand to find an EasyCam3 camera head in Naples, Fla. (Photography by Marc Beaudin)

profile

MR. ROOTER OF SOUTHWEST FLORIDA

OWNER: Rick Joy FOUNDED: 1989

SERVICE AREA: Lee and Collier Countles,

Including Naples and Fort Myers, Fla.
WEBSITE: www.mr-rooter-plumbing.com

Joy has enjoyed life in Florida, but in recent years his decision to relocate to a booming region has presented him with a host of challenges during the recession and slow economic recovery.

"Construction was going so heavy that you had a lot of plumbers focused on new construction and they didn't focus much on their service-related business." But when the Florida real estate market crashed in 2008, Joy says, "A lot of the large plumbers had no choice but to lay off their plumbers. The people that got laid off and were established here, who had homes here, started their own smaller businesses focused on service. Plus the larger companies also started focusing on the service side."

With that kind of competition, Joy saw his annual sales slide from \$1.8 million before the downturn to \$1 million after. At the peak, Mr. Rooter of Southwest Florida had 13 trucks and 12 service technicians. By last summer, the company was down to five service technicians and three people in the office, including Rick and his wife, Angie Joy.

"We are rebuilding our customer base the same way I built this business back in 1989," Joy says. "When you offer one-hour emergency service, a one-year guarantee and fair pricing, your business will prosper. It's not rocket science; it's just good business."

Joy pitched in as needed during the downturn, but he gives service manager Dave Sundquist a lot of credit for keeping the franchise on an even keel. He says Sundquist, who has been with the company for 10 years, handles



"We are rebuilding our customer base the same way I built this business back in 1989. When you offer one-hour emergency service, a one-year guarantee and fair pricing, your business will prosper. It's not rocket science; it's just good business." Rick Joy

95 percent of the day-to-day operations and is working his way into an ownership role with the plumbing franchise.

EXTRA SUPPORT

Joy also cites the importance of lessons learned while networking with fellow Mr. Rooter franchisees and Mr. Rooter executives in building a strong business. Two of the key business tactics he learned while networking with fellow franchisees are focused on customer satisfaction.

"One of the most important lessons and probably the biggest impact was switching from time and material pricing for service calls to menu pricing," Joy says. "With flat-rate pricing, the business can probably design a little more profit into a job and the customer can feel more comfortable knowing what they are going to pay."

The straight menu pricing for routine service can lead to losses sometimes if complications arise, but Joy says that in the long run the revenues are better and customers are more comfortable with the process.

The second lesson that stuck with Joy is the value of a no exceptions warranty. "We give a one-year warranty on our work, and that includes sewer cleaning, even if a customer declines additional services that might be needed."

With the advent of sewer inspection cameras, Joy says his business, like

Mr. Rooter of Southwest Florida service manager Dave Sun-dquist, left, and owner Rick Joy stand by a Top Gun banner awarded for the company's top 10 market penetration.

many others, will visually inspect customers' drain lines after cleaning them. "If the pipe looks great and we did a great job, we'll show the customer. On the other hand, if they have a serious problem like root intrusion, we'll show them that as well and explain how that can lead to further problems."

Joy says his technicians will explain what should be done to repair and eliminate any problems found during the inspection, but it remains the option of the customer whether to pay for further work. He says the difference between Mr. Rooter of Southwest Florida and many other plumbing companies is that the customer will still get a one-year warranty on the drain cleaning and a technician will return and clean their drains for free if they become blocked again.

Many plumbers will not warranty work if a customer declines to repair serious problems, but Joy believes that by continuing to offer a warranty, his company is more likely to get the job when the customer decides to make the repairs.



Rick Joy demonstrates how the EasyCam3 inspection camera system is used.

"If you don't warranty the work, they are likely to call someone else to do the work when their lines are blocked again. But with our warranty, the second opinion doesn't necessarily have to be a second company. Most of the time, the second call to us will result in a decision to do the work we recommended and we get that job instead of a competitor."

"If you don't warranty the work, they are likely to call someone else to do the work when their lines are blocked again. But with our warranty, the second opinion doesn't necessarily have to be a second company. Most of the time, the second call to us will result in a decision to do the work we recommended and we get that job instead of a competitor."

Rick Joy

In addition to the warranty, Joy says some of the steps he has taken to keep his business profitable include:

- More competitive rates on his pricing menu
- · One-hour emergency response
- · Answering "our own phones, so you get someone from Mr. Rooter"
- · Advertising more than ever, if with less return

Although Joy's business started out with a focus on drain cleaning, he says diversification of services has helped the business weather shifts in the economy. While drain cleaning remains the largest category, "We do all types of plumbing repairs such as fixture repair and replacement, toilets, water heaters (tankless and standard) and anything else the customer needs, including water filtration," he says.

(continued)



Dave Sundquist demonstrates the EasyCam camera inspection system. BELOW: Employees of Mr. Rooter of Southwest Florida at the Naples location include, from left, owner Rick Joy, John Yates, John Gresham, Kayleigh Arena, Danny Bridgeman and Dave Sundquist.



WE JUST COULDN'T LEAVE RELIABILITY ALONE.



There's plenty to love in the new Guzzler Classic.

That's because it was designed with input from our customers. It's full of new and enhanced features that come in handy for easier operation, hassle-free maintenance and added safety. The thing we didn't mess with was the legendary performance — making the CL the same workhorse you can rely on, day after decade.

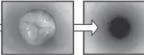
To get your hands on this upgraded Classic, visit GUZZLER.COM, or call us at 800.627.3171 ext. 298.





Mr. Rooter of Southwest Florida service technician John Yates inspects a newly installed EcoSmart electric tankless water heater at a North Naples residence.

If you want to increase your bottom line choose the Master Lateral system. Not only will it increase your profits it will lower the customers cost. So if you want a win-win situation for both parties choose Masterliner for all your lateral needs. There is no disaster when you use the Master!



Master-Lateral

Manufacturer of Pipeline Renewal Products

"Masterliner manufactures custom cured in place pipeliners for all lateral/mainline applications."

Benefits:

- Masterliner's signature PDQ resin cures without external heat source
- · On site training available
- · Little to no excavation
- · Fast and easy to install
- · Bulk pricing available
- · Perform as many as 7 repairs in a day
- · Improves flow characteristics
- · Virtually eliminates infiltration & exfiltration
- · Full range of pipe sizes
- · WE WILL NOT BE UNDER SOLD!!

*Masterliner's physicals exceed all applicable ASTM standards including ASTM F-1216

1-888-DIG-FREE (888-344-3733) Masterliner Incorporated • 42305 South Airport Road • Hammond, LA 70403

PH 985-386-3006 FX 985-386-0250

www.masterliner.com • jonathon@masterliner.com

"If you have a franchise system, the freedom of information that is shared is what's really valuable. It's really nice to be able to talk to one of these 285 or so fellow franchisees and get a straight answer. You have a bunch of guys who put a lot of money into a system and a lot of them find different ways to do business better." Rick Joy

STARTING OVER

Although Joy values his relationship with Mr. Rooter today, he wasn't necessarily planning to get back into the drain-cleaning business when he moved more than 20 years ago.

The idea was to take about three months off to consider his options and decide what new venture might be calling. Instead, the three months stretched into a year. During that time, Joy called Roto-Rooter representatives in Florida who had expressed an interest in working with him, but when he later called back, they said they were sorry but they didn't need him any longer.

By then, he says, he had reached the conclusion "that drain cleaning was what I was good at." So he started considering his options and eventually came across a young

company named Mr. Rooter and contacted them to inquire about a franchise.

"They flew me out to Waco, Texas, and I met with Dan Dwyer, the patriarch of the Dwyer Group who owned the company." Joy says he was the fourth or fifth person to buy a Mr. Rooter franchise and says the company was just as interested in what he could offer as he was about the support they offered to their franchisees. "In the beginning, there wasn't a lot to show for Mr. Rooter. It was a leap of faith to buy that franchise."

But Joy was impressed with Dwyer and the rest of the company officials. "He knew there was a need for someone with a lot of experience running a draining business."

The company offers training, but Joy says that what the company teaches when it sends its franchisees to training might be 50 percent of what they need to succeed. The rest, he says, comes from networking with other franchisees.

"If you have a franchise system, the freedom of information that is shared is what's really valuable. It's really nice to be able to talk to one of these 285 or so fellow franchisees and get a straight answer. You have a bunch of guys who put a lot of money into a system and a lot of them find different ways to do business better."

Those "different ways," he says, include flat-rate pricing and the iron-clad warranty policy, ideas that helped his franchise weather the financial storm that swept over Florida.

more info

Coast Manufacturing 800/541-7015 www.coastmanufacturing.com (See ad page 63)

EasyCAM

239/260-2056 www.easycamllc.com (See ad page 10)

Rycom Instruments, Inc. 800/851-7347 www.rycominstruments.com

The Plumber's Helper 941/587-5473 www.draincleanhelper.com

Allan J. Coleman - Since 1905

Call us today! 773-728-2400

5725 North Ravenswood Avenue • Chicago, IL 60660 • www.allanjcoleman.com

UPGRADE your camera system to the GVISION.

A Better System

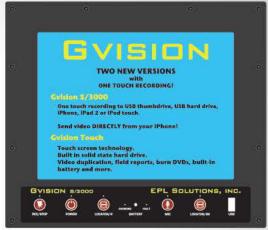


JetSonde Carriers - P-Trap Cable Sonde Carriers



Turn ANY push camera into a Jetter Camera with the JetCam Adapter.





GVISION
Visit www.eplsolutions.net for more details.

Repair Center for: RIDGID SeeSnake, Gen-Eye, Radiodetection, Electric Eel, Vision Technology, Insight Vision & Spartan Cameras Fast Turnaround Time



CALL FOR GENERAL SPECIALS

Special pricing on all General jetters, cameras and machines StoneAge® Warthog® Nozzles



WD-1 1/4" (8-36" lines)



WG-1" (8-36" lines)



WH-1/2 & 3/4" (6-18" lines) WT-3/8" WV-1/4" (3-6" lines) (2-4" lines)

WS-1/2"

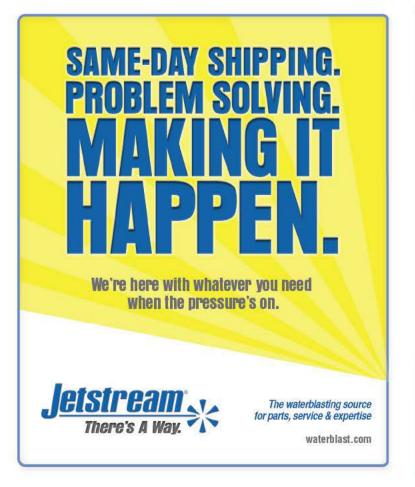
(4-8" lines)

OLDEST NAME IN THE BUSINESS — Over 100 YEARS OLD — PHOCE



BOOTH 1258











PNEUMATIC PIPE BURSTING



PIPE RAMMING/HDD ASSIST



ERAL PIPE BURSTING





HammerHead, a leader in unique answers for underground utility installation and replacement since 1989. Genuine HammerHead Trenchless equipment is available direct from HammerHead or at your local authorized dealer.

FIND YOUR LOCAL DEALER AT HAMMERHEADTRENCHLESS.COM OR CALL 800.331.6653.









Tech Perspective looks at technology-related issues and provides information and advice that cleaning professionals can apply to equipment selection and to their daily work in the field. Industry members are welcome to offer ideas for this column. Please direct them to editor Luke Laggis, editor@cleaner.com.

Tier 4 Without Tears

BY 2015 ALL NEW OFF-ROAD DIESEL EQUIPMENT WILL BE TIER 4 COMPLIANT, REQUIRING ADDITIONAL MAINTENANCE CONSIDERATIONS

BY PETER KENTER

inal Tier 4 (FT4) diesel engines standards have already been implemented for newly manufactured on-road vehicles with the 2010 EPA emission regulations, but the switch has just begun for off-road vehicles. Off-road diesel owners need to understand the specific maintenance needs of these engines, and where state or local end-user regulations may require them to use Tier 4 equipment.

Manufacturers must meet the EPA's FT4 requirements according to engine horsepower range. Standards for off-road vehicles with engines of 25 to 74 hp will be implemented in January 2013, and 75 to 749 hp beginning January 2014 and concluding in January 2015. Canadian regulations are designed to mirror those of the EPA, but at slightly later implementation dates.

However, John Deere Construction and Forestry Division Engine/Drivetrain product marketing manager Joe Mastanduno notes that while the EPA regulations for manufacturers don't apply to owners and operators, they still need to be aware of federal, state and local regulations that apply to end-users.

"The EPA has identified areas of non-attainment for ground level ozone and particulates," he says. "Counties and municipalities that are in non-attainment areas are enforcing their own regulations that cover diesel equipment in order to meet EPA standards. We're seeing individual counties and municipalities specifying what sort of diesel engines can be used in their jurisdictions, sometimes with a penalty for using older equipment that doesn't reflect what's available. Jurisdictions such as Chicago, New York City, Vancouver and Massachusetts are already advancing end-user regulations that mirror the availability of new equipment."

The EPA has also drafted Ozone National Ambient Air Quality Standards with tougher ozone requirements. While changes to the existing regulations are currently on hold, the EPA will begin reconsidering the ozone standard in 2013. Application of the standard could see more areas falling into the nonattainment category.

INTERIM TIER 4 ROLL-OUT COMPLETE

The final roll-out of current Interim Tier 4 (IT4) engines of all horsepower ranges was completed in January 2012, although existing dealer stock of older engine models continues to enter the market.

For those who are still anticipating IT4 equipment, the biggest changes involve the types of fluids required by the new engines. IT4 engines use only ultra-low sulfur diesel (ULSD). The oils used must be low-ash CJ-4 oils. All coolants and additives should be pre-approved to work with a specific engine.

Mastanduno notes that the EPA diesel rules are outcome based, so John Deere's approach to meeting regulatory requirements reflects its own







Standards for off-road vehicles with engines of 25 to 74 hp will be implemented in January 2013, and 75 to 749 hp beginning January 2014 and concluding in January 2015. Canadian regulations are designed to mirror those of the EPA, but at slightly later implementation dates. (Photos courtesy of John Deere)

technological choices. However, the approach taken by many other equipment suppliers represents the use of similar technology.

The heart of the changes to the IT4 engine is the exhaust filter which consists of a diesel oxidation catalyst (DOC) and a diesel particulate filter (DPF). The exhaust filter is designed to react with exhaust gases to reduce carbon (continued)



GORLITZ SEWER INC.

10132 Norwalk Blvd. • Santa Fe Springs, CA 90670

Tel: 562 944 3060 Fax: 562 944 7630

E-mail: Sales@Gorlitz.com

Drain Cleaning Machines



Water Jetting Machines



Trenchless Pipe Systems



Socket Fusion Kit For Water And Gas Lines From 3/4" to 2" Diameter

Complete set of adapters for 3/4", 1", 1-1/4", 1-1/2" and 2" Pipes and deburring tools for above pipe sizes Heater with temperature gauge, heater stand wrench, canvas storage bag (Bag not shown)



Deburing tool removes sharp edges at pipe end for ease assembly.

All deburring tools are made of heat treated aluminum and O.D. knurled for a better grip. The cutting blades are hardened and replaceable.



Adapters are made entirely of Aluminum, Teflon coated and mounted directly to heater plate

Heater plate is made of aluminum, provided with thermostat, temperature gauge, large wooden handle and pigtail

Heater stand is provided with rubber feet and can be mounted onto larger plate for added stability

Pistol Grip, Hand Held Electric Drain Cleaner From 1-1/4"-2" Diameter Pipes

MODEL GO 31 DRAIN CLEANER FEATURES are 120 volt, 1.6 amp, trigger action reversible motor, double insulated U/L approved, electric motor, 0-800 RPM adjustable built-in trigger with speed control dial, steel keyless chuck with heat treated jaws, heat treated chuck spindle, totally enclosed polished aluminum drum, watertight neoprene rubber sleeve, right hand cables included: 1/4" x 35' with bulb and 5/16" x 35' plain

Gorlitz All-steel Chuck Fits Other Manufacturers Hand Held Drain Cleaners



Your One Stop
would not be complete
without offering you Peterson
Pressure Bags, General Augers,
Piranha Hoses & Fittings, RIDGID
Detectors and Cameras,
Channel Lock Hand Tools,
Kirkhill Plungers

Our inventory includes Pipe Bursting Equipment, Fusion Systems, Sink and Drain Cleaning Machines, High Pressure Water Jetters, Auger and Sewer Cables, Connectors, Knives and Blades, Leaders, Retrievers, Rooter Tools and Accessories related to the Drain Cleaning Industry.

www.Gorlitz.com

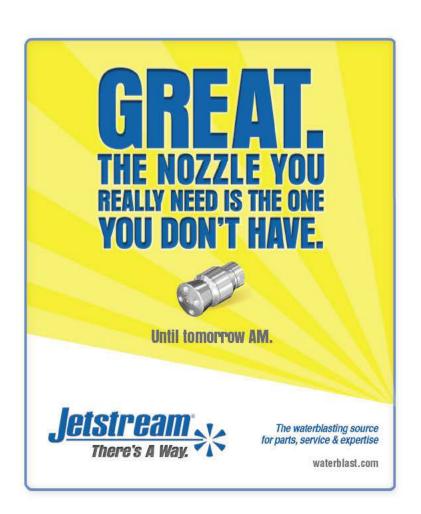






Engineering, Dedication, Quality and Service All In One Stop!







TIER 4 DIESEL—THE RETROFIT ROUTE

In areas where end-user regulations have pushed operators to adopt Interim Tier 4 (IT4) and Final Tier 4 (FT4) technology. some operators have opted to take the retrofit route, rather then buying OEM machines.

"It was possible to add a diesel particulate filter (DPF) on existing Tier 2 and Tier 3 machines, but in California we were getting anecdotal information of diesel filters being slapped onto the top of the hood and affecting operator visibility," says Joe Mastanduno with the John Deere Construction and Forestry Division. "Operator safety was one of the reasons that California slowed down end-user requirements in that state and gave operators a four-year break on adopting the new technology."

However, reducing particulate matter with retrofit DPFs has proven difficult. With retrofit DPFs, for example, the DPF computer often fails to communicate with the engine computer.

"We've been in development with a supplier to provide retrofit DPF support in the form of a complete Tier 4 retrofit package and even with considerable research and development, it's proved to be very challenging," says Mastanduno. "While the technology of the components is well understood, you need to be able to guarantee that they are all seamlessly integrated and work as a complete system. Attempting that at the shop level and achieving local end-user regulations would present a huge challenge."

monoxide, hydrocarbons and some particulate matter. While the DOC requires no user maintenance, the DPF must be replaced at minimum intervals defined by the EPA.

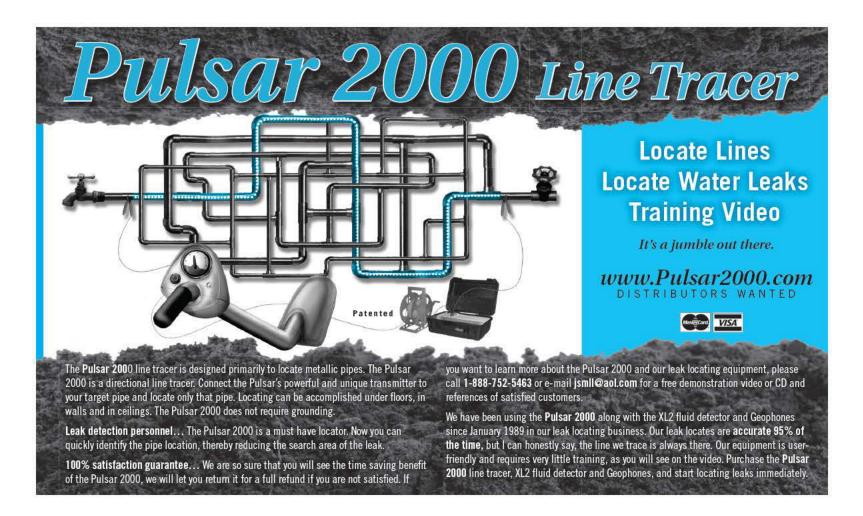
"The DPF cycles through a self-activating cleaning process called passive regeneration that uses exhaust heat produced during normal operating conditions," says Mastanduno. "In redesigning the engines, we focused a lot on the tolerance of the parts such as the clearance on piston rings and we were able to reduce oil burning to about one-tenth of what it used to be. However, because of ash created by burning lube oil in the diesel, it still requires the minimum service interval set by the EPA."

SERVICING DIESEL PARTICULATE FILTERS

The ceramic filter must be changed at a minimum interval of 4,500 hours for engines at or above 175 hp and a minimum interval of 3,000 hours for engines rated below 175 hp. Delaying that suggested maintenance schedule indefinitely will eventually cause the engine to shut off. Operators will have plenty of warning, however. One unique aspect of John Deere technology is the use of condition-based monitoring that alerts the user to when the DPF needs to be exchanged.

"A filter restriction bar on the control panel will show you that the exhaust filter is approaching the end of its service life," says Mastanduno. "A bar will turn to green, yellow and eventually to red as the filter goes into a high restriction state that gradually powers down the engine. These warnings aren't only visible to the operator - they can be sent remotely to desktop computers, forwarded by email or sent to a smartphone."

That same wireless link can be used to upgrade engine firmware or run diagnostic checks using a connection established between dealer and operator on specially-equipped John Deere models.



Mastanduno notes that dealer servicing is the best course of action for the ceramic filters. There are no generic filters or filters that are interchangeable between the various manufacturers of construction equipment.

"We also saw the emergence of mobile filter cleaning services, particularly in California, that promised to clean them out on the spot," he says. "They would install the cleaning equipment in vans and then drive to the site for service, but reports suggest that the filters were able to operate effectively for perhaps 250 to 500 hours instead of the 1,000 hours that was typically promised."

When dealer-serviced, the filter can be exchanged and the operator is given a core charge for the filter core, which can be cleaned through an exacting process involving pressurized air and high temperature baking. The filter must be handled carefully if removed by the operator - dropping it on the floor even from a low height will cause it to crack like a ceramic vase, rendering it irreparable.

REDUCING NITROUS OXIDE

The newest FT4 compliant engines, however, need to deal with the results of all of the changes to the engines made in IT4.

"A traditional diesel engine can't reduce carbon monoxide, hydrocarbons and particulates to the levels required by the EPA without creating nitrous oxide (NOx)," says Mastanduno. "They have different properties and as one decreases, the other increases. A more complete burn of the diesel creates more NOx in the exhaust, while a cooler burn creates less NOx, but more particulate matter. FT4 is designed to deal with the NOx created in the previous round of changes as a separate stream."

The reduction in NOx is achieved through selective catalytic reduction (SCR), a process that uses a surface coated with precious metals to convert NOx to nitrogen and water.

"It's a catalytic process, so there isn't anything replaceable inside the unit," says Mastanduno. "However, the process requires the use of diesel exhaust fluid (DEF) in a separate tank. The fluid is injected into the exhaust stream to help reduce NOx, converting it again to nitrogen and water. Although we've seen DEF offered more and more widely, we recommend that the tank be topped up at the same time as the diesel tank is filled. You don't want to be working out in the middle of nowhere and run out of DEF."

Operators of IT4 and FT4 equipment should see little change in day-today operations, other than the addition of new dashboard engine monitors. However, Mastanduno says that maintenance shop staff will find engine components more tightly packed inside the engine compartment.

"As you oversize some components to create cleaner exhaust, and add other catalytic components, you eventually run out of room," he says. "To get the heads off most of the engines will now require you to remove the DPF prior to starting work."

Mastanduno notes John Deere continues to offer compact excavators that are not subject to IT4 or FT4 requirements. "If you can bring the machines down below the horsepower breakpoints, they are subject to different emission regulations," he says. "By using different machine integration techniques, we've been able to take some excavators that serve this market down below the power band breakpoint and have avoided the requirement to add DPFs to these machines." c



40 FEET DEEP AND CLEAR AS A BEL

The Prototek FV-40. 512 Hz locating power as deep as 40 feet in cast iron when you need it.

"Today was a tough test. An old client was down—sewer line clogged. We cleared it after 3 hours of tough cabling and when we pulled back the rubber gasket for the 6-inch pipe, we knew they were in for it. The locating wasn't working normally because the entire area was peppered with 440 underground power so I swung by with the 'big boy' (that's what we call your FV-40). When the other sondes were bouncing all over, this signal was clear as a bell. Found the pipe 12 to 14 feet. deep under power, sidewalk and street; it's gonna be a GREAT repair job!

Thanks to everyone for your great work and products!"

Bruce Davis Sr., President Day & Nite Plumbing & Heating, Inc. Lynwood, WA





Email: prototeksales@prototek.net

Prototek

800-541-9123















Learn and Grow at the Expo

EXPO EDUCATION SEMINARS OFFER CUTTING EDGE INFORMATION ON THE TOOLS, TECHNIQUES AND BEST PRACTICES TO BUILD YOUR CLEANING BUSINESS

BY LUKE LAGGIS

ducation is the foundation for all progress, and there's nowhere to build a better foundation than at the 2013 Pumper & Cleaner Environmental Expo. This year's Expo features one of the most expansive lineups of educational opportunities in the event's 33-year history.

First off is Expo Education Day, Monday, Feb. 25, which has grown greatly in scope and attendance over the years. Tracks of seminars are sponsored by a variety of professional organizations, including the National Association of Sewer Service Companies, WaterJet Technology Association and the Southern Section Collection Systems Committee. The full day of seminars includes many opportunities for sewer- and drain-cleaning professionals to earn continuing education credits toward state certification.

The following days will feature a variety of additional seminars covering a wide range of topics, from professional techniques in the field to business-building tips.

All of the education seminars, including a lineup of sessions presented in Spanish, will be held at the Indiana Convention Center in meeting rooms adjacent to the Pumper & Cleaner Expo exhibit halls. For more information on seminar times, locations and speakers, visit www.pumpershow.com.

Education Day seminars of interest to cleaners include the following:

EDUCATION DAY, MONDAY, FEB. 25:

WaterJet Technology Association

"Safety & Efficiency – You Don't Have to Choose!" by Gary Toothe, training manager for FS Solutions: Learn about safe and efficient use of vacuum to keep your business productive and competitive.

"Selecting the Best Jetting Tip Doesn't Have to Be Scary," by Gary Toothe: Learn the factors in selecting the proper jetting tip for sewer, pipe, tube and surface cleaning.

"Hydroexcavation – The Non-Destructive Solution," by Benjamin Schmitt, product manager for Vactor Manufacturing: Learn the distinctions between hydroexcavation and pneumatic excavation, and a review of who is using the technology and applications.

"Understanding the Power: Physics of Vacuum and How it Works," by Phil Stein: Explore how vacuum is used to remove various liquids and solids, as well as the science and calculations related to everyday job situations.



"Safe and Proper Operation of Combination Machines," by Chris Cira, president of M Tech: Learn safe and proper use, care and maintenance of combination machines, including key aspects of the NASSCO guidelines.

Southern Section Collection Systems Committee

"Seven Powerful Tools for CCTV Inspection Perfection," by Mark Hill, senior project manager, RFB Consulting: Take a "big picture" look at CCTV inspection and learn to avoid common mistakes that frustrate management.

"Nozzle Science – The Next Generation of Tier 3 Nozzles and Beyond," by Rick Lewis: Learn about specific nozzles and their design, as well as their precise uses and alternative applications.

"Pipeline Relining and Rehabilitation Solutions," by Dave Badgley: Discuss infiltration, exfiltration, roots, corrosion and structural defects in collection systems along with the four basic styles of technology used for mainline replacement and rehabilitation of pipelines and lateral connections.

National Association of Sewer Service Companies

"Ultraviolet Manhole Rehabilitation," by Bob O'Connor and Tim Back, president and engineer with Municipal and Contractors Sealing Products: Review ultraviolet curable resins for use in manhole rehabilitation, including joint and invert repair, corrosion protection and as a water sealer.

"Convey Your Stormwater and Plug Your Holes," by C. Timothy Fallara, City of Columbus project manager, and John P Schroeder, civil and environmental engineer: This session will discuss achieving significant inflow and infiltration reduction to restore system capacity, as well as reducing SSOs/CSOs, and related topics.

"Jet Up! Sewer and Storm Water Cleaning," by Scott Paquet, president and CEO of NozzTeq Inc.: Learn proper jetting techniques, hose line loss charts, pipe and hose sizes, jet size, and how to test truck equipment.

"Rethinking Collection Maintenance With the Sewer Line Rapid Assessment Tool or SL-RAT," by Alex Churchill, CEO of InfoSense: Get to know the SL-RAT (sewer line rapid assessment tool) and how it fills the gap between visual inspection and robotic cameras by identifying potential pipe blockages over large portions of wastewater collection systems.

"Pipeline Assessment Certification Program (PACP) 2013 Update Workshop," by Ted DeBoda, executive director of NASSCO: Get a look at proposed updates to the PACP, MACP and LACP manuals. Attendees are invited to make suggestions to improve the next version of the program.

Dozens more seminars will be held throughout Tuesday and Wednesday, covering everything from trenchless point repairs to utility line locating. There's a lot of knowledge to be gained, and your business will benefit. ©

BETTER BUSINESS

A popular education feature at the Expo is the business seminar program. This year's highlight is the all-day seminar, "2013 – Your Best Year Ever," given by business coach Scott Hunter on Education Day, Monday, Feb. 25. In previous Expo appearances, Hunter has drawn full rooms with his easygoing yet inspiring style. Other general business seminars:

EDUCATION DAY, MONDAY, FEB. 25

"The Art and Science of Business Management," by Bill Raymond of Frank & Lindy Plumbing, Heating & Cooling: Learn how to rid your business of "money thieves" and meet revenue and profit projections.

"The Business of Contracting," by Dan Friesen of the Nexstar Network: Discover the success secrets of Frank Blau Jr. for building a healthy, strong, profitable company.

"Pass or Fail – Is Your Company Going to Make It? How to Ensure Financial Success in These Competitive Times," by Jim Aanderud, president of Innerline Engineering: Discuss methods for avoiding financial crisis and ways to consistently earn a profit, as well as accounting basics, correctly pricing each job and practical ways to cut costs, raise productivity and increase profitability.

TUESDAY, FEB. 26

"New Untapped Techniques to Capture Today's Customers," by Jerard Nighorn of Lenzyme: Learn seven steps to capturing and keeping customers and getting customers to market for you at no cost.

"10 Steps to Marketing Success," by Suzan Chin of Creative Raven: Discuss branding, promotion, publicity, advertising, social marketing, electronic communication and more.

"Cloud Computing for Small Business and the Field Service Industry," by Oren Shatken of FoundOPS: Explore how cloud computing can improve your productivity.

"Don't Win the Price Game," by Frank Taciak of C.A. Taciak & Sons: Discover how to get out of the low-price trap, charge for the real value of your services, and operate more profitably.

"Make the Phone Ring With Low-Cost Marketing," by David Heimer of Service Roundtable: Discover proven techniques to attract customers and recruit top employees without print, TV or radio advertising.

"Local Marketing on the World Wide Web," by Jim King of COLE, Inc.: Discover how to market effectively on the Internet through searches, social media or email.

WEDNESDAY, FEB. 27

"Save Money – Move Your Business to the Cloud," by Joel Smith of Clear Computing: Learn the types of cloud computing, how they affect your business, and the pros and cons of using this resource.

"Morally Bankrupt," by Dina Dwyer-Owens of Mr. Rooter/The Dwyer Group: Learn how to Live R.I.C.H. by embracing Respect, Integrity and Customer focus, and Have fun in the process.

"Measuring Success Matters: Your Ads, Your Agents, Your Technicians," by Ara Mahdessian and Vahe Kuzoyan of Service Titans: Spend an hour learning how to focus on generating more leads, booking more appointments, and closing more sales, and why measuring success is the key to all three.



TUBING



FITTINGS

in ALUMINUM, STEEL, GALVANIZED, BLACK STEEL or EPOXY COATED



Kroy Manufacturing Plants

Corporate Headquarters Kroy Industries, Inc.

522 West 26th St. P.O. Box 309 York, NE 68467 Fax: 402-362-6566 Ph: 402-362-6651 or 888-477-5769

Kroy - Ulyses 626 S. County Rd. H P.O. Box 526 Ulysses, KS 67880

701 S. 17th St. P.O. Box 516 Henderson, NE 6837





Wet-Out Tables • Air Inverters • Static Resin Mixers • 53' Reefer - Hydraulic CIPP Liner Unloader Trailers •

Phone: 815 - 712 - 8708 Fax: 815 - 220 -1920

E-Mail: sales@cipp-services.com



FAST-PIPE-LINING

Resin Saturated
Cured-In-Place Pipe Liners

PH: 815-715-8708 E-Mail: sales@fastpipelining.com

www.CIPP-SERVICES.COM

www.FASTPIPELINING.COM



GET THE BEST RESULTS

IMPROVE THE OPERATIONAL, ENVIRONMENTAL, AND FINANCIAL PERFORMANCE OF YOUR WASTEWATER SYSTEM TODAY



The CUES Digital Universal Camera (DUC) is a semi-autonomous, high resolution, digital CCTV, side-scanning camera designed for rapid and detailed condition assessment of your wastewater system. When used in conjunction with CUES asset-based Granite XP decision support software, you can inspect and assess 5000 feet or more per day, increasing your revenue, while reducing your expenses. The system can be retrofitted to any industry standard multi-conductor truck or trailer-mounted system.

- The CUES Digital Universal Camera system produces a continuous scan of internal pipe conditions in 6"- 60" pipe.
- The Digital Universal Camera operates at a constant speed in 6"- 60" pipe without the need to stop or pan and tilt.
- Simply drive the unit on cruise control to the remote manhole or through multiple manholes for maximum efficiency.
- Rapid condition assessment via flat representation of the pipe; move the mouse to the area of interest, simply click, and the corresponding video appears; review and assign observations 5-10 times faster than traditional sequential video review.



THE DUC WILL OUTPERFORM ANY AUTONOMOUS ROBOTIC SYSTEM. **CALL YOUR CUES REPRESENTATIVE TODAY!**



800.327.7791

salesinfo@cuesinc.com

www.cuesinc.com

Booth 5016







Puma Hi-Torque Hydraulic Root Cutter kit includes the Hi-Torque low speed motor with 235 ft/lbs. of torque. This Kit includes 4 EZ-Skids, 4 Concave or Flat Root Saws in 6", 8",10" and 12". Includes Tool Box, Saw hub, Motor Turning Tool, Allen wrench and instructions.

Puma Intelligent Hydraulic Root Cutter kit includes the Our Round Body low speed motor. Kit includes 4 EZ-Skids 4 Concave or Flat Root Saws in 6", 8", 10" and 12". Includes Tool Box, Saw hub, Turning Tool, Allen wrench and instructions.

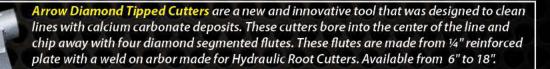
AND AND SEE AND AND AND



The "Deep-Vac" Manhole Tube Holder is a "Patent Pending" design that solves a constant and at times, dangerous situation. For manholes, catch basing and Wet wells. Clamp the Deep-Vac around your tube in any location. The tube is then lowered into the manhole and supported by the Deep-Vac's 4 steel extension arms. Keep adding tubes and unclamp the "Deep-Vac" holder and move up and over the next flange connection.



Puma Roller Grabber. Grabs your hose and Nozzle, lowers them into sewer line or drop manholes and guides hose around a nice Nylon Roller. Bottom hooks are hardened. Connects to our fiberglass pole sets.



Southland tools also carries a large inventory of other items including:

• SEWER RODS • DEBRIS BASKETS • GRABBERS • HANDY CLAMS • CORKSCREWS • AUGERS •

• NOZZLE EXTENSIONS • HYDRO CUTTERS • SPOONS • DEEP-VAC HOLDERS & more!

STEPPIN' UP

Mullin signed a non-compete agreement with the sale of Mullin Plumbing. So at the outset of the new business, he not only had to school himself, but secure new clients.

"I had to understand the unique nature of how Hi-Tech would develop as a specialty within the industry," he says. "And I needed to hire a helper and a journeyman. Within one year I had three employees."

"When I was able to put all my focus on Hi-Tech Plumbing and Leak Detect, the biggest thing I found is that leak detection and repair is a totally different business. In plumbing, you have your new construction specialist, and then repair specialist, and then drain cleaning specialist. And within each you learn to be better and faster."

Jamey Mullin

Mullin wanted to learn all he could about leak detection so he could be both dependable and accurate. He was fortunate to learn of a California company that specialized in leak detection, but offered no other services.

"I connected with this owner, and he agreed to let me come to his area and ride around with him for a couple weeks. He did charge me by the day for this," recalls Mullin. "This was my first order of business, and I was blown away at the equipment and the technique that I saw in just two hours. I have family members in the plumbing industry, and nobody had stepped up to master leak detection. I learned the shortcuts. This gave me the missing ingredient to start Hi-Tech."

Mullin has respected the request of the contractor not to mention his company name, but he says the experience helped him look outside the box in evaluating equipment and technique.

(continued)

(continuea



ABOVE: Vice president Matt Amick, left, and Nu Flow specialist Mark Wheaton fill a Nu-Flow system bladder with epoxy before repairing a sewer main in Edmond, Okla. BELOW: Wheaton rolls out a Nu Flow system bladder filled with epoxy before repairing a line at an apartment complex in Edmond, Okla.

PATH TO GROWTH

Jamey Mullin has positioned his company for expansion, operating on four lots (one acre) with a converted 2,500-square-foot home and a 1,500-square-foot building that serves as a ware-house. Mullin has purchased several adjoining properties that currently serve as rentals but are available for future growth.

Mullin attributes much of his business success to his ability to recruit the right people to the staff at Hi-Tech Plumbing & Leak Detect, Inc.

"I believe that I am blessed in that I have discernment with people, and that is as much a part as being a good plumber, marketer and manager," says Mullin. "It all starts with the right people. I want someone who is honest, energetic and has a great attitude. This is part of the building block of a company. I believe I have the best people in the state – in the nation. I'd put them up against anyone. I hire people – technicians and office personnel – who are trained for our system and who believe in our company.

"We want our people to specialize in specific disciplines, but to be knowledgeable about every system," he says, adding that it's typical to interview 20 candidates before finding the right individual.

Prior to an interview, Mullin even has his secretary, Charlotte Meyer, evaluate candidates on a few key points such as courtesy, grooming, and cigarette or body odor. "This person will be representing us in the home or business of a customer. I make my own judgment based on the time I spend with the applicant, and we find great people."

Mullin says the most rewarding aspect of his job is when he hears feedback from people in the community who comment about a job well done or the courtesy of one of his employees.

"We want the customer to be happy," he says. "We like to hear how we are doing as a company. I love it when they say 'Your price was fair. You did a good job.'"



Conquer.



Become the conqueror of cross-bore locating. Get down the line inspecting 30, 40 ... 50 plus laterals a day experiencing unparalleled productivity with the Aries LETS (Lateral Evaluation Television System).

Engineered to inspect a mainline up to 48-inch diameter and a lateral of more than 150-feet, the Aries LETS has features robust enough to enable you to easily conquer the opportunities in front of you. Add the self-cleaning PE3600 Pan/Tilt camera and you have the most complete system available today for navigating and inspecting the toughest lateral line conditions.

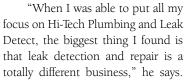
Begin your conquest. Unleash the relentless Aries LETS to discover dangerous cross-bore locations. For more information, contact your Aries dealer or sales representative today.







ABOVE: Mark Wheaton shows the epoxy liner and bladder of a Nu Flow replacement. RIGHT: Matt Amick prepares a drain line for rehabilitation using the Nu Flow system at an apartment complex in Edmond, Okla.



"In plumbing, you have your new construction specialist, and then repair specialist, and then drain cleaning specialist. And within each you learn to be better and faster."



"When we were looking for a customer base, we targeted everyone: residential, industrial, municipal," says Mullin.

He sought business with plumbing and insurance companies, he placed ads highlighting leak detection in the Yellow Pages, did radio spots, offered coupons, and embraced any other opportunity to grow the company as a slab leak specialist. Within a few years of opening, the company had grown substantially.

Leak detection and locating remains the primary focus, providing up to 60 percent of revenue, although Hi-Tech is now a full-service plumbing company. Relining, which was recently added, makes up 10 percent of revenue with the balance in service and repair.

Mullin says his former company provided 24-hour service for clients such as restaurants and apartment complexes. However, he did not gross as much with five trucks as he does today with two trucks doing leak detection.

Over the years, Mullin has amassed a variety of 30 instruments he uses to find leaks. Three dedicated leak detection service trucks carry three different cameras and a full complement of related locating tools.

"If you have just one package for leak detection, you don't have the strength to find everything," he says.

MARCH ON

Mullin says success requires learning the "tricks of the trade" and continually discovering and including new technology, equipment and procedures.

"This is where the Pumper and Cleaner [International Expo] has been invaluable," he says, adding that this is where he sees the new technology that is leading the way in leak detection.

"One of the things I work at is staying one step ahead of the competition," he says. "We don't consider that we have competition. We are the guys every-



body wants to chase. We set the industry standard. We have built our system, and it takes not only money, but an investment of time and in people to make it happen."

Most often they are inspecting 1/2- to 3/4-inch copper water distribution lines located under a slab floor. Drain lines typically are 3- to 4-inch cast iron. Hi-Tech also inspects residential and commercial lateral lines out to the city mainlines.

Mullin notes that he has three trucks, a 2010 Ford Transit Connect, a 2012 Ford F-150 pickup and a 2012 Ford F-250, that do nothing but leak detection all day long. Nine Ford Cargo vans are equipped for service and repair.

"On leak detection jobs we will be calling each other, communicating, even while on different sites. We are getting the jobs nobody else wants. We are the last stop. Everybody else has failed to find the leak."

Jamev Mullin

"There are three of us on the leak detection team: myself, Trenton Beliel and Matt Amick. On leak detection jobs we will be calling each other, communicating, even while on different sites. We are getting the jobs nobody else wants. We are the last stop. Everybody else has failed to find the leak."

Roots, even under a structure, are often the cause of leaks.

"The customer may have cut down a tree, but the roots are still there and will go toward the food source," says Mullin. "They will grow around the pipe, and as they get bigger, they will crush the pipe. Roots also get inside the pipe and have to be removed."

Another issue they deal with is damage to PEX tubing, sometimes used for water distribution lines, by rodents attracted to the cold water in summer and hot water in winter. Gophers and moles will scratch and claw at these lines.

(continued)



Make Your Next Repair Last By Repairing The Problem, Not Just The Symptoms.

Machines break, parts wear down. And it always happens at the worst possible time. Don't gamble on a guick fix that only patches the problem, it will end up costing you more money and opportunities in the long run. Our team of experts will repair or maintain your airmoving or waterblasting equipment (all makes-all models) quickly to keep you going strong for the long haul.

Visit www.fssolutionsgroup.com or call 1-800-822-8785 to find the FS Solutions Service Center nearest you.







SERVICE **PARTS** REBUILDS USED SALES **RENTALS TRAINING**



The Hi-Tech team includes, from left, Matt Amick, Jamey Mullin, Bobby Griffith, John Rhodes, Mark Wheaton, Jeff Allen, Brent Corey, John Gaskill, Trenton Beliel, Toni Warlitner, Charlotte Meyer, Susan Howard, Not pictured: Johnathan Waite, Jason Wells, Johnny McLain, Mathew Willison, Janelle Lough, Amanda Jordan-Mever.

Hi-Tech finds the problem and provides the customer with at least three potential solutions.

ARROWS IN HIS QUIVER

Hi-Tech's leak detection equipment includes a variety of leak detection/ locators from Goldak, Inc. and RIDGID, and thermal/moisture detection equipment from FLIR Systems, Fluke Corporation, Dri-Eaz and Tramex. Mini inspection units from Aqua Communications Inc. and RIDGID help locate troubled spots in small-diameter pipes. They also use a Hurco Technologies Power Smoker II for smoke testing.

The company outfitted a 2012 Ford E-350 box van with a Tommy Gate lift for their Nu Flow lining work, and they also have a pull-behind 6- by 14-foot trailer.

"If you have just one package for leak detection, you don't have the strength to find everything."

Jamey Mullin

Mullin says that when they need fast repair on any of their RIDGID equipment they rely on Central Oklahoma Winnelson Co., which is a great benefit as there is no shipping involved and they get a fast turn around.

As a plumbing contractor in Oklahoma (equivalent to a master plumber), Mullin has seen the competition in leak detection grow. He notes, however, that there is no license required and many operators do not have the plumbing background or capability to go in and do the repair. Hi-Tech is fully licensed and therefore can offer complete service, a benefit to their customers.

FORWARD THINKING

Hi-Tech added Nu Flow relining to its toolbox in 2009, and relining has taken off substantially in the three years since.

"This was a substantial investment for us, but this is what I see for the future," Mullin says.

When Mullin decided to add Nu Flow relining to his menu of services, he followed the same practice he used in schooling himself on leak detection. He found contractors in other states willing to let him and his key employee,

Matt Amick, who has been with him 10 years, ride along and learn the tricks of the trade.

"We rode with several out-of-state contractors using a variety of systems," says Mullin. "We decided Nu Flow would work for our area. We liked Nu Flow because it would allow us to rehabilitate lines inside the business or home."

When they had opportunities to ride along with other contractors, they were able to share their experiences as well. "So it was a mutual thing," he says.

He notes that after thoroughly cleaning and televising a line, locating the leak and establishing the condition, Hi-Tech can assess if relining is a viable option.

"At that point we might have a good candidate for Nu Flow," he says. "When we have 10 feet or more to deal with, we give the customer the options and the prices. Every solution is different, every customer is different, but we can always provide a way to avoid destroying the home in the process."

While Mullin does not want to give up all the "tricks in his tool bag," these networking experiences, along with his marketing and entrepreneurial spirit, have provided customers with not only solutions but options when facing sometimes daunting decisions about their home or business. c

more info

Aqua Communications. Inc. 781/642-7088 www.aquacomm.com

Dri-Eaz Products 800/932-3030 www.drieaz.com

FLIR Systems, Inc. 866/477-3687 www.flir.com

Fluke Corporation 425/347-6100 www.fluke.com

Goldak, Inc. 818/367-0149 www.goldak.com

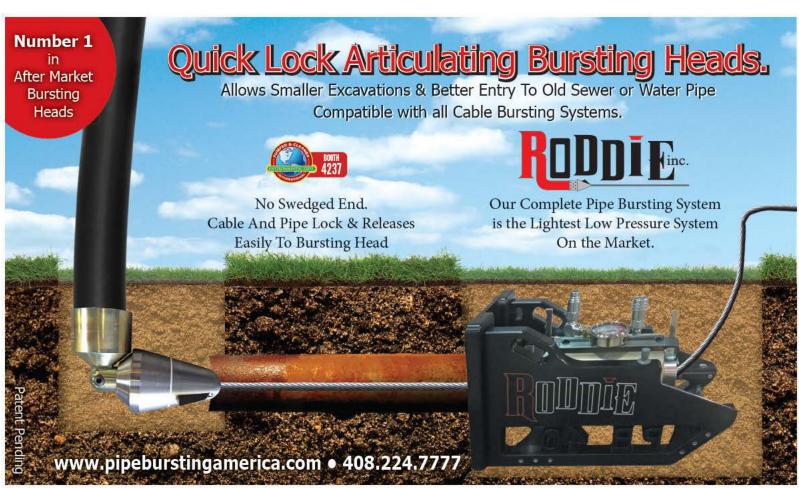
Hurco Technologies, Inc. 800/888-1436 www.aethurco.com

Nu Flow Technologies, Inc. 800/834-9597 www.nuflowtech.com (See ad page 37)

RIDGID 800/769-7743 www.ridgid.com (See ads pages 7, 25)

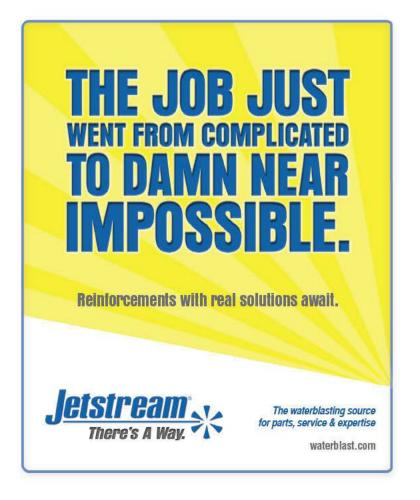
Tommy Gate Company 800/543-8428 www.tommygate.com

Tramex Ltd. 970/488-1898 www.tramexltd.com





Where life interacts with infrastructure





IDEAL FOR GREASE TRAP PUMPING

Constructed of LIGHTWEIGHT ALUMINUM

Extremely Quiet

Easy to Maneuver

Easy to Use

Easy to Maintain & BUILT TO LAST

Simply The BEST



We Look Forward To Seeing You At The Pumper & Cleaner Expo.

Visit Our Booth 5124

Westmoor Ltd.

Manufacturers of



Vacuum Technology

800-367-0972



www.duracable.com • sales@duracable.com • West Des Moines, IA 50265

we can help you get what you want and need.



www.westmoorltd.com



Over 95% of all repairs completed in 24 hours.



We keep you moving forward.

FREE Customer Repair Training 12 Service Centers Located Throughout The United States and Canada

> Over 20 Trained Service Professionals Ready to Help

10 Year Spare Parts GUARANTEE

> Fewer Breakdowns and Less Time in Repair

Millions of \$ of Spare Parts available Next Day!

Quality pipeline inspection equipment since 1957.

Mainline | Drainline | Lateral Launch | Laser Profilers | PANORAMO 360° Pipeline and Manhole

IBAK has been working for over 50 years to make your job safer and give you less headaches at the end of the day. Our pipeline inspection equipment is *not* the cheapest equipment you can buy, but we will guarantee you it is the highest quality, most reliable investment you can make. We have the industry's largest research and development team with over 15% of IBAK devoted entirely to new product development. Adherence to core principles of quality and technological innovation have driven IBAK to remain the industry leader since we invented sewer cameras in 1957. Call us or visit www.rapidview.com to find a dealer near you!



www.rapidview.com

Training to Avoid Injury

EXPANDING AVAILABILITY OF SAFETY TRAINING MATERIALS IS GOOD FOR WORKERS AND EMPLOYERS

BY LUKE LAGGIS

afety should be a top concern on any job site. Sadly, it sometimes slips down the priority list.

Bureau of Labor Statistics data shows that workers in the construction industry regularly incur among the highest rates of fatalities of any industry in the private sector. In 2010, nearly five out of every 1,000 plumbing contractors suffered a workplace injury. Numbers like this are constantly thrown around, so it can be easy to develop a casual attitude toward them, but they still underscore the importance of proper and ongoing safety training.

Safety training is critical in this industry. Workers need to know how to properly handle potentially dangerous situations and how to respond when those situations aren't being handled properly. But training is yet another timeconsuming endeavor. It's not up to employees if they receive training, but they often play a big role in how safety measures are carried out on job sites. And since training grows awareness, the more training workers get, the more likely they may be to point out and help correct safety issues on the job site, and that's good for everyone.

Luckily, training opportunities have expanded immensely in recent years, making it easier to get quality materials in convenient ways and to keep workers safe. The OSHA website offers DVDs and other training materials that make it easy for cleaning companies to provide high-quality training opportunities for employees. Topics include confined space entry, excavation and trenching, eye protection, bloodborne pathogens and much more. Each training package includes a 20-minute safety video on DVD and a CD-Rom containing a program outline, quiz, training log, site-specific information and a PowerPoint presentation manual in both English and Spanish. Packages cost \$125, but streamlined \$99.95 packages are also available.

Safety training is critical in this industry. Workers need to know how to properly handle potentially dangerous situations and how to respond when those situations aren't being handled properly.

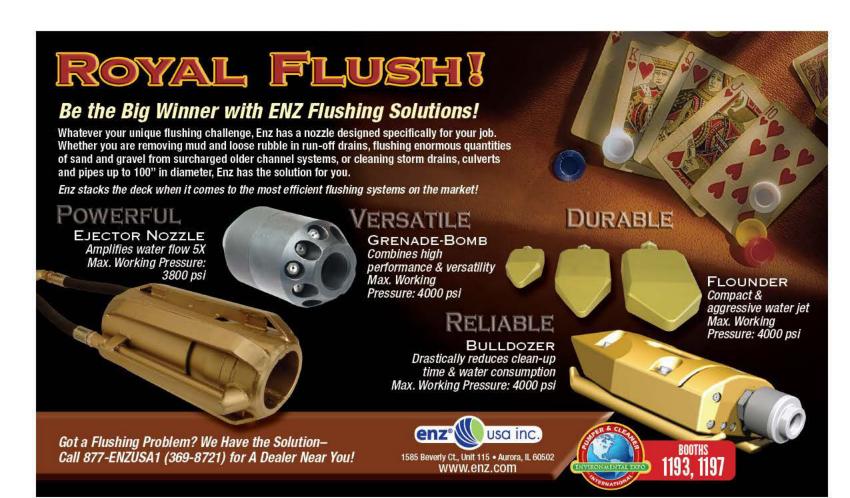
OSHA's HAZWOPER series of training programs for the handling of hazardous materials – including sewage – includes 23 separate packages targeted at specific topics such as decontamination, emergency response plans and respiratory protection. Each individual package costs \$195, which is paltry compared to the cost of any accident.

The WaterJet Technology Association and the Industrial & Municipal Cleaning Association (www.wjta.org) also offer a variety of training materials specifically targeted to the safe and proper operation of waterjet and vacuum equipment. And these aren't the only sources for safety training. Websites like compliancetrainingonline.com, 360training.com, tpctraining.com and grainger com all offer safety instruction and training options, and there are many other sites offering tips and news that can serve as springboards to tailgate talks about job site safety.

The takeaway is that safety training shouldn't be something employees spend a few hours on when they are hired. It should be constant and ongoing in order to create a culture of safety, and these outlets all provide inexpensive and convenient options to keep the topic of safety at the top of everyone's priority list. ©











- 1. Send a photo or video of yourself working like a champion to champion@dohenysupplies.com
- 2. We will send you your championship t-shirt
- 3. You will be featured in our champion highlight reel at the 2013 Pumper Show







Cover Your Assets

UNDERSTANDING WHAT YOU HAVE TO LOSE IS THE FIRST STEP IN DETERMINING HOW MUCH LIABILITY INSURANCE YOU NEED



Erik Gunn Is a magazine writer and editor In Racine, Wis., where he operates Great Lakes Editorial Services, consulting for businesses, non-profits and individuals. Readers may direct inquiries to him by contacting this publication at 800/257-7222 or emailing editor@cleaner.com.

BY ERIK GUNN

n Massachusetts a few months ago, a local court awarded \$21 million to the parents of a toddler who died after falling into the family's septic tank six years earlier.

The family blamed the child's 2006 death on a badly seated tank cover that flipped over when the 3-year-old boy stepped on it, flipping him into the tank, where he drowned. They sued eight contractors. Seven of them agreed to settle, for confidential amounts that made up a portion of the total \$21 million.

A home inspector who didn't take part in the settlement was saddled with the remaining portion, although that amount has not been made public.

It was a tragic death, more so because it could have been so easy to prevent. But it also raises a sobering question: Is your business adequately covered in the event of a major liability judgment against you?

"Dollar awards just keep getting bigger," says John Rothstein, a Milwaukee lawyer with the firm Quarles & Brady who has represented a wide range of businesses and organizations sued in civil court for product liability and other tort claims.

"Jury verdicts are going up," he says. "A million bucks today is not the same as a million bucks in 1970."

So how much liability coverage is really enough for your business? The shortest answer to that question is, "How much do you have to lose?"

GET PROFESSIONAL ADVICE

As with any financial matters concerning your business, one size never fits all. Before you make any decisions that directly affect your company's operation or bottom line, seek out experts who know your particular business: A trusted insurance agent and a good liability defense lawyer,

There are some general rules that will help guide you as you consider their advice.

"Insurance protects you and your assets," Rothstein says. "If you don't have any insurance and you get into trouble, it could cost you all your savings, your bank accounts, even your business and your home."

Rule No. 1: Don't "go bare."

On the other hand, rule No. 2 says the sky is not the limit. If your assets are worth, say, \$150,000, there's little point in paying for \$10 million worth of coverage in many cases. (There are exceptions, which we'll get to in a moment.)

Typically, you should be covered for something over the total value of your business and perhaps personal assets, Rothstein says. "If I've got \$500,000 in assets, I want more than \$500,000 in coverage. The more assets you have, the more insurance coverage you better have."

CALCULATING THE RISK

Rule No. 3 dictates that you think about the hard risks associated with your business. What sort of problems have led to suits against others in the same business you are in?

"You look at what type of losses are out there," Rothstein suggests.

For instance, if you install septic tanks, there's the real risk, however slight, that someone could fall in and die - in short, the risk of the loss of a human life. But if you're a service plumber and mess up while trying to clean out a clogged sewer, your biggest risk is more likely to be simply damage to the homeowner's property.

Of course, that's not necessarily cheap, either: Potential costs include redoing defective work, such as digging up and replacing a misplaced sewer line. Damage to the homeowner's property and additional costs for inconvenience may add to the bill.

So besides the value of the assets you're protecting, you need accurate calculations for a potential liability. A dramatic example: For a doctor doing delicate surgery, a misstep could incapacitate the patient - with a potential loss of tens of millions of dollars, perhaps much more than the doctor's business is worth. That doctor should get coverage for the higher number, though, Rothstein notes.

That's the sort of calculation requiring informed professional guidance tailored to your specific circumstances. But again, you want to give yourself an additional cushion above your anticipated likely loss.

The bottom line is this: If you haven't already done so, look closely at what your liability insurance actually covers, and get sound advice on what the appropriate coverage level should be.

THEN FOLLOW IT.

MANAGE THE RISK

Rule No. 4: Look at how you can manage your risk. What sort of safety practices does your business have in place to protect workers, customers and innocent third parties who might come across your finished work? Are there other measures you can institute at reasonable cost? The more you can show that you have taken all reasonable precautions, the less likely you are to be found negligent, even if something bad does happen through no fault of your own.

Again, that's a general principle, not formal legal advice. "Less likely" is no guarantee of immunity from a lawsuit. Always consult with a knowledgeable professional who knows your business and the laws of your state.

Last, but definitely not least, is rule No. 5: If your business isn't already incorporated, incorporate it. This is true whether your business is a oneperson shop or has many employees.

Once incorporated, make sure you respect the corporate boundaries. Don't use business assets for personal use, and don't use your business credit cards or accounts to directly pay for personal products or services that aren't for the business. To do otherwise risks encouraging a judge to "pierce the corporate veil" and make an award to a plaintiff from your personal assets.

Rothstein points out that sole proprietors should cover their personal assets in any case. "If you're a plumber driving your truck and you have an accident, your corporation owns the truck, but you're driving it, so you can be sued personally."

SUED? WHAT NEXT?

So what could actually happen if you do get sued?

Suppose your business is worth \$1 million and you've got insurance for \$1.5 million. Then your operation is sued, and a judge or a jury awards the plaintiff \$10 million.

Assuming that the case is legitimate and that you've lived up to your obligations with your insurer, the insurance company will pay the \$1.5 million for which you're covered.

So does that mean you still will owe the other \$8.5 million? And if so, what then?

Rothstein says that, in theory, you could be forced to sell your company for its \$1 million in value, even after the insurance payment. "Now you're down to the remaining \$7.5 million," he continues. "But you cannot get blood from a turnip." So in the end, the plaintiff would eat the balance of what is owed under this scenario.

That's of little comfort if you've just lost your business. But the scenario really doesn't have to play out that far.

Plaintiffs' lawyers "are very smart people," Rothstein observes. And they understand that a business owner is going to be far more willing to settle for what is already covered by insurance.

In many cases - again, assuming a legitimate case - a demand for an amount that is less than the insurance coverage will be at least grudgingly accepted, whereas a plaintiff who wants much more than the business is covered for "is just going to get a fight," he says. "If you have a million and a half dollars' worth of coverage, you can probably settle a lot more cases - even cases worth much more than that."

The bottom line is this: If you haven't already done so, look closely at what your liability insurance actually covers, and get sound advice on what the appropriate coverage level should be. Then follow it.

It's the best way to ensure you have the protection you need should the nightmare of a lawsuit come true. c





Why Dig?

Lateral Connections. Mainlines. Manholes.

Think: non-invasive, robotic surgery for pipeline systems.

Our revolutionary, completely no-dig trenchless pipe rehabilitation process is totally trenchless, unlike any other trenchless technology.

Our unique, state-of-the-art system provides significant cost-savings and minimal disruption for pipeline infrastructure repairs.

Prep · Measure · Reline Laterals Without A Cleanout!

A leader in no-dig pipeline rehabilitation.



www.liquiforce.com 1.800.265.0863



WÖHLER

Wohler VIS 340 Plus Series

The Revolution in Visual Inspection Technology



- 360° pan- and 180° tiltable camera eye
- Easily negotiates 90°-bends
- LED lighting illuminates the darkest environments
 - Digital distance measuring
 - Effortlessly inspect pipework, air ducts, vents, cracks, welding seams, gaskets, and much more!
 - New re-lining adapter kit makes for efficient pipe repair
 - 1" straight camera head and 1 1/2" pan-and-tilt camera head
 - Record inspections
 - · Prevent problems before they occur

Wohler USA Inc. • 978-750-9876







Pipeline Cleaning & Maintenance Equipment JETTERS & JET VACS

6101



Root Cutter **Assemblies**

Skid Mounted



w/flat blades. \$1105.00 w/concave blades \$1150.00 \$1150.00 w/spiral blades **Lateral Mounted**

w/flat blades \$1005.00 w/concave blades \$1065.00

Assemblies come with one ea. of 6, 8, 10 and 12" blades, saw blades, hub, skids, etc.



Saw Blades

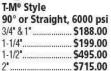
Flat - Concave - Spiral "Carbide Tipped Flat Blades"



"Diamond" Tap Cutters

6" to 18"	
DCD6 6"	\$1200.00
DCD8 8"	\$1500.00
DCD10 10"	\$1975.00
DCD12 12"	\$2500.00
DCD15 15"	
DCD18 18"Spe	cial Order







Hvcon® Valves

2 & 3-way Ball Valves

5000 psi		4500 psi	
1/2" 2-way	\$65.00	3/8" 3-way	\$115.00
3/4" 2-way	\$89.00	1/2" 3-way	\$160.00
1" 2-way	\$119.00	3/4" 3-way	\$180.00
1-1/4" 2-way	\$226.00	1* 3-way	\$190.00
200000000000000000000000000000000000000		1-1/4" 3-way	\$440.00

Piranha - Parker - Aeroauip

Jetter Hose - 1/8" - 1-1/4" **Call for Current Price**



Hose Mending/Swaging Machines

Piranha™ - Parker Predator™ - Aeroquip

Hydralic Jack Style or Mechanical Price includes 2 Sets/Dies & Pusher 1/2" - 3/4" - 1" - 1-1/4"

Hydraulic\$1260.00 Mechanical\$798.00



Full Line of Nozzles

From 1/8" to 1-1/2"





Power Clamps \$13.00

3"-6" available King Clamps

\$29.75 4"-6" available

Bandlock® Clamps \$24.00

3"-6" available

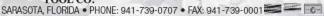
Quick Clamps \$26.50

Pipe/Sewer Plugs • Hose Reels • Aluminum Intake Tubes Kanaflex™/Rubber Debris Hose • Full Line Of Warthog Nozzles



Toll Pree: 800-365-6583 www.cloverleaftool.com

Full Catalog Online with Prices



www.wohlerusa.com

10000 50000 SPAN C TUBE 316SS SOCKET 60000 NO MATTER WHAT PRESSURE, THE STAKES ARE ALWAYS HIGH.



High-pressure water can't tell the difference between steel and skin.

So suit up with protective gear from TST at any pressure. It only takes a few minutes to prevent serious, even life-threatening injury. There's just no good excuse not to suit up — every time.

To learn more, contact FS Solutions or Jetstream of Houston, your authorized TST distributors.



Locations nationwide fssolutionsgroup.com



800-231-8192 waterblast.com

Call for Reinforcement

A UV-CURED LINING SYSTEM ENABLES A CONTRACTOR TO SUCCESSFULLY REHABILITATE A CULVERT WITHOUT CONTAMINATING SULFUR CREEK

BY SCOTTIE DAYTON

or years, infiltration washed substrate into a double-barrel 48-inch reinforced concrete culvert under Duval Road in Starke, Fla., causing sinkholes. The road feeds the main training areas of the Camp Blanding Joint Training Center.

The Florida Army National Guard feared damage to heavy military equipment and the trailers transporting it when the wheels dropped into the sinkholes. After every heavy rain, forestry workers filled them in and resurfaced the road. Finally admitting defeat, the guard called Engineered Lining Systems, a Jacksonville-based company with a specialty in cured-in-place pipe and structure restoration.

"When we investigated, every joint in the 125-foot-long pipes was gone," says project manager Danny Knight. "As a sinkhole formed, it caused the section of pipe under it to fall a little and offset further. Even small rains flushed sand and debris into the barrels until they were half full."

Because Sulfur Creek trickled through the culvert, Knight chose the SAER-TEX fiberglass-reinforced plastic lining system with two layers of foil sealing



Left to right: Technician Mikal Biegner, project manager Danny Knight, and Jody Wright insert the steel packer at the head of the liner. Pulling the orange line brings the Double Core 10-foot-long UV light train forward.



Technician Jody Wright signals technician Josh Knowles, operating the GapVax MC-1510 combination vacuum truck, to pull back on the jet hose. Wright uses a tiger tail to protect the hose from scraping against the concrete as he cleans the barrels with a C-Ray sewer nozzle from NozzTeq. (Photos courtesy of Engineered Lining Systems)

tough job

PROJECT: Rehabilitate culvert to protect heavy

military equipment and transport vehicles

from damage

CUSTOMER: Camp Blanding Joint Training Center, Starke, Fla.

CONTRACTOR: Engineered Lining Systems, Jacksonville, Fla.

EQUIPMENT: Lining system from SAERTEX

866/921-5186

www.saertex.com

RESULTS: Culvert rehabilitated, potholes eliminated,

road restored

the epoxies inside the tube and protecting the environment. The liners also provided structural support. Third-party test results showed that they have a flexural modulus of 1.7 million psi and flexural strength of 36,000 psi with less than 0.5 percent shrinkage factor.

The creek became a raging river when Tropical Storm Debbie dropped 27 inches of rain in three days, then it rained every afternoon. "The most challenging aspects were dealing with the water in the creek and material in the barrels," says Knight. "There was so much of both, more than we ever anticipated."



ABOVE: ELS workers assemble the Double Core 10-foot-long UV light train with eight 1,000watt UV bulbs, four forward and four aft between the sets of legs. RIGHT: Workers formed a nose on the SAERTEX fiberglass-reinforced plastic liner and added a pulling collar. The 2-mm-thick gliding foil beneath the liner protects it and facilitates its passage.



GETTING THERE

The culvert lay 25 feet below the road at the bottom of a steep wooded hill. The center's forestry division cleared trees and built roads to both sides of the culvert, but ELS crews cut more trees to enlarge the upstream work area. Using a Caterpillar 225 trackhoe and Bobcat skid-steer from Sunbelt Rentals, they dug upstream and downstream detention pits 20 feet in diameter and 15 feet deep in the middle of the creek. They used the spoil to fill in the creek to the culvert.

A Quiet Flow 6-inch diesel pump from Sunbelt Rentals dewatered the upstream pit. Workers ran the discharge hose through the inactive barrel to the downstream pit beyond the work zone. "Water running down a little ditch beside the upstream headwall wanted to enter the culvert, so we channeled it into a corrugated pipe discharging to the upstream pit," says Knight.

"The gaps between joints were so bad that every time Jody ran the jetter through a pipe, it pulled in more sand than he removed. We had to go low and slow, cleaning with 65 gpm/1,500 psi."

Danny Knight

Before the crew left in the evening, they shut off the pump and allowed water to flow through both barrels, then pumped it down the next morning. Dewatering also lowered the groundwater level, stopping infiltration that was substantial enough to fill the barrels halfway.

TRICKY AND DELICATE

Standing on the downstream headwall, jetter/inspection technician Jody Wright used a tiger tail to protect the jet hose from scraping against the concrete as he cleaned the barrels with a C-Ray sewer nozzle from NozzTeq. Technician Josh Knowles operated the GapVax MC 1510 combination vacuum truck parked



Why Buy a Hathorn Camera System?

>100% satisfaction rate

>No hassle warranty

>Durable stainless camera heads

>Kevlar braided push rod

>Quality components

>Multiple reels to choose from

>Micro camera heads available

>Self leveling available

>Pan and tilt camera available

>Fast and knowledgeable service

>Affordable pricing

CALL TODAY 905.886.2835 Find out for yourself, why informed plumbers and contractors are switching to the most dependable and reliable camera systems on the market today.

> "As a CIPP lining contractor, I have used most of the mini cameras on the market worldwide, with varying degrees of reliability and success. If my camera system is down, my whole operation is down. Hathorn cameras are not only easy to use and maintain, they are the most reliable cameras I have ever come across, Brilliant!"

Andy Sherwin (Dassyloi, Inc.)

"Our company has twenty five Hathorn camera systems that get used every day. As a contracting firm we have come to count on the reliability and performance of these systems to get the job done every

Ophir Wainer (Promark-Telecon)



www.Hathorncorp.com

Richmond Hill, Ontario, Canada L4B 1K6 info@hathorncorp.com

on Duval Road. Because Knowles was so far from the culvert, Wright signaled when to pull back on the hose or send it down the pipe. Technician Mikal Biegner assisted Wright when he couldn't see what was happening.

"The gaps between joints were so bad that every time Jody ran the jetter through a pipe, it pulled in more sand than he removed," says Knight. "We had to go low and slow, cleaning with 65 gpm/1,500 psi."

As the jetter dislodged material, the trackhoe operator scooped it out of the pipe and stockpiled it for the skid-steer operator, who transported it up the hill and packed it in washed out areas alongside the road.

Knight rejected the idea of pulling a pig through the barrels. "The joints were out of alignment in all four directions," he says. "If the pig caught on the 10 to 15 percent offsets, it would cause more damage." The team removed 30 cubic yards of sand and debris in three days.

Throughout the operation, two workers monitored the pump and dewatering operation. "Everything was muddy because of the rain," says Knight. "My truck became stuck repeatedly as I brought fuel for the pump, and the excavator had to pull me out."

LINING PROCEDURE

Overnight, infiltration washed a quarter of a cubic yard of sand into the barrels, which workers removed in the morning. Then the vacuum truck sucked up the puddles. "Water is a bad thing because we're using electricity and lights," says Knight.

The 12.5-mil liners, weighing 85 pounds per foot, arrived from the factory wetted out, slipped inside UV-protective gray foil sleeves, folded into light-proof crates, and shipped with a spool of 2 mm thick gliding foil. The trackhoe operator set the crates on concrete slabs left over from construction of the headwalls.

While some workers pulled the gliding foil into the pipe, others positioned the leading edges of the liner inward, inserted a pulling collar, and secured every-

thing with a ratchet strap. They tied a 1.25-inch double-braid polyester/nylon rope to the collar, enabling the trackhoe operator and foreman Joey Vance to pull in the liner from across the road.

At this point, Knight erected a tent over the light-sensitive liner "Sunlight hitting them will begin the curing process in seconds," he says. Workers cut the liner to length, inserted steel packers (cans) on either end, secured them with ratchet straps to seal the liner, then inflated it



The liners increase hydraulic flow and eliminate infiltration.

enough to insert the Double Core 10-foot-long UV light train.

CURING POWER

"The light train has eight 1,000-watt UV bulbs, four forward and four aft between the two sets of legs," says Knight. "It also has temperature sensors and a fixed camera on one end." Another camera attaches to the inside of the downstream packer.

Once workers pulled the train to the head of the liner, they replaced the can and inflated the liner. A computer controlled the speed of the train based on the liner's diameter and thickness. Curing took nine hours moving at less than 6 inches per minute.

Although the liners indented somewhat at the joints, the smooth interiors dramatically increased flows. Before leaving, the ELS crew filled in the detention pits, restored the creek, and graded areas roughed up by the equipment.



Allan J. Coleman - Since 1905

Call us today! 773-728-2400

5725 North Ravenswood Avenue • Chicago, IL 60660 • www.allanjcoleman.com

OLDEST NAME IN THE BUSINESS — Over 100 YEARS OLD —





Parts & Service

Having Trouble
Finding
RIDGID Parts?
We Have
RIDGID Parts!



NaviTrack® Scout®

Scout is designed to solve demanding remote transmitter (sonde) locates using multi-directional locating technology.



THE BEST SERVICE AND PRICES TOO LOW TO LIST!

Convert your old VCR monitor to a USB recorder!



Contact us on how we can do it?

CS10 Digital Recording Monitor

- USB Thumb Drive Recording
- 12.1" Daylight Readable Display
- Multi-Mode Recording
- Software Integrations

Authorized SeeSnake Repair Center



If you buy the best, you are only sorry once!

PHCC MEMBER

VIVAX

vCam Series Inspection Systems

ETROTECH

Onsite Training

Local Support

Camera Exchange Program

vCamModular-R Control Module



- · Record to 300GB HDD or SD card
- · Transfer video and snapshots to USB Devices
- · Internal Ni-MH rechargeable batteries
- · 8" recessed color TFT LCD
- · Full size alpha/numeric weather resistant keyboard
- · 5 types of reels all work with 1 control module





Type-C Reel (200ft)



vLocCam Camera Locator



- - 1.3" Self-Leveling

1.8" Self-Leveling



Type-P Reel (400ft)



- · 512Hz, 33kHz frequencies
- · Compass mode for easy locates
- · Pushbutton depth reading
- · Locates live power, CATV and telephone

Please call for an on-site **FREE demonstration!**

Vivax-Metrotech Corporation 3251 Olcott Street, Santa Clara, CA 95054, USA

Toll Free : +1-800-446-3392 Tel

Fax

Email

: +1-408-734-1400 : +1-408-734-1415

: sales@vxmt.com



1.3" Self-Leveling

1" Standard

www.vivax-metrotech.com





BULLET PROOF

Over 11,000 Customers Worldwide Agree!



Jetters That Stand the Test of Time

Experience the Harben difference _

QUALITY

VALUE

SERVICE

RELIABILITY

Call today to schedule a demonstration. 1-800-327-5387



High Pressure Water Technology

www.harben.com

Scan the code below with your







Military Honors

INDIANAPOLIS HAS THE DISTINCTION OF BEING SECOND TO WASHINGTON, D.C., IN BUILDING WAR MEMORIALS

BY SHARON VERBETEN

ndianapolis is more than just the storied Hoosiers and fabled Brickyard of the Indianapolis 500 race, especially when it comes to honoring U.S. veterans.

Washington, D.C., may be considered the cornerstone of veterans' memorials, but Indianapolis easily ranks second. The Indiana War Memorial Plaza Historic District located downtown contains two museums, three parks and 24 acres of monuments, statues, sculptures and fountains, ranking it second nationally in acreage and number of monuments dedicated to veterans. It is also home to the national and state headquarters of the American Legion.



The Indiana World War Memorial is comprised of Neoclassical architecture. The Shrine Room inside is stunning with red marble and materials from around the world to symbolize the global nature of World War I, 24 stained-glass windows and a 30-foot-tall American flag hanging over the Altar of Consecration. The museum in the lower level illustrates the state's participation in wars throughout history. (Photos courtesy of Visit Indy)

According to Brig. Gen. J. Stewart Goodwin (USAF retired), "There's no other place like this in the country. Indianapolis has more acreage in the nation devoted to veterans." Almost 200,000 visit the memorials each year.

"Indiana has provided, based on population, more service members (in all conflicts) than any other state. I've never seen another place where they treat veterans and honor them this well."

Brig. Gen. J. Stewart Goodwin

As executive director of the Indiana World War Memorial, Goodwin, a 37-year Air Force veteran, adds, "Indiana has provided, based on population, more service members (in all conflicts) than any other state. I've never seen another place where they treat veterans and honor them this well. The folks here are very down to earth ... and they're very patriotic."

The memorials, conveniently located within walking distance of the Indiana Convention Center, home of the Pumper & Cleaner Environmental Expo,

The Soldiers & Sailors Monument is located on Monument Circle in the center of downtown and has come to symbolize the city of Indianapolis and the state of Indiana. The Col. Eli Lilly Civil War Museum is housed in the lower level. The observation level is 330 steps up, or take the elevator to step 290.





include the Soldiers and Sailors Monument, the tallest memorial to Civil War veterans in the U.S.

The Indiana World War Memorial sits 210 feet above street level; this mausoleum-style limestone and marble memorial pays homage to Hoosiers killed during World Wars I and II, the Korean War and the Vietnam War. A military museum in the basement allows visitors to follow the history of Indiana soldiers from the Battle of Tippecanoe through the most recent conflicts.

"Once we get them in the building, we've got them. The structure and architecture is amazing," says Goodwin.

The Indiana World War Memorial Plaza is five blocks long and home to the American Legion National Headquarters. In the foreground is Depew Memorial Fountain in University Park. The Indiana War Memorial is seen in the background.

The mall itself also includes memorials for World War II and the Korean and Vietnam wars, as well as Veteran's Memorial Plaza. The USS Indianapolis Memorial recognizes those who died on the last U.S. ship to sink in World War II. Of the approximately 1,200 sailors on board, only 317 survived.

Goodwin notes that one of every 10 people has served in the military. "We try to educate the 90 percent about what the 10 percent did," he says.

FOR MORE INFORMATION:

- · Indianapolis Historic Sites, www.visitindy.com/indianapolis-attractions-historic-sites
- Indiana World War Memorial, 431 N. Meridian St.; 317/232-7615; www.in.gov/iwm/
- · Soldiers & Sailors Monument/Col. Eli Lilly Civil War Museum, 1 Monument Circle; 317/232-7615; www.ulib.iupui.edu/kade/soldiers.html
- U.S.S. Indianapolis Memorial; Walnut St. & Senate Ave.; 317/232-7615; www.ussindianapolis.org/monument.htm
- · Korea and Vietnam Memorials; 700 N. Pennsylvania St.; www.visitindy.com/indianapolis-attractions-historic-sites-vietnam-andkorean-war-memorials
- World War II Memorial; 700 N. Pennsylvania St.; www.in.gov/iwm/2364.htm



Improved 3-D spray pattern cleans faster

NLB's new 3-D tank cleaning head, the Torrent™ 50, optimizes the pattern of our powerful rotating water jets for better coverage than ever. Other great features include:

- I flows of 50 gpm at pressures to 20,000 psi (600 hp)
- I high-pressure seals last hundreds of hours and are easy to replace
- I fits through a 6" opening
- adjustable rotational speed
- multiple nozzle arm designs to suit your needs

To see how the Torrent 50 (or our other hard-working Torrent heads) can boost your productivity, call 877-NLB-7988 today.





The Leader in Water Jet Productivity.

29830 Beck Road, Wixom, MI 48393 MI: (248) 624-5555, IN: (219) 662-6800, NJ: (856) 423-2211 LA: (225) 622-1666, TX: (281) 471-7761, CA: (562) 490-3277 www.nlbcorp.com • e-mail: nlbmktg@nlbusa.com









CALL 800.421.4580 & SAVE TODAY!



FULL LINE DISTRIBUTOR







SALE ENDS 2/8/13



800.421.4580



draincables.com



locations in Ohio & California









Inspect, Locate, and Detect Leaks

This package does it all!

INCLUDES

- Our Professional Inspection System with the DCB12 All-Digital Monitor/Control Box
- MSA-PC-C Mini Fixed Position Camera
- Accu-Stic Locator
- LD 30 Leak Detector
 - · and more!





Request your FREE, FULL LINE catalog today! 800.328.8170 MyTana offers a COMPLETE selection of tools to make your job easier. Our **Tiger Tall** protects your push rod from sharp edges on cleanouts, elbows, offsets and joints.



1.800.328.8170

Factory Direct Customer Service

Competent • Polite • Clear (M – F 7 am-5 pm CST)



" - 3" Lines

Professional grade tools for sewer & drain professionals

www.MyTana.com

CABLE MACHINES • JETTERS
PUSH CAMERAS FOR MAIN LINES
& DRAIN LINES • LOCATORS
RELATED PARTS • ACCESSORIES



Protect Your Name

WHETHER YOUR COMPANY'S HANDLE IS A CLEVER PLAY ON WORDS OR USES A COMMON SURNAME, CONSIDER MEASURES TO PROTECT AN IMPORTANT SMALL BUSINESS IDENTITY



Fred S. Stelingold practices law in Ann Aribor, Mich. He is the author of Legal Guide for Starting and Running a Small Business and The Employer's Legal Handbook, published by Nolo.

BY FRED S. STEINGOLD

icrosoft. Starbucks. Walmart. They're all memorable names. You can bet those companies made sure they had exclusive rights to

Your business name may not be as distinctive or well known. Still, you'd hate to have a judge tell you that you can't use it anymore. And if another business copied your name, you'd like to be able to go into court and put a stop to it.

So how do you protect the name of your business, product or service? We'll look at a few techniques. But, ultimately, only you and your lawyer can decide how much effort and expense to invest in name protection. Your decision will depend on many factors, including the size of your business, the size of the market you serve, the type of product or service you offer, and your expectation for growth and expansion.

EXCLUSIVE RIGHTS

Generally, the more customers your business will reach, the more you need to be sure you have exclusive rights to your chosen name. Joe, who runs a local computer repair service, won't need as much name protection as Alicia who plans to sell a new line of iPad cases in all 50 states.

Obviously, the Internet is a major factor. It's caused a rapid growth in the number of small and mid-sized businesses that compete with one another. How does this affect you? It means you may have a greater need than in the past to do in-depth name searches – and perhaps to seek trademark protection.

Let's start by focusing on the simplest situation – a very small local business that probably needs to do nothing more than meet a few requirements of state law. For example:

Jeff wants to start a local photography studio called Portraits by Jeff. He'll be a sole proprietor. Since his is a small, unincorporated local business, he's probably safe enough if he just registers his business name at the county level. (Some states require registration at the state level - and publishing the name in a newspaper.) Jeff probably doesn't need to spend time and money to register the name as a trademark or service mark. He should, however, check to be sure there are no other photography studios in his area using the same or a similar name.

If Jeff decides to incorporate his business or form a limited liability company, he'll need to make sure the business name contains the right additions (such as Inc. or LLC). He'll also need to be sure the name doesn't conflict with that of other corporations or LLCs in his state. The corporate filing office can probably check this out for Jeff in advance. The cost, if anything, will be minimal.

SIZE MATTERS

Be aware of this important fact: having the state accept your corporate or LLC name doesn't give you the protection of a trademark.

Still, in most cases, if you have a small local business and use your name or a very common name to market goods and services locally, you can pretty safely ignore trademark concerns. So if you call your business Harvey Walker Roof Repair, you're not likely to have a trademark problem. Or if yours is a one-person, home-based business such as a graphic design service A+ Design, you're probably safe as well.

You don't want to buy signs, stationery and ads and then get a nasty letter from a large company that claims rights to the name you're using and threatens you with a trademark infringement lawsuit.

But if your business is bigger, such as a large camping equipment store (Wilderness Outfitters) or sells goods or services beyond a very local or industry specific niche (Lamps.com Online Lamp Store), I recommend that you look into trademark protection. Here's why: You don't want to buy signs, stationery and ads and then get a nasty letter from a large company that claims rights to the name you're using and threatens you with a trademark infringement lawsuit.

Just defending such a case in federal court can cost you up to \$100,000. Even if you're sure that you're in the legal right, you'll probably wind up changing your business name just to duck the lawsuit.

FOR MAXIMUM PROTECTION

If name protection is important to your business, you'll get the maximum protection by obtaining a trademark if you sell a product - or by getting a service mark if you sell a service.

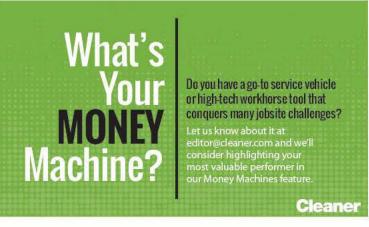
A trademark is a word, phrase, design or symbol that identifies a product brand. Examples include Dell computers, Nike shoes, Kodak cameras and Marathon gasoline.

A service mark is a word, phrase, design or symbol that identifies the provider of a service. Examples are Burger King (fast foods), Roto-Rooter (sewer and drain service), Kinko's (copy centers) and Hertz (car rentals).

To properly register a trademark or service mark, you'll probably need help from a lawyer who specializes in intellectual property law. But if you're a do-it-yourself type, you can save money by doing some of the preliminary work - including conducting a search of existing names that have been registered. For guidance on how to do this, read Trademark: Legal Care for Your Business & Product Name, by Richard Stim and Stephen Elias.

From a legal protection standpoint, the best trademarks are coined words, such as Kodak or Yuban. Or try for an arbitrary word - such as Arrow for shirts





or Apple for computers - that has nothing to do with the product. Nearly as good are suggestive trademarks - ones that hint at some aspect of the product. For example, Talon suggests the gripping power of a zipper.

Even if you don't seek full-fledged trademark protection, it helps to conduct a national name search. That way, you'll avoid stepping on someone's toes. Professional search firms typically charge between \$150 and \$300 for each name searched.

AVE A STOTZY IDEA? ail us at editor@cleaner.com



WOMA High Pressure Systems

help solve almost any Industrial cleaning, maintenance and decontamination problem.

- HIGH PRESSURE PUMPS TO 40,000 PSI
- 25-600 HP HIGH PRESSURE UNITS
- ACCESSORIES TO MEET ANY APPLICATION

Let us help you more effectively use "water as a tool."

When quality, performance and reliability matter... **PHONE:** 800-258-5530 . FAX: 732-417-0015



Lateral line hose has become the standard for the septic industry. Its polyether-urethane cover provides exceptional cut, abrasion and fungus resistance. And, lastly, all components are bonded together to maximize fitting retention and wear resistance, and to provide smaller minimum bend radii. With sizes from ½" to ½" and maximum working pressures of up to 5000 psi, we can handle your need-whether you are a waterjetter or big municipal water plant.

ALL HOSE- ONLY RATED TO 122° F- CALL US FOR OPTIONS ON HIGHER TEMP HOSE



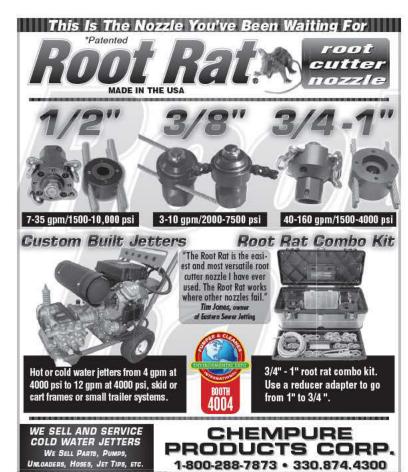
\$267.41 \$313.09 \$411.26

\$516.18

SOURCE KEY

01C13

\$649.48





Mastercard, Discover, Amex Accepted www.chempure.com

www.varcopumper.com

\$61.81 \$92.87 \$123.54 \$184.07 \$220.03

CALL TO ORDER TOLL FREE 866-872-1224



New Lines of Business

PORTABLE HOT-WATER JETTER OPENS UP ADDITIONAL OPPORTUNITIES FOR COLORADO CONTRACTOR

BY KEN WYSOCKY

hen Greg Schulte started Family Man Plumbing LLC in early 2012, he envisioned becoming more than just a GWAV: Guy With a Van. And he's well on his way there, thanks to a small machine – the Crap Shooter – that opened up a lucrative new market and dramatically boosted his business volume.

Schulte says the Crap Shooter, a portable hot-water drain-cleaning machine made by Bull Frog Industries LLC, drastically altered the course of his business in Westminster, Colo., a suburb of Denver. When he first started out, he focused primarily on plumbing repairs. But with the Crap Shooter, drain cleaning now generates about 40 percent of his gross revenue.

"I wanted to get into drain cleaning and maintenance," he explains. "So I went out and discussed it with companies that manage rental properties and with homeowner associations. I told them that if they'd use me for drain cleaning, I'd buy the equipment and do the work in a timely manner."

Around the same time, Schulte met a Bull Frog representative. Soon afterward, he gave the Crap Shooter a trial run, then purchased one for under \$1.000.

"The Crap Shooter quickly paid for itself. So everything I do with it is 100 percent profit, aside from my overhead. I can't believe I increased my revenue that much with such a small purchase."

Greg Schulte

Schulte likes the 25-pound machine because it's compact and easy to set up, which enables him to complete jobs faster. And less time on jobs translates into lower prices for customers and better productivity, he says.

"The Crap Shooter is completely self-contained," he notes. "All I do is hook it up to a faucet and plug it into an electrical outlet. I don't need to pull a hose through a building ... I can walk in and have it set up in 10 or 15 minutes.

"It's funny because every single time I bring in the Crap Shooter, customers ask me where my equipment is," he says. "They're impressed by the fact that I can jet lines without dragging dirty hoses through a building."

The unit draws 11 amps, so it can operates on a standard 15-amp circuit. It generates 1,500 psi at 1.65 gpm and comes with a 25-foot power cord with a two-prong GFCI plug; 50 feet of high-pressure hose that can handle up to 120-degree water; two heavy-duty jetter nozzles – a flusher and a thruster – that can clean pipelines up to 3 inches in diameter; and two faucet adapters.

"Hot water makes a difference when you're trying to cut through oil and grease," he says.

Schulte also notes that the Crap Shooter is eco-friendly because it uses only water to clean pipes out to about 70 to 90 percent of their original flow



The Crap Shooter from Bull Frog Industries is compact and easy to transport and set up. (Photos courtesy of Bull Frog Industries)

money machines

OWNER: Family Man Plumbing LLC, Westminster, Colo. **MACHINE:** Crap Shooter from Bull Frog Industries LLC **FUNCTION:** Cleaning pipelines up to 3 inches in diameter **FEATURES:** 1,500 psi at 1.65 gpm; 50 feet of high-pressure hose that can handle up to 120-degree water; two heavy-duty jetter nozzles; weighs only 25 pounds COST: About \$1,000

rate. And because there are no moving parts, there's no pipe wear erosion.

"It's plenty powerful," he says. "You don't need too much power to cut through sludge and debris, because it typically stays wet. I used it at a friend's house because he was having a problem with a wash-machine drain line. Other guys ran rotors 75 feet through, but the problems continued. The Crap Shooter took care of it the first time through and no other problems have occurred since then, and that was six months ago. That impressed me."

Schulte says he uses the Crap Shooter for about 90 percent of his draincleaning work. He also uses a RIDGID K-400 drum cable machine to handle tough root problems, and a RIDGID K-25 handheld machine.



Greg Schulte, owner of Family Man Plumbing LLC, cleans a drain line with his Crap Shooter from Bull Frog Industries.

"The Crap Shooter quickly paid for itself," Schulte points out. "So everything I do with it is 100 percent profit, aside from my overhead. I can't believe I increased my revenue that much with such a small purchase."

A master plumber, Schulte says he's thinking about hiring an employee because he now has more business than he can handle by himself, partly because of the Crap Shooter and partly because of word-of-mouth referrals.

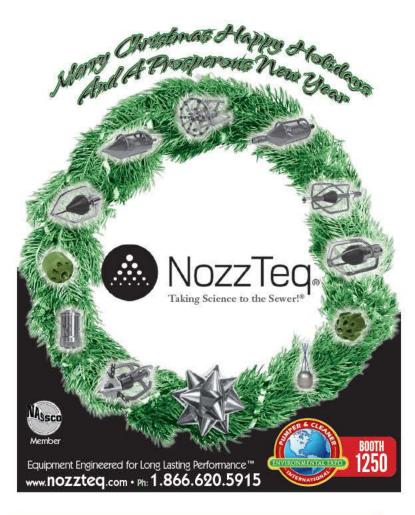
"I really can't say enough good things about the Crap Shooter," he says. "Without it, I'd still be struggling - just a guy with a van." c

SHOW US THE MONEY (MACHINE)

Money Machines, a feature in Cleaner, reports on innovative work vehicles that help contractors operate more efficiently, satisfy customers and earn more profit. We'd like to know about your Money Machine be it a service van, camera truck, jetting rig, vacuum unit or any vehicle that really helps drive your business. To nominate your vehicle for a feature in this column, send an email to editor@cleaner.com. Tell us briefly but specifically what features make it a great producer. And send a picture because appearance counts. We look forward to seeing your Money Machine.

---visit us online www.cleaner.com





COAST MANUFACTURING

Professional-Grade Drain Cleaning Machines, Cables & Accessories



Drain Cleaning Machine:

- Heavy duty construction
- ▶ The most powerful motor in the industry
- Quick and easy reel changeover
- ▶ A one year rock-solid warranty



- ▶ Fabricated from high quality wire
- ▶ Most ends & couplings available
- ▶ All sizes and lengths
- ▶ Innercore available

COAST MANUFACTURING

www.coastmanufacturing.com 1,800,541,7015



T&T Tools, Inc.

Fax: 800.521.3260
Email: sales@tandttools.com

800.521.6893 www.MightyProbe.com















FEBRUARY 25-28, 2013

INDIANA CONVENTION CENTER • INDIANAPOLIS, IN

2013 EXHIBITOR LIST

Current as of Dec. 5, 2012. List subject to change.

27th Trucks, Inc. A.R. North America ABBA Pump Parts & Service Abbott Rubber Company, Inc. ACE DuraFlo Systems Acro Trailer Admirals Bank Advance Pump & Equipment Advanced Containment Systems Inc. Advanced Drainage Systems Advanced Pressure Systems Advantage Funding Aero-Tech Air-Weigh Scales All Star Sewer Equipment Allon I Coleman Allied Forward Motion LLC Allied Graphics Allied Tank Co. AllMax Software, Inc. Alpine Equipment Funding, Inc.. AlturnoMATS, Inc. Ameri-Can Engineering American Express OPEN AquaOnDemand Solutions by Aqua-Aerobic Systems, Inc. AQUA-Zyme Disposal Systems, Inc. Arcan Enterprises Inc. Aries Industries Inc. Art Co. LLC Ashbrook Simon-Hartley Ashland Pump
Ashland Trap Distribution, Co. Atlanta Rubber & Hydraulics Inc. Aventi International B.A.G. Corp Bad Dog Took BakerCorp Randlock-Amesbury Banio Corn Barnett Rear Onsite Renlee Inc Best Enterprises Inc. Biffs Pathfinders LLC Bio Clean Bio-Microbics Inc

Blasters, Inc.
Blood Hound Underground

Blue Angel Pumps

Boerger LLC

Brenlin Co. Inc.

Bright Dyes Bright Technologies

Rulk Toilet Paper

Cam Spray Canplas LLC.

Bull Frog Industries LLC

Cape Cod Biochemical Co.

Century Chemical Corporation

BRUDON Air Vac / Kay International

CEMTEC / A.W. Cook Cement Products

BW Technologies by Honeywell/Honeywell

Champion Pump Company, Inc. Chandler Equipment Inc. Chelsea Products/Div. of Parker Chempace Corporation Chempure Products Corp. Cherne Industries Inc. CIPP Services, LLC Clarus Environmental/Zoeller Pump Company Clear Computina Clearstream Wastewater Systems Inc Cloverleaf Tool Co. COB Industries, Inc. Cobra Technologies COLE Publishing Comet USA. Inc. Comforts of Home Compulink Cable Assemblies, Inc. Conequec Universal Containment Solutions, Inc. COXREELS Crescent Tank Manufacturing Cretex Specialty Products Crust Rusters /Schmitz Bros CST Storage C-Tex Custom Biologicals, Inc. De Neef Construction Chemicals Del Vel Chemical Co. Delphin Water Systems of America, Inc Delta Environmental Ditch Witch Downey Ridge Environmental Company Draincables Direct Dultmeier Sales **Duracable Manufacturing** Dyna Flex Inc Dynamic Decals & Graphics, Inc. E Z Onsite E&B Green Solutions Facy Lines Ecological Laboratories Inc. Electric Eel Mfg. Co. Inc. Eljen Corporation Envirologics **Environment One Corporation** Envirosight LLC Environih Fnz IISA Inc **Epps Products** E-Tank, Ltd./ E-Pump **Explorer Trailers** Fabro Automotive Corp. Federal Signal Environmental Solutions Group Fergus Power Pump Inc. Fisher Research Laboratory Five Peaks Technology FKC Co. Ltd. Flint Industries Flitz International Ltd Flo Trend Systems Inc. Flow-Liner Systems Flygt, a Xylem Brand Forbest Products Co. Foremost Industries LP FORMADRAIN Inc Fournier Industries Inc. Franklin Electric / Little Giant Engineered

Fruitland Tool & Manufacturing

FW Murphy

GanVax Inc.

Gardner Denver Water Jetting Systems Inc. Gardner Denver Wittig GE Oil & Gas - Roots Blowers GEA Form Technologies Inc. General Pipe Cleaners/General Wire Spring Co. General Pump Geoflow, Inc. GFG Instrumentation, Inc. Giant Industries Inc. Glentronics, Inc. / PHCC Pro Series Pumps Global Pipeline Systems Go For Digger Godwin, a Xylem Brand Goldak Inc. Gorlitz Sewer & Drain, Inc. Gorman-Rupp Co. GPK Products, Inc. GPM Pump & Truck Parts, LLC Granite State Collectible Green Leaf Inc. Hackney / Isuzu Trucks HammerHead Trenchless Equipment Hannay Reels Inc HCP Pumps of America Hedstrom Plastics Heffernan Insurance Brokers Helix Laboratories Inc. Hibon, Inc./Div. of Ingersoll Rand Hino Motor Sales U.S.A., Inc. Hi-Voc Corporation Hydra-Tech Pumps Imperial Industries Inc. In The Round Dewatering Indiana Onsite Wastewater Professionals Association Infiltrator Systems Inc. Infrastructure Repair Systems, Inc. Infrastructure Technologies Inland Pipe Rehabilitation (IPR) Innovative Hydrovac Trucks LLC InSight USA - StreetEagle GPS Tracking Insight Vision International Thermal Research ITI Trailers & Truck Bodies Inc J&J Chemical Co. Jack Doheny Supplies Inc. JAG Mobile Solutions Jameson LLC Joe Johnson Equipment, Inc. Johnny's Choice by Chempcorp Industries Inc. KEG Technologies, Inc. Keith Huber, Inc. Kentucky Tank, Inc. KM Specialty Pumps & Systems, Inc. Kuriyama of America Inc Lansas Products Mfg by Vanderlans and Sons Lely Manufacturing Lenzyme Incorporated Liberty Financial Group, Inc. Liberty Pumps Liquid Environmental Solutions

Liquid Waste Industries, Inc.

LMK Technologies, Inc.

Lock America

Porta Pro Chemical Company Logan Clutch Corporation Logiball Inc. Longhorn Tank & Trailer Powertrack International Inc. PPF Rentak M.A.R.S. Workwear/Communications PPG Industries, Inc. Madewell Products Corp. Premier Oilfield Equipment Co. Mainline Rackflow Products Inc Premier Tech Aqua Presby Environmental, Inc. Mexicant Incorporated Presvac Systems, Ltd. Masterliner, Inc. MaxLiner USA Prime Solution, Inc. Merrell Bros., Inc. Mersino / Global Pump Primel ine Products Progress Tank Pronal-USA, Inc. Mid-State Tank Co., Inc. Milwaukee Rubber Products Inc. Prototek Mody Pumps, Inc. Money In Motion PHMPTEC Moro USA Quik-Lining Systems, Inc. Mr. Rooter Com Rain for Rent RapidView IBAK North America Ratech Electronics, Ltd. Myers MyTana Mfa, Company Inc. Rouseh Flectronics IISA IIC RC Industries Inc. NAMCO Machine & Gear Works Ltd. REED Manufacturing Company National Environmental Health Association National Vacuum Equipment Reline America Inc Nationwide Sales & Service Inc. Rich Restmoms RID-X® Septic System Treatment Ring-O-Matic Ritam Technologies, LLC NRR Control Neron Pumps Netafim USA Robinson Vacuum Tanks, Inc. Robuschi & C.S.p.A. Nexstar NII odor Inc RODDIE Inc. Roehir Laboratories Inc. NLB Corp. Norweco Inc. RootX Inc. NOWRA NovaFlex Hose ROTHENBERGER USA NozzTeg, Inc. Roto-Rooter Corporation **NSF** Internation **RotoSolutions** RouteOptix Inc Nuhn Industries Ltd. Oceanquip, LLC Rush Refuse System Ohio Electric Control. Inc. RVI Pro Inc. SAERTEX multiCom LP OmniSite OMSI Transmissions, Inc. Safety Corporation of America One Biotechnology Safety Sewer Drain Salcor, Inc. Satellite Industries Inc Orenco Systems, Inc. Paragon Tools Manufacturing Co., Ltd. Squereisen, Inc. Parson Environmental Products Inc Savatech Corp. Schieffer Co. International L.C. Patriot Pumps Pat's Pump & Blowe Pearpoint / SPX Sekisui SPR Americos, LLC Peinemonn Equips Pelican Worldwide Sensors & Software Inc. People's United Equipment Finance Corp. Septic Pages Septic Products Inc Perma-Liner Industries Inc. Petersen Products Septic Services Inc. Piccadilly Conce Picote Ov Ltd Service Squared Pik Rite Inc. ServiceTitan Sewer Equipment Co. of America Pipe Lining Supply, Inc. PipeHunter Pipeline Analytics Sewer Pages Sewer Seal Technologies 11C Pipeline Renewal Technologies Shark Pressure Washers & Jetters PipeLogix Inc. SIM/TECH Filter Inc Piranha Hose Products SJE-Rhombus

Sporton Tool III

Specialty B Sales

Point of Rental Systems

PolyJohn Enterprises Corp.

Pohlok /7ahel

PolyPortables Inc

ScreenTech Imaging, a div. of Roeda Signs Inc. SludgeHammer Group Limited Southland Tool Mfg. Inc

SPIR STAR Standard Cement Materials, Inc. Standard Equipment Sto-Away Power Cranes Inc. StoneAge, Inc. Sturgeon Tank & Equipment Subsurface Instruments Super Products LLC Superior Signal Company LLC Supervac 2000 Surco Products Inc. Surpresseur 4S Inc. SVE Portable Roadway Systems, Inc. T & T Tools Inc.
TCF Equipment Finance Terydon Inc. The Hartford The Strong Compan Thermaco, Inc. - Tranzilla Thieman Tailgates, Inc. Topp Industries, Inc. Tracker Solutions Trade-Serv Transway Systems Inc. Trelleborg Pipe Seals Trenchless Technology Magazine Trillium Environmental Service TRY TEK Machine Works, Inc. TSE International / OK Champion TT Technologies Inc. Tuf-Tite Inc Turbo-Fog, Division of Kingscote Chemicals UEMSI Udor USA Under Pressure Systems, Inc. US Fleet Tracking US Jetting, LLC HSA RhanRook USB-Sewer Equipment Corporation Vac-Con Inc. Vacutrux Limited Vacuum Truck Rental Vaporooter VAR Co. Vermeer VIP Sanitation Vivax Corp. Vogelsang Walex Products Co. Wallenstein Vacuum Pumps WasteWater Education 501 (c)3 Water Environment Federation Weber Industries, Inc. (Webtrol) Wee Engineer Inc. Wells Cargo Ultralav Mobile Restrooms Wells Fargo Equipment Finance, Inc. Western Equipment Finance Western Mule Cranes Westmoor Ltd. Wieser Concrete Products Inc WITA-IMCA Xylem, Dewatering Solutions Zheiiana Danau Industries Co., Ltd.

	-	н	-	-
	ш	ш	ĸ.	3 7
1362	ш	И	ш	
119		v	ж	

National Association of Wastewater Technicians

8 a.m.

Introduction to Pressure Distribution

9:30 a.m.

Designing Systems, Boundaries and Barriers from a Soils Perspective

11 a.m. 1:30 p.m.

Pump Choices and Settings: Decisions for Proper Operation Operation and Maintenance of Pressure Distribution Laterals

3 p.m.

Installing with Management in Mind: How to Get the Most out of Your System

4:30 p.m.

Design and Maintenance of Grease Interceptors

SSCSC

Southern Section Collection Systems Committee

8 a.m.

Seven Powerful Tools for CCTV Inspection Perfection

9:30 a.m.

Easements — A Collection System Maintenance Nightmare

11 a.m.

Nozzle Science — The Next Generation of Tier 3 Nozzles and Beyond

1:30 p.m.

Pass or Fail - Is Your Company Going To Make It? How to Ensure Success

3 p.m.

Social Media and Web-Based Promotion: Is it Right for Your Business?

4:30 p.m.

Pipeline Relining and Rehabilitation Solutions

NOWRA

National Onsite Wastewater Recycling Association

8 a.m.

Time Dosing ... Why? How? And How Much?

9:30 a.m.

Loading Rates — How Much Can the Soil Take?

11 a.m.

Troubleshooting Pumps, Floats and Panels

1:30 p.m.

The Dirty Dozen — Toxins That Kill Septics

3 p.m.

How Installers Can Use the Poor Economy to Increase Profits

4:30 p.m.

Are Seepage Pits Really Bad?

8 a.m.

Designing Drip Dispersal Systems

9:30 a.m.

Soil Erosion Control During and After Septic System Installation

Decentralized Wastewater Collection System Maintenance

11 a.m.

Independent Residential Service Contractors Association

1:30 p.m.

IEXSTAR

The Art and Science of Business Management

3 p.m.

The Business of Contracting

National Environmental Health Association

8 a.m.

What Makes a Professional in Onsite Wastewater Systems?

9:30 a.m.

11 a.m.

1:30 p.m.

3 p.m.

Education and Training: Professionalization of the Practitioners Management Models: Management and Becoming a Management Entity

4:30 p.m.

The Future of the Onsite Wastewater Industry: How to Make it Work for You!

Part One: The Science and Engineering of Onsite Wastewater Treatment

Part Two: The Science and Engineering of Onsite Wastewater Treatment

NASSCO

National Association of Sewer Service Companies

8 a.m.

Ultraviolet Manhole Rehabilitation

9:30 a.m.

Convey Your Stormwater and Plug Your Holes!

11 a.m.

Jet Up! Sewer and Storm Water Cleaning

1:30 p.m.

3 p.m.

Rethinking Collection Maintenance with Sewer Line Rapid Assessment Tool or SL-RAT Case Study of Cleaning Large Diameter Sanitary Sewers and Siphons

4:30 p.m.

Pipeline Assessment Certification Program (PACP) 2013 Update Workshop

Business Coach

8 a.m. - 5:30 p.m.

2013 - Your Best Year Ever

WaterJet Technology Association

8 a.m.

Safety and Efficiency — You Don't Have to Choose!

9:30 a.m.

Selecting the Best Jetting Tip Doesn't Have to Be Scary

11 a.m.

Hydroexcavation — The Non-Destructive Solution

Vacuum System Information

1:30 p.m.

NOWRA Room 2

Understanding the Power: Physics of Vacuum and How it Works

PSA

Portable Sanitation Association International

4:30 p.m.

GAP: Good Agricultural Practices



DETAILED SESSION INFORMATION AVAILABLE AT: WWW.PUMPERSHOW.COM

Education schedule subject to change without notice.



FEBRUARY 25-28, 2013

TUESDAY TRACKS

FEBRUARY 26TH, 2013

8 a.m. Driver Compliance and Certification: How to Meet DOT Requirements 9:30 a.m. Staying in Compliance with 503 Regulations for Land Application 11 a.m. Land Application: Case Study of a Long-Term Operation

MOUST

8 a.m. One Piece Nozzles Enhance Performance and Safety 9:30 a.m. Confined Space Entry Permit and Equipment Review 11 a.m. Utility Line Locating

SSCSC

8 a.m. Making Emergency Response Your Business 9:30 a.m. How to Protect and Maintain Sewer Hose From Mini Jetters to Combination Units How to be Successful in the Cleaning/CCTV Business 11 a.m.

8 a.m. New Untapped Techniques to Capture Today's Customers 9:30 a.m. 10 Steps to Marketing Success 11 a.m. Cloud Computing for Small Business and the Field Service Industry 8 a.m. Don't Win the Price Game Business Room 2 9:30 a.m. Make the Phone Ring with Low-Cost Marketing Local Marketing on the World Wide Web 11 a.m.

8 a.m. **Chemical Grouts and Grouting Methods** 9:30 a.m. Watch Your Assets — Remote Monitoring Can Save You Big Bucks 11 a.m. Lateral Connection Rehabilitation: Biggest Bang for the Rehabilitation Buck

8 a.m. Floods in Mexico City 9:30 a.m. Best Practices for Working in Confined Spaces 11 a.m. How to Overcome the Difficulties of Doing Business in South America

EUNESUAY TRACKS

FEBRUARY 27TH, 2013

SEWER COLLECTION & REHABILITATION

8 a.m. Cash for Compliance: The New Boom in Home Sewer Replacement 9:30 a.m. Trenchless Point Repairs, a Low Cost Permanent Solution 11 a.m. Penn State University Performs Manhole-to-Manhole Lining In-House

GAS, OIL & MINING

8 a.m. How to Decide What Dewatering Option is Best for You 9:30 a.m. Blower 101: The Basic Operation of the Positive Displacement Blower 11 a.m. Principles and Equipment of Hydro-Pneumatic Vacuum Excavation

GENERAL BUSINESS

8 a.m. Save Money — Move Your Business to the Cloud 9:30 a.m. Morally Bankrupt 11 a.m.

Measuring Success Matters: Your Ads, Your Agents, Your Technicians

MUNICIPAL

8 a.m. Benefits of Digital Side Scanning Inspection Camera Systems 9:30 a.m. Application for Sewer and Storm Nozzles 11 a.m. **Grinder Pumps & Application**

A View from the Receiving End: Regulatory Challenges in FOG Programs 8 a.m. 11 a.m. Now You Smell Me, Now You Don't: Deodorants

TECHNOLOGY

8 a.m. Improving Safety and Technology with Wireless Technology 9:30 a.m. New Technology for Locating Sewer Line Leaks Solve Decentralized System Malfunction Issues and Site Challenges 11 a.m.

8 a.m. - 5 p.m. installer

Presenters: Jim Anderson and Dave Gustafson Sponsored by Onsite Installer and COLE Publishing An all-day course detailing site planning and preparation

NETWORKING & ENTERTAINMENT

etwork with your peers over a 25¢ tap beer and enjoy a private concert just for Pumper & Cleaner Expo attendees!

The Tuesday Night Industry Appreciation Party is a must attend Expo event and it's included when you pre-register before January 25th, 2013!

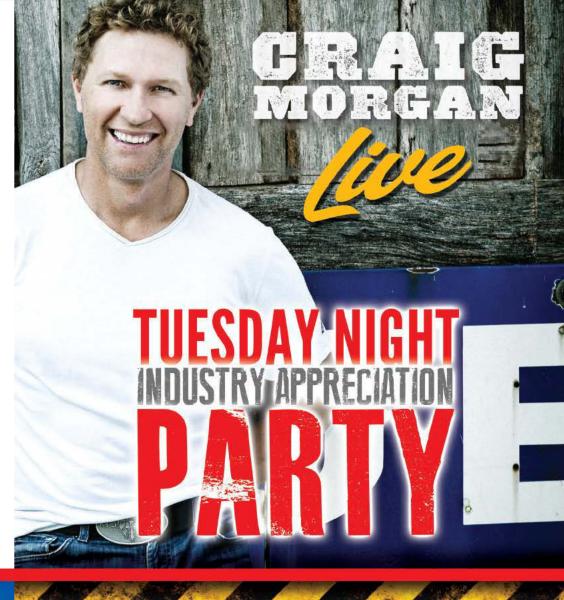
Tuesday, February 26th

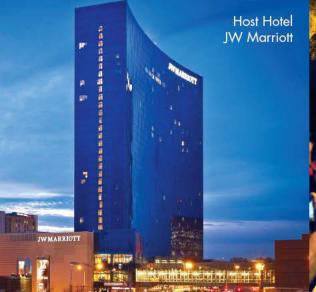
Doors Open: 4 p.m. 25¢ Tap Beer: . . . 5 - 7 p.m.

Craig Morgan: ...7 p.m.

JW Marriott Hotel

3rd Floor • Grand Ballroom









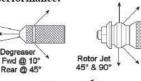
Custom Drilled

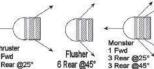
SEWER SQUAD PREMIUM KIT"



NPT Size	Price	Savings ⁴
1/8"	\$207	\$37
1/4"	\$235	\$42
3/8"	\$272	\$50
1/2"	\$345	\$62
3/4"	\$463	\$80
*Compared	to individua	al prices

A Value Priced Nozzle Kit • Each nozzle is custom drilled to match your pump's flow and pressure specs for optimized nozzle performance.





- · Each nozzle is made with heat treated 416 stainless steel for superior corrosion and wear resistance, and rated up to 10,000 psi.
- Most orders shipped within one business day.
- 100% satisfaction guarantee.



North Royalton, OH 44133 • www.aquamole.com • Fax: 440-237-2987





\$1200 DCD6 6" 8" DCD8 \$1500 DCD10 10" \$1975 \$2500 DCD12 12" 15" DCD15 \$3200 DCD18 Special Order

Add A Cloverleaf Hydraulic Motor & Skids

"Pipe/Sewer Cleaning & Maintenance Equipment for Jetters & Jet/Vacs" Toll Free: 800-365-6583 loverleat www.cloverleaftool.com TOOL CO. SARASOTA, FLORIDA • PHONE: 941-739-0707 • FAX: 941-739-0001

Read All About It!



Get the entire year of Cleaner, or single stories, in one convenient eBook!

Look for it at these three locations:

www.cole-mart.com/cleaner www.amazon.com www.itunes.com

Cleaner magazine is written solely for professionals who service residential and commercial drain and sewer maintenance, cleaning and repair business along with industrial high pressure cleaning contractors



THE CABLE CENTER 1-800-257-7209

MIDWEST'S LARGEST FACTORY AUTHORIZED REPAIR CENTER FOR GATORCAM, GEN-EYE & SEESNAKE

HOUR TURNAROUND

> FREE DELIVERY ON ALL RIDGID CAMERA

RIDGID's NEW

CS10 Digital Recording Monitor

- USB Thumb Drive
- 12.1" Daylight Readable Display
- Multi Mode Recording take snapshots, record full video & lean video
- Software Integrations
 with SeeSnake HQ & RIDGIDConnect™



THE CABLE CENTER · 8318 OLIVE BLVD. · ST. LOUIS, MO 63132 · 314-993-3099

VSI Rentals, LLC. 51 Stone Road Lindenwold, NJ 08021

888-VAC-UNIT Fax: 856-627-3044

2008 Sterling truck mounted combination vacuum and jetter units 3 Available Price by Request

ALL UNITS AVAILABLE FOR RENT OR PURCHASE 888-VAC-UNIT



2006 GMC (very low mileage) truck mounted high pressure jetter unit with TV inspection and vacuum system Price by Request



2008 International truck mounted, industrial wet/dry vacuum loaders with 27" Hg blowers 2 Available Price by Request

2008 Condor, dual steer truck mounted,

large capacity sweeper with dual sweep

gear and catch basin cleaner unit

Location and Leak Detection BY BRIANA JONES











COMPACT VIDEO INSPECTION

The SEEKER system from Aries Industries is a compact, lightweight video inspection technology. The push camera system is a user-friendly, contractor-grade examination tool for pipes from 3 to 24 inches and for distances up to 300 feet. It can be operated as a stand-alone system or in conjunction with an Aries CCTV truck to record all video to a PC or laptop.

When used as a stand-alone unit, it is a self-contained system with no external wiring. Weighing 40 pounds, it is easily transported to any job site and comes standard with a built-in 512 Hz transmitting beacon and ultrabright 6.4-inch LCD screen. Two camera options are available: the selfleveling ST920 is available with a ball skid or roller skid, and the self-leveling pan-and-tilt PE3600 with wireless control. Both cameras are interchangeable with other Aries products including its LETS lateral launching system. Other options include digital video recording, on-screen footage, wireless video transmission up to 300 feet away, rechargeable battery, PAL video and liveline tracing. 800/234-7205; www.ariesindustries.com.

PUSH CAMERA SYSTEM

The Mini-Push 20/20 from CUES is a portable, color-video push inspection system with a built-in battery power supply, battery charger and selfleveling camera with a built-in sonde. The unit inspects and records digital video in pipelines from 2 inches in diameter and larger.

The 6.4-inch color LCD monitor is adjustable with a fold-down position for protection during transport and includes a sun shield for optimal viewing in sunlight. The lightweight system includes wheels for easy portability and a balanced footprint for stability. The versatile tool is designed to handle rigorous field use. 800/327-7791; www.cuesinc.com.

3. R/T LOCATING SYSTEM

The 830 R/T (receiver/transmitter) locating system from Ditch Witch is designed to provide best performance at a high active frequency. The highfrequency locator can trace poor conductors, such as underground tracer wire, and locate short lengths of utility infrastructure.

The unit has a variety of automatic features, including gain control, auto depth, and visual and audio feedback. The ruggedly built, construction-grade system has an IP65 environment rating and a battery life of 150 hours on the transmitter and 75 hours on the receiver. Adaptive filtering ensures that the unit is highly responsive in all modes of operation, providing left-to-right guidance quickly regardless of mode or operator style. In PV (peak verify) mode, the system gives operators an additional way to verify the location. 800/654-6481; www.ditchwitch.com.

4. MODULAR INSPECTION UNIT

The EasyCAM III is designed using modular components for fast and easy repair by the owner. Features includes choice of 150 or 200 feet of heavy-duty pushrod, color camera, cordless operation, 512 Hz transmitter, built-in 8-inch daylight readable monitor, digital footage counter, SD recording, voice over, and 180-degree image inversion. It is also equipped with a second RCA video jack, which allows for additional video equipment such as a laptop or TV video goggles to be used with the unit. 239/260-2056; www.easycamllc.com.

MAINLINE INSPECTION SYSTEM

The eCAM Pro 2 mainline pipeline inspection camera system from Electric Eel Mfg. features arugged stainless steel-housed 1.68-inch self-leveling color camera with sapphire lens, a 20 LED light ring (with an impact-resistant polycarbonate light ring cover) and a high-resolution CCD element. The auto iris adjusts light automatically. A flexible camera spring navigates 3-inch P-traps. The unit comes standard with 200 feet of Kevlar-braided 1/2-inchdiameter pushrod and an industry-standard 512 Hz sonde.

The system features a 10.4-inch daylight readable monitor with clicktouch controls, and allows for one-touch recording directly to a USB flash drive. Users can rename files on the flash drive after they're recorded. Additional standard equipment includes on-screen footage counter, a twohour battery with built-in charge, adjustable light controls, 16 pages of text writing with memory saves, voice over recording, 8X zoom function, audio/ video out jacks, 8-inch wheels for easy maneuverability, a secure-locking reel













brake and rugged powder-coated steel tube and bar construction. 800/833-1212; www.electriceel.com.

SELF-LEVELING PUSH CAMERA

The VeriSight Pro push camera from Envirosight includes a multilanguage controller that allows direct entry of WinCan-compatible observations, displays footage on an 8-inch TFT LCD, and captures up to 90 hours of MPEG 4 video on an SD/SDHC card (up to 32 GB) or USB stick (up to 128 GB). Users can zoom 3x and capture images in JPEG format from live and recorded video. A 16-page text writer with full QWERTY keyboard can be configured for a variety of colors and formats, and the keyboard can also be used to log observations (with available PACP, LACP and WRc compliance) for direct upload to WinCan.

The stainless steel self-leveling camera with shadowless, variable LED illumination captures crisp video footage, regardless of pipe material. With supplied centering devices, it inspects lines from 2 to 9 inches, and snakes through multiple bends for maximum range. An integral tri-band sonde (33 kHz, 512 Hz, 640 Hz) works with most locators. The rugged welded-steel coiler comes with 130, 200 or 330 feet of pushrod. Both reel and controller are IP54 rated for protection against dust and splashing water. The entire system runs continuously for six hours off internal rechargeable Lithium-ion batteries, or off mains or vehicle power. 866/936-8476; www.envirosight.com.

7. WIRELESS TRANSMITTER

The Wi-Fi wireless transmitter from Forbest Products allows users to connect wirelessly to all of the company's sewer and drain cameras via iPhone 4/iPhone 4S/iPad/iPad 2, Android tablets and Windows PC. Users can watch live and record the images captured by cameras on phones, tablets and laptops about 300 feet away from the location of the camera. The transmitter makes it easy and quick to send images from the field to the office and customer. 650/757-4786; www.forbestusa.net.

8. HANDHELD INSPECTION TOOL

The Gen-Eye Micro-Scope compact, handheld inspection tool from General Pipe Cleaners offers the versatility to inspect small drain lines, toilet traps and hard-to-reach places like duct work, furnaces and crawl spaces. The monitor attaches to the reel with an adjustable mount for the best viewing angle. The reel carries up to 100 feet of micro pushrod with color camera, allowing inspection of 1 1/2- to 3-inch drain lines and toilet traps.

The 39-inch probe rod allows inspection of hard-to-reach places. Three attachments are included to improve viewing angle or to retrieve objects. The monitor includes a bright 3.5-inch LCD screen and a built-in SD card reader with one-touch record button to record photos and videos. It also includes a digital zoom, rotatable picture, voice over recording capability, LED brightness control and USB port. On-screen status indicators include data and time, SD card capacity and battery strength. The rechargeable battery powers the unit for up to four hours. 800/245-6200; www.drainbrain.com.

REMOVABLE MONITOR CAMERA

The Sonic camera system from Hathorn Corporation comes with a removable monitor case that can be easily stored for transporting. With a 7-inch LCD color monitor, pictures are bright, clear and easy to view. Optional on-screen footage counter and USB recording are also available. Three types of durable camera heads are available, including self-leveling and a 1.23-inch mini camera. Behind the camera head is a 512 Hz transmitter inside a stainless steel flex spring to allow for easy navigation of traps and 90-degree elbows. The reels come with 125- or 200-foot lengths of 1/2- or 3/8-inch Kevlar-braided pushrod. 905/886-2835; www.hathorncorp.com.

10. MID-SIZED INSPECTION SYSTEM

The MS11 mid-sized push camera from MyTana Mfg. Company is a video inspection system for 3- to 4-inch lines up to 150 feet long. Standard features include a color, self-leveling camera head, daylight-readable monitor and an onboard rechargeable battery for up to three hours of operation when regular household current is unavailable. The unit has a 512 Hz transmitter built into the camera head.

Once located, problems can be addressed as appropriate, whether it is a relining job, digging or showing the customer that past problems are finished. Users can record inspection jobs with the included USB cable by connecting to a laptop or other computer and view, record, copy or attach the inspection information. A DVD burner and mini DVR recorder are also available for capturing the inspection job when a PC is not available. The system is larger than the company's mini camera system and smaller than its mainline system. 800/328-8170; www.mytana.com.

11.PUSHROD INSPECTION

The P340 flexiprobe pushrod video inspection system from Pearpoint offers USB flash drive connectivity and 1- and 2-inch high-resolution cameras.











The rugged and weatherproof controller records high-quality digital video or images with a single-key pass and displays them on an ultrabright 8-inch TFT screen. Advanced digital capabilities allow users to zoom, pan and rotate images during recording and playback to focus in on problem areas. Still pictures can be taken at any time.

The flexible Plumbers system (available in 100-foot length) is designed to travel through tight corners in commercial and residential plumbing, negotiating most traps from 2 inches and bends from 1 1/4 inches. It is designed for small-diameter plumbing inspections, and a built-in sonde can be used to pinpoint its position with a suitable cable and pipe locator. The system is made from the small Plumbers reel with a 1-inch camera head on a 100-foot rod and 2-inch camera heads on 200-, 400- and 500-foot rods with integrated sonde. EX-zone approved models are available for industrial applications. 800/688-8094; www.radiodetection.com.

12. MULTIPLE-FREQUENCY LOCATOR

The Prototek LineFinder LF2200 locates any frequency sonde or transmitter box between 16 Hz and 100 kHz using a frequency sniffing feature. Preset support includes 16 Hz (steel, ductile iron, cast iron or nonmetallic), 512 Hz (cast iron or nonmetallic), and 8 kHz (nonmetallic only) sonde. The unit traces underground metallic lines at four built-in industry-standard frequencies using an external transmitter box; other frequencies can be sniffed as well. It passively locates underground power at 50 or 60 Hz.

Power frequency and scaling in English or metric units are user selectable. A series of LCD screens (with automatic backlight compensation) guides users through the steps critical to locating sondes and lines with accurate position and precise depth. Locating is enhanced by handle vibration and LED feedback at key locating points, in addition to clear, uncomplicated on-screen imagery. The unit uses six AA alkaline batteries. 800/541-9123; www.prototek.net.

SINGLE-FREQUENCY LOCATOR KIT

The RD5000WL from Radiodetection is a single-frequency pipe and cable locator kit designed to deliver quick, accurate and user-friendly utility location. The easy-to-use single high-frequency location kit can locate jointed pipes and is designed for use in the modern water industry. ClearTRACK automatically rejects signals from adjacent conductors, leading to more accurate location of a target pipe or cable. Dynamic Overload Protection rejects large unwanted signals, allowing use in electrically noisy areas, such as beneath high-voltage cables.

The locator and transmitter are controlled using a single button, making

them easy to use. A Compass feature provides a visual indication of the orientation of the target. This makes it easy to follow the target line and position the unit correctly for maximum depth measurement accuracy. 877/247-3797; www.radiodetection.com/precisionlocate.

14. LASER CAMERA SYSTEM

The MiniLite Pan, Tilt and Zoom push camera with laser measurement system from RapidView IBAK North America allows users to inspect, record and measure the internal dimensions of smaller pipelines. Users can accurately capture diameter measurements with one touch using the ORION zoom camera during normal inspections.

The system consists of a cable coiler cartridge, which makes replacement easy, a portable command console and one of several choices of cameras. The unit includes a high-visibility 10.4-inch monitor and full QWERTY keyboard. Users can record inspections on a built-in MPEG digital video recorder on SD and SDHC memory cards. The system is available in 100- and 300-foot lengths. 800/656-4225; www.rapidview.com.

15. DIRECT RECORDING INTERFACE

Ratech Electronics offers an interface that allows users to record directly to an Apple device, including iPhones, iPads and iPods. Direct recording allows for instant upload of pipe inspection videos from the job site to YouTube. Using the integrated cellphone interface and Ratech camera, users can give customers immediate information on problems with sewers or pipes.

There is no need for copies and the interface allows for more organization. The interface includes quick and easy one-touch recording with no USB drives, SD cards or DVDs. The low-cost interface is adaptable to any new or existing Ratech system. Also included is an on-screen display overlay system providing electronic distance counter, time, date and eight pages of memory for listing problems and displaying company information. Standard 200-footlong Gel-Rod cable is included. Longer lengths are available. 800/461-9200; www.ratech-electronics.com.

LATERAL INSPECTION CAMERA

The KS60CL lateral inspection camera from Rausch Electronics USA is a highly versatile pan-and-tilt camera. Integrated sonde, operating at 512 Hz or 33 kHz, enables users to always locate the camera's current position during CCTV inspection in PVC, clay or cast iron lines. Users can steer the camera through branched laterals with the optional line. As a module of the M-Series, the unit can be attached to the L100cross mini tractor, the lateral













push cable and the manual push system, DELTA.

When attached to the mini tractor, the camera inspects pipelines as small as 4 inches. When attached to the DELTA push cable system, the camera functions as a pan-and-tilt push camera with up to 250 feet of push cable. When attached to the M150 lateral launch system, the camera can be launched into laterals from the mainline with up to 160 feet of push cable. 717/709-1005; www.rauschtv-usa.com.

17. VERSATILE CAMERA SYSTEM

The SeeSnake Max rM200 camera system from RIDGID is an inspection system for lines up to 200 feet in length and 1.5 to 6 inches in diameter. The unit combines portability and versatility. Features include improved reel mechanics for easy passage through tight turns, an ultra-compact camera capable of providing optimal lighting, and an upgraded 200-foot cable, which provides high-quality abrasion resistance and allows users to push further with less effort.

The inspection system is compatible with the company's full line of SeeSnake monitors, including the CS10 and CS1000 digital recording monitors. The unit comes with an integrated transport system to make it easily portable. Users can carry the reel with the included shoulder strap or use the integrated wheel system. 800/769-7743; www.ridgid.com.

18. TOUCH-SCREEN CAMERA

The PROvision Touch inspection system from Spartan Tool is a touchscreen, daylight-visible camera. All the operating controls are directly on the screen in large, colorful icons for easy use. Telestration - the ability to draw directly on the screen - allows users to show customers a problem, and they can do it live while recording, or post-recording during a review.

Other features include a full on-screen keyboard, rheostat controls for camera lights, screen brightness and audio playback, four-hour battery life, snapshot capability to capture what appears on-screen at any time (and telestrate or label it). Everything records to a thumb drive for maximum flexibility in delivering the information to customers. 800/435-3866; www. spartantool.com.

19. SMOKE CANDLES

Superior classic smoke candles from Superior Signal Company provide visible smoke for testing sewer lines to easily detect sources of surface inflow and other faults. The high-visibility smoke allows users to find faults quickly, at a great distance, and to find those hard-to-spot leaks. The Superior 3C classic

smoke candles produce 40,000 cubic feet of smoke in three minutes, with the option of joining W3C smoke candles together to create larger volumes of smoke for a longer time. 800/945-8378; www.superiorsignal.com.

20. MANHOLE SMOKE BLOWER

The Turbo-Fog MH-75 from Turbo Fog, a division of Kingscote Chemicals, is a self-contained smoke tester for easily identifying leaks, infiltration and cross connections in municipal collection lines. The smoke testing system uses leak-proof liquid aerosol smoke cartridges to create dense white smoke. No additional smoke bombs or garden sprayers are required. Made of 11-gauge powder-coated steel, the blower is capable of generating over 7,500 cfm to accurately test more pipe in less time. Briggs & Stratton and Honda engine models are available. 800/394-0678; www.turbo-fog.com.

21. SONDE AND CAMERA LOCATOR

The vLocCam2 sonde and camera locator from Vivax-Metrotech is a lightweight, durable unit with a fast dual-core processor, color display and USB interface. The compass feature points users in the direction of the sonde or camera belowground and eliminates any guesswork about false peaks or ghost signals. Push-button depth displays depth of cover in feet and inches.

The vLocCam receiver comes standard with sonde/camera frequencies of 8 kHz, 33 kHz, 512 Hz and 640 Hz, which are most commonly used with crawler and push camera systems. This frequency range also provides versatility for locating metallic and nonmetallic pipes, drains and ducts. The range of transmitting sondes comes in different sizes rated to depths starting at 12 feet down to 20 feet. The receiver is equipped with two passive locate modes of power and radio, which will detect the presence of power lines, CATV, telephone and some metallic pipes that radiate 60 Hz from nearby or overhead power lines and VLF signals from nearby broadcast towers. 800/446-3392; www.vivax-metrotech.com.

22. RELINING ADAPTER

The relining adapter kit from Wohler USA for the VIS2xx and VIS3xx visual inspection camera systems makes for efficient pipe repair. It is designed so the entire circumference of the lateral line is visible when reinstalling. The kit comes complete with a centering star to ensure the camera remains on the bottom of the lateral and three protection sleeves that prevent the camera cable from being cut by the saw during the reinstatement. 978/750-9876; www. wohlerusa.com. c

LOCATION AND LEAK DETECTION BY SCOTTIE DAYTON

SMOKER IDENTIFIES SEWER GAS LEAKS

PROBLEM

Sewer gases inside a commercial property halted remodeling efforts and needed to be identified.

SOLUTION

Bryck Guibor, chief executive officer of Brick by Bryck Home Inspectors in Tucson, Ariz., connected the Power Smoker 2 from Hurco to the plumbing system clean-out. Smoke pumped into the pipes quickly identified leaks behind some drywall. Guibor located five problem areas using a laser light pen to penetrate the smoke above the ceiling tiles. He removed the drywall and discovered the sewer vents were not connected to the roof vent. Since the sewer vents were no longer required, Guibor capped them.



RESULT

Contractors completed the remodeling project and the owners occupied the property. 800/888-1436; www.gethurco.com.

ACOUSTIC INSPECTION VERIFIES CLEANING FREQUENCY

PROBLEM

Two Rivers Utilities in Cramerton, N.C., cleaned a 13,000-foot gravity-fed sewer twice a year to avoid SSOs in a major retail location. Maintenance division manager Keith Morton wanted to reduce the cleaning frequency but needed a cost-effective way to evaluate the pipe's condition.

SOLUTION

Field supervisor Ron Cook used the sewer line rapid assessment tool (SL-RAT) from InfoSense to inspect the line. The acoustic technology provided an aggregate blockage assessment for each pipe segment within three minutes with no flow contact.



RESULT

After training, a field crew inspected the sewer in less than a day, finding it clean enough to extend the maintenance interval substantially. The money the utilities saved nearly paid for the tool, which won the 2012 WEF Innovative Technology Award. 877/747-3245, ext 1; www.infosenseinc.com.

What you learn on these pages could be worth \$1,000s.

It's all yours for FREE! Subscribe today. www.cleaner.com 800-257-7222



Want More Stories?

Get more news, information and features with our exclusive online content.

Check out Online Exclusives at www.Cleaner.com/online exclusives





FS SOLUTIONS ADDS COURSES TO ONLINE TRAINING

Federal Signal Corp.'s Environmental Solutions Group added "Maximize Power of Water Jetter through Tip and Hose Selection," "Estimating the Vacuum Job" and "Fundamentals of Hydroexcavating Safety and Skills" to its online course offerings through ESG University.

SPIR STAR NAMES SALES REPRESENTATIVE

SPIR STAR promoted Ronnie Allen to sales representative. Allen joined the company in 2007, beginning in production and advancing to hose assembly technician.



PPI, ICC TO WORK TOGETHER ON PROJECTS

The Plastics Pipe Institute signed a memorandum of understanding with the International Code Council providing a framework for the organizations to identify opportunities to work together on educational, technical, scientific, legislative and regulatory matters.

MR. ROOTER NAMES VICE PRESIDENTS

Mr. Rooter named Tom Pasisis vice president of business development and strategic initiatives and John Mendel vice president of operations. Pasisis will oversee efforts to identify, develop and execute new business opportunities, while Mendel will work to maximize company growth and profitability and optimize work flow.

MCELROY LAUNCHES ONLINE UNIVERSITY

McElroy launched an online university at www.mcelroy.com/university. The site includes fusion instruction videos and courses for hands-on training and certification. Hosted on YouTube, the videos can be viewed on most computers, tablets and smartphones.

HINO TRUCKS PARTNERS WITH MORGAN ON DELIVERY PROGRAM

Hino Trucks partnered with Morgan Corp. on a quick delivery, dry freight van body program for its conventional trucks. Serving 46 states (excluding Hawaii, Alaska, California and Nevada), the program is designed to have a 21day turnaround from chassis or order receipt on stocked trucks. Trucks will be supplied through Morgan's regional manufacturing operations in Pennsylvania, Georgia, Texas and Florida.

RIDGID AWARDS SCHOLARSHIPS

RIDGID awarded four scholarships through the Educational Foundation of the Plumbing-Heating-Cooling Contractors - National Association (PHCC) to students enrolled in apprentice programs. Recipients will receive up to \$1,000 in tuition assistance and \$1,500 in RIDGID tools. The 2012 recipients were Tyler Arndt of Brooklyn, Wis.; Justin Gould of San Diego, Calif.; Dana Parks of Imperial Beach, Calif.; and Matthew Saille of El Cajon, Calif. c

cleaner.com



Inspector Training and Certification: January 31-Feb 1, 2013 - Tucson, AZ

Contact: Janine Lane at (928) 782-5882 or janinel@cals.arizona.edu

February 23-24, 2013 - Indianapolis, IN Pre-Expo NAWT info@nawt.org

NAWT Vacuum Truck Technician:

January 8, 2013 - East Lansing, MI MI & NAWT - Contact Mark Scott at (989) 275-5011 or mscott@i2k.com

February 24, 2013 - Indianapolis, IN Pre-Expo NAWT info@nawt.org

March 6, 2013 - Ruidoso, NM

N-MOWA • Jace Ensor at (575) 937-8304 or nmowa.president@gmail.com

Operation and Maintenance **Training Certification:**

January 2013 (TBA), Colorado

CHURCH Onsite Wastewater Consultants Contact Kim Seipp at (303) 622-4126 or highplains@tds.net

February 6, 2013 Kearney, NE NOWWA - Contact: Jason Orton at (402) 476-0162 or jason@h2oboy.net

Principles of Septic System Design

February 23-24, 2013 - Indianapolis, IN Pre-Expo NAWT info@nawt.org

Watch the NAWT website and industry publications for updates —

For more information call: WWW_NAWT_OR



...they use smart phones.

Join more than 41,500 service providers at

- SewerPages.com
- Free Basic Listing
- Mobile Phone Friendly
- Enhanced Listings Start at Only \$9/Month
 - Add Your Web Site
 - Add Your Company Logo
 - Add Service Locations

/WW.SEWERPAGES.COM/CLEANER FOR F

PRODUCT SPOTLIGHT

Dedicated laser accessory captures, analyzes pipeline data

BY ED WODALSKI

A new laser profiling accessory for the ROVVER X inspection crawler from Envirosight captures and analyzes profile data from the inside of buried pipeline for planning relining projects, determining pipe life, monitoring erosion/corrosion, quantifying defects and analyzing partial collapses.

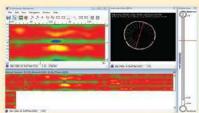
Profile data is transferred to WinCan V8 inspection software's laser inspection module, which can trend pipeline diameter and deformation frame-by-frame to generate a solid model, ovality graph or color plot.

"Our plan for the ROVVER X line was to have a single crawler that could be configured quickly to do any kind of inspection. We make many accessories for it, but until now, laser scanning wasn't one of them," says Jake Wells, marketing manager for Envirosight. "Rather than having support and training split among multiple vendors, we thought it would be better to develop our own laser probe that would be tailored to the configuration of our crawler.

The unit is designed with profile lines up to 18 inches in diameter when mounted directly to the crawler, and larger lines can be profiled by mounting it to a skid pulled by the crawler.

"The larger the line, the longer the (laser) probe needs to be, and there becomes a point where the overhand produces too much bounce," he says. "In such a case, when the crawler goes over a joint or small bump, it would cause a lot of deflection in the arm, which the software could misinterpret. Instead of using a really long probe, the standard probe is mounted to a skid that's pulled by the crawler, eliminating the problem."





Laser profiling, commonly used in post-installation inspections, can reveal defects that might otherwise go undetected, going so far as to create a 3D model of the interior surface of the pipe, Wells says. "It's an inexpensive



way to get that interior geometric data, and pretty much the only way." Other applications include documenting pipe wall deterioration for planned maintenance, repair and relining.

"With the profiler you can measure anomalies around the pipe, as well as what may be lying at the bottom," Wells says. Laser profiling also can be combined with side-scanning technology for an even more precise picture of the pipe interior. "You can overlay the visual data on the geometric data and create a 3D model to see the correlation between the visual defects and defects in the actual geometry in the pipe."

The profiling accessory attaches without tools and requires no electrical connections. A hinged mounting system makes it easy to deploy in tight spaces, while twin carbon fiber arms ensure rigidity. The accessory can be mounted to any ROVVER X pan-tilt-zoom camera and operates up to 16 hours on a single AA battery. 886/936-8476; www.envirosight.com.

NU FLOW LATERAL CUTTER

The Mi-T-Cutter from Nu Flow Technologies is designed to cut open lateral reinstatements from the inside, as opposed to the branch line. It also can be used for opening trapped drains and cutting out hard debris. The unit requires 7-10 cfm of air and operates using a standard 110-volt outlet. The cutter is 32 inches long and is designed for use in 4- to 6-inch pipe. Features include 19-inch viewing screen, 100-foot cable (200-



and 300-foot available), three unique cutting heads, separate air line to keep the lens free of debris, and 250-foot video cable for remote viewing. 800/834-9597; www.nuflowtech.com.

SOUTHLAND TOOL HOSE GRABBER, GUIDE ROLLER

The HGR-1 combination hose grabber and guide roller from Southland Tool Mfg. is designed to grab and lower a hose and nozzle into a sewer and guide it into the line, especially drop manholes where the sewer line is above the bottom of the manhole floor. Made of steel with Delrin hose roller, the tool's bottom hooks are best treated for extra strength. Weighing 9 pounds the



heat-treated for extra strength. Weighing 9 pounds, the device connects to a fiberglass (available) or steel pole. 714/632-8198; www.southlandtool.com.

COXREELS BRAWNY REEL UPGRADE

The Brawny reel upgrade from Coxreels is available for any hand crank and motorized 1125 Series hose reel. The upgrade features an option that strengthens the discs and drum, preventing potential damage under increased pressure. Reels are made from 10-gauge steel plates welded into each disc to keep them from bowing. The center



drum is thickened and upgraded from standard 16-gauge to 14-gauge steel to prevent deformation and eventual crushing of the drum, which can be caused by hose pressure. 800/269-7335; www.coxreels.com.

METABO CORDLESS ANGLE GRINDER

The W18 LTX professional grade cordless angle grinder from Metabo Corp. is powered by lithiumion batteries (two Extreme 4.0 Ah or 3.0 Ah) with rotating battery pack. Features include slim motor housing and ergonomic side handle, motor



protection with no-volt release switch that protects against unintentional starts when inserting the battery, burst-proof adjustable guard, and electronic shutoff to protect against kickback. Other features include thermal overload protection, electronic soft start for added motor life and air-cooled charging technology for longer battery life. 800/638-2264; www.metabousa.com.



5037 NW 10th Oklahoma City, OK 73127

www.centralwinnelson.com

MCELROY TRACSTAR **SERIES 3 FUSION MACHINE**

The TracStar 500 Series 3 fusion machine from McElroy Manufacturing features an indexer-mounted heater and facer, economy engine throttle setting and hydraulic clamping. The machine is capable of fusing thermoplastic pipes from 6-inch



IPS to 20-inch outer diameter. The carriage can be removed and lowered into a ditch for fusing in tight locations. An onboard generator powers the heater, while the engine-driven hydraulic pump system provides power for the facer and dual-speed track system. Dual hydraulic pipe lifts help load and unload pipe into the carriage. 918/836-8611; www.mcelroy.com/fusion.

LODAR RADIO REMOTE CONTROL

Radio remote control systems from Lodar enable simple AV or DC on/off switching up to 1,000 feet. The one-function control works with either relay or FET receivers. 877/257-1581; www.lodar.com.

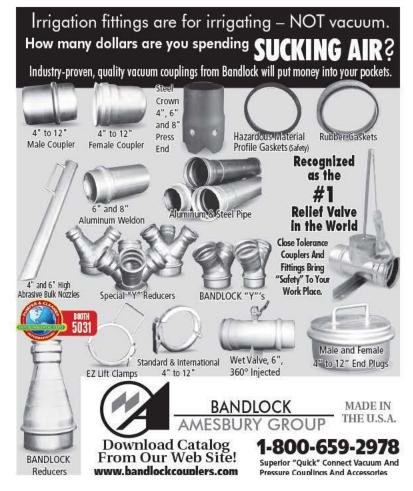


PIPELINE ANALYTICS PIPE INSPECTION SOFTWARE

WinCan ProTouch pipe inspection software from Pipeline Analytics is designed for touch-screen data entry on a tablet PC using video from a crawler, push camera or zoom survey camera. The program is



fully compatible with WinCan v8 and enables users to document manhole, mainline and lateral inspections. It generates basic manhole-to-manhole reports that include schematics and captured images. It also can export inspections to freely distributed viewable software so clients can review video alongside section detail. 877/626-8386; www.pipelineanalytics.com.



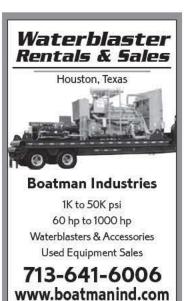
Marketplace Advertising

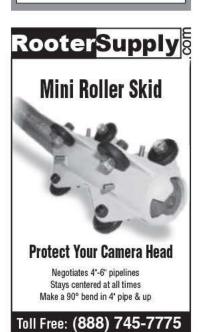








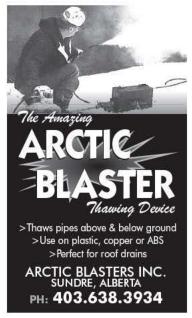






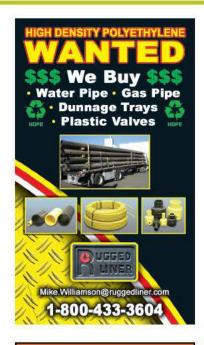














Fast • Inexpensive • Easy





Superior® Smoke Testing the most cost effective method to find sources of inflow

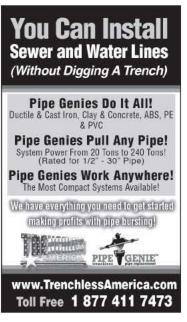
Choose Candles or Fluid

800-945-TEST www.SuperiorSignal.com























We need LICENSED PLUMBERS to join our team in Denver, CO. We offer top pay & generous benefits including 100% paid health insurance for employees AND their families, plus much more! Applewood Plumbing Heating & Electric has been providing residential service since 1973. If you're ready to work in a growing, established company with professionals like yourself, CALL 303-328-3097. Relocation assistance available.

Learn more about us online at:

www.ApplewoodFixIt.com

classifieds

BUSINESSES

WWW.ROOTERMAN.COM. Franchises available with low flat fee. New concept. Visit website or call 1-800-700-8062 x26. (CPBM)

COMPUTER SOFTWARE

FreeServiceReminderSoftware.com. FreeServiceDispatchSoftware.com, FreeRouteManagementSoftware.com.

DRAIN/SEWER **CLEANING EQUIPMENT**

Used and rebuilt cable machines in stock: RIDGID K-7500, K-40, K-60, K-1500, Roto-Rooter #55, WXL #C, Spartan #1064, #300, #100, Electric Eel model #C machines. The Cable Center: 800-257-7209.

General Wire models J-3055, J-3080, and J-2000; Spartan #717; Electric Eel gas jetters. The Cable Center: 800-257-7209.

EXCAVATING EQUIPMENT

Ready-Dig Excavation, mini excavator with operator. \$475. 8 hours, 25 years experience, Macomb-Oakland, MI. 586-457-9983. (C01)

HAZARDOUS WASTE UNITS

1995 International 4900 with a 2,300 U.S. gallon Presvac, carbon steel, DOT certified 412, vacuum pressure tank. (Stock #6004C) www.VacuumSalesInc.com, (888) VAC-UNIT (822-8648).

HAZARDOUS WASTE UNITS

Presvac 2.300 U.S. gallon, carbon steel with a Masport H15W vacuum pump installed on a 1993 GMC Kodiak cab and chassis. (Stock #6615V) www.VacuumSalesInc.com, (888) VAC-UNIT (822-8648).

New 3,200 U.S. gallon, carbon steel, DOT certified 407/412 vacuum tank; dump type with full open rear door and a Presvac PVB-750 vacuum-pressure pump installed on a 2012 Peterbilt, 348 cab and chassis. (Stock #13526V) www.VacuumSalesInc. com, (888) VAC-UNIT (822-8648). (CBM)

Pre-owned 3,200 U.S. gallon, carbon steel, DOT certified 407/412 vacuum tank, dump type with full open rear door, and a Presvac PVB 750 vacuum-pressure pump installed on a 2011 Peterbilt 348 cab and chassis. (Stock #0200C) www.VacuumSalesInc. com, (888) VAC-UNIT (822-8648). (CBM)

JETTERS-TRAILER

2002 SECA model 747-FR2000 trailer mounted high pressure jetter, 700 gallon, dual reel, 40 gpm @ 3,000 psi water pump. \$14,950. 561-340-1495, FL. (C02)

2011 Mongoose 184 tow behind jetter: Single axle, 300 gallon water tank, Caterpillar engine, 600 hours, no highway miles. Unit is in great shape. Located in Orlando, Fl. Call 267-249-3774. \$23,500. (C01)



Spartan 798 diesel jetter (Only 149 hours). Like brand new, fresh service, 18 gpm @ 4,000 psi with antifreeze system, work ready.\$16,900

Call 800-627-0778

JETTERS-TRAILER

2008 Spartan 758 trailer jetter, stored and transported in an enclosed trailer, excellent condition with low hours, 1 person owner/ operator. \$9,900. Call 1-507-323-4115, MN. (C01)



2009 American Sewer Jetter: 25 gpm, 4,000 psi, 300 gallons, 500 foot hose, includes additional line, sizes and heads. Original private owner bought for one job, 67 hours on the machine, 50 hp, dual gas. Paid 22k, sell for.....\$7,500

Office 818-951-6100 Cell 310-420-3525

2008 American jetter 1640; 4,000 psi, 300 gallon tank, 500 foot line, 60 hp, 25 gpm, owner retiring, paid 20k, less than 80 hours. Will sell for \$6,000, 310-420-3525. Email pipeline forensics@ca.rr.com for pictures.



Xtreme Flow Hot/Cold Jetter! Model #HJ2TA8536, tandem axle trailer, 35 hp Vanguard 8.5 gpm @ 3,600 psi, 325 gallon water tank, 300' hose, General Pump. List \$34,995. On sale for \$29,995. Fully loaded!

800-213-3272 www.hotjetusa.com

СРВМ

JETTERS-TRUCK

2006 Nissan UD2600 jet truck with Myers jet, 34,000 miles, new jet hose. Pump has recently been rebuilt, 1,000 gallon water tank. \$33,500. Call 267-249-3774, PA.

1996 Ford F800 Vac-Con jetter, 83,000 miles, less than 700 hours on John Deere motor. Truck is in good shape. \$19,900. Call Adam 256-245-9678, AL.

1989 Ford with Camel water jet, 1,500 gal-Ion stainless steel water tank, Myers 80 gpm, 2,000 psi water pump. Truck and jet in good working condition. \$12,500. Pictures at www. empireequip.com. Call Greg, 559-284-0401. (CP01)

1999 Freightliner FL 80 with 2100 Vactor, 12-vd. debris body, 1,500 gallon water tanks. 80 gpm @ 2,500 psi water pump. \$75,000. 614-837-3010, OH.

2006 GMC TC6500 cab and chassis with Pipe Hunter trunk mounted jetting unit, 3,000 psi @ 50 gpm with a 1,000 gallon water tank. rear mounted hose reel with Jet Eye Camera System, 6,800 original miles, like new. \$99,000 sale price. (Stock #13234V) www.VacuumSalesInc.com, (888) VAC-UNIT (822-8648).

Peabody Myers: 1987 Ford F-800 diesel jetter truck, 56,000 actual miles, 1,500 gallon, 36 gpm @ 3,000 psi, new tires, arrow board, extras. \$9,000 or best reasonable offer, retiring, clean title, pipes to 24 inches, photos available. Buddy, 951-227-5623.

Jack Doheny Supplies Inc. offers a full range of late model combo units and DOT industrial vacuum loaders. Call us @1-800-3DOHENY.

JET VACS

1991 Vactor 2100 series with PD blower, new water pump, 8' ext. boom, 1,300 gallon water cap, 12-yd. debris tank, mounted on L8000 with auto transmission, municipal trade, well maintained and ready to work. \$33,900. Call 262-951-8979. WI.



2007 Vac-Con model VPD4212LHAE on a International model 7400 with an automatic transmission, Roots 827 PD blower, 80 gpm @ 2,000 psi, rebuilt water pump, 800 foot, 1" jet hose, 12-yd. debris tank, extendible boom, articulating hose reel, new white paint. Pictures at www.empireequip.com, \$159,500, Call 714-639-8352, CA. (CP01)



2003 Sterling L7500 Vac Truck: CAT 3125 @ 315 hp, A/T, 55k miles, spring susp., 2003 Vac-Con V390LHAD, 3 compressor fans, 10' telescopic boom, HS drive, articulating hose reel, hi-dump debris tank. ..\$79.500 715-546-2680 WI

Vac-Con industrial machine mounted on a pre-owned 1999 International cab and chassis. (Stock #3918C) www.VacuumSalesInc.

2006 Sterling with a VacAll AJV 1215: 12 yard debris body, 1,500 gallon water, combination vacuum/jetting unit. (Stock #5673C) www. VacuumSalesInc.com, (888) VAC-UNIT (822-8648).

com, (888) VAC-UNIT (822-8648). (CBM)

1994 Vac-Con, 16-yd. debris tank, 1,250 gallon water tanks. Telescoping boom with articulating hose reel, 3-stage vacuum. L8000 Ford chassis, 127,545 miles. \$45,000. Call 601-373-3736. (CPBM)

LEASE/FINANCING

North Star Commercial Credit: Commercial loans for trucks or equipment. Flexible purchase programs to fit your budget. 21 years in the industry. Contact Tom Myers -877-804-2274. (CPBM)

MISCELLANEOUS

Titan 8000 series, high performance, RIDGID 8000 Zero-Gravity. The Cable Center: 800-257-7209.

NOZZLES

SAPPHIRE NOZZLES for UHP, laser-etched. heat treated, excellent quality, fantastic savings! 772-286-1218. info@alljetting.com; www.alljetting.com.

PARTS & COMPONENTS

Vac-Con parts for sale: 1) Scissor lift for 12yard debris tank, 2) Hydraulic oil cooler, 3) Aux. engine (John Deere), 4) 8" extendable vacuum boom, 5) Hose reel on bumper. For more info call 970-653-8588, email freedom drain@hotmail.com.



2008 Vactor 2115 parts: 80 gpm, 2,500 psi water pump, 15 yard debris body with flat rear door, 8' telescopic boom, aluminum water tanks, aluminum tool boxes.

Call Mike at 800-294-0149 www.williamseqpt.com

US Jetting provides aftermarket rebuilding services and replacement parts for Harben® pumps. Low prices, fast response. Why pay more? Call today. 1-800-538-8464, ext 25 or 18.

PIPELINE REHABILITATION

New Top Gun main line system from Perma Liner (complete), new Bowman cutter and a complete 1997 Ques cutting van. \$120,000. 916-416-1001, California.

PIPELINE REHABILITATION

One trade-in model of Pipe Genie heavy duty, pipe bursting equipment. Excellent condition, looks new, 30-ton, 100 feet cable, full 2-year warranty. 877-411-7473.

POSITIONS AVAILABLE

SALES PERSON, EAST COAST VIRGINIA AND UP. Road Warrior to conduct direct sales and demonstrations. Energetic, loves to travel, good driving record and self motivator! Company Truck provided. Send Resume to resume@nozzteq.com or call 866-620-5915

NLB Corp., an international leader in the manufacturing of high pressure water jetting equipment, has an immediate opening at our Wixom, Michigan headquarters for a Sales Manager. We are seeking a highly motivated individual with experience in sales management, and a background in high pressure water jetting equipment and applications. Candidates must have 5+ years of experience in sales and be able to establish and maintain strong relationships with our clients. This individual will manage sales territories, quotas and goals and establish training programs for the sales staff. In addition, the person will need to conduct regular field sales calls with the sales staff and ensure that our customers' quality and service expectations are met. NLB offers a highly competitive total compensation package including base salary, monthly commissions, annual bonus, company vehicle and travel expenses paid, medical, dental, vision, life, disability insurance, 401(K), and profit sharing. Candidates meeting the above qualifications, please forward your resume and salary wage requirements (required for consideration) in confidence to: NLB Corp., HR-SM-Cleaner, 29830 Beck Road, Wixom, MI 48393, Fax: 248-926-4343. Email: nlbhr@nlbusa.com. For more information on NLB Corp., please visit our website at www.nlbcorp.com. NLB is an Equal Opportunity Employer.

POSITIONS AVAILABLE

Salesman needed to lead a sales force for storm retention cleaning company located in northern Virginia. At least 2 years experience in the industry and at least 1 year experience in sales industry. Email resume and salary requirements to qualitypipecleaning@gmail. com.

UTILITY SERVICES GROUP is a growing Mid-Atlantic company seeking CCTV, Grouting, Flushing, Vac Truck, CIPP, Directional Drilling, Lateral Lining and Manhole Rehabilitation technicians and foremen. Applicants should have a minimum of 1 year experience in the industry. We are an EOE offering great advancement, pay and relocation subsidy. Send resumes to HR@usginc.net , Fax: 717-737-6093 or USG HR Department; 1304 Slate Hill Road, Camp Hill, PA 17011.



EXPERT LICENSED PLUMBERS NEED-ED! We need LICENSED PLUMBERS to join our team in Denver, CO. We offer top pay & generous benefits including 100% paid health insurance for employees AND their families. Applewood Plumbing Heating & Electric has been providing residential service since 1973. If you're ready to work in a growing, established company with pros like yourself CALL 303-328-3097. Relocation assistance

Visit www.ApplewoodFixIt.com con

All South Underground, LLC, located in Tampa, FL, is hiring two experienced Manhole Rehab Foremen. PACP & MACP Certification a plus. Please call 813-925-3112.



POSITIONS AVAILABLE



Now Hiring experienced CCTV Operators, Grout Foremen, Manhole Rehab Technicians and Vac Truck Operators. Must have valid drivers license and reliable transportation.

Contact Chris Schrader at All South Underground, LLC 813-925-3112

POSITIONS WANTED

Estimator/operations desired position: Michigan (Detroit). 20+ years experience in municipal and industrial work, very dependable, currently employed looking to move, good references. Can send resume sewerrehab@ vahoo.com.

POSITIVE DISPLACEMENT **BLOWERS**

(2) New Sutorbilt PD blower, model GAFMBPA catalog no., 6 mp. \$2,500/each or \$4,500 for both. 714-381-4141. Pictures at www.empire equip.com. (CPBM)

PUMPS



Strong Mfg. SprayMate: 35D/60 manhole rehab, grout pumping, fireproof insulation, lightweight cellular grout machine etc. Check out www.strongmfg.com for more info. Completely refurbished. New tires, paint, tune up, water pump, plumbing, etc., Wisconsin V4 engine. Very low hours. Nice unit!.....\$21,500/OBO 815-378-7401 IL

Honda model WP40X, 8 hp, 4" with hoses. Honda 4 hp, 2" pump with hoses. The Cable Center: 800-257-7209.

Buy & Sell all makes and models, new & used vacuum pumps & high pressure water pumps, and good used replacement parts. Call for an inventory sheet and save. www. VacuumSalesInc.com, (888) VAC-UNIT (822-8648). (CBM)

RENTAL EQUIPMENT

Liquid vacs, wet/dry industrial vacs, combination jetter/vacs, vacuum street sweeper & catch basin cleaner, truck & trailer mounted ietters. All available for daily, weekly, monthly, and yearly rentals. VSI Rentals. LLC. (888) VAC-UNIT (822-8648) www.vsirentalslic. (CBM)

RODDING MACHINES



1993 SRECO Sewer Rodder trailer w/robotic auto rod-feed, model HSRSR-516TR, loaded with roll of 39" sectional rods, several cutter-tools, rod-guide, hose/tool, low hour, city machine, looks and runs great. For \$11,000. Call/text/email Steve 206-786-4344, steve@seattlepump.com con

ROOT CONTROL

New sewer line root killer "Oblitiroot" sticks to tree roots and pipes, leaving a root prevention coating that endures. www.Olv idium.com or call Toby (inventor) 928-246-1580. 1990's pricing! (C01)

SERVICE/REPAIR

www.servicewithasmile.com Sewer Cam Reel and Camera Repair: Authorized for General Wire, Ratech, Vision & RIDGID. Quality service on all brands. Need more info? Give Chuck a call. Electronic Repair Co., Birmingham, AL 35206. 205-836-0454; email: part@servicewithasmile.com.

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

TOOLS

T&T Tools: Probes, hooks. Probes feature steel shafts with threaded and hardened tips. The insulated Mighty Probe™ tested to 50,000 volts. Top Poppers™ open manhole covers easily. Free catalog. www.TandT tools.com. Phone 800-521-6893. (CPBM)

RIDGID model #300 with stand, RIDGID tristand vises. RP 330 ProPress kit. The Cable Center: 800-257-7209. (CBM)

Ritchie Yellow Jacket Recovery System & BULLET 7 cfm pump. The Cable Center: 800-257-7209. (CBM)

Bosch Brute hammer drill with cart irons. The Cable Center: 800-257-7209. (CBM)

TV INSPECTION

New top-of-the-line Cyclops Electronics Sewer Inspection System mounted in good running 2005 Ford E-250 Van. P&T color camera, HD transporter, 1,000' TV/tow cable, front and read color LCD monitors, 1,000 watt inverter, DVD rec/player, powered cable reel with auto level wind and dell laptop with PACP certified software. All for only \$61,000. Call 830-249-9756 and talk to the guys that build 'em. (C01)

TV INSPECTION

New Cyclops Electronics Valu-Pac IV Standard P&T color camera, heavy duty transporter, all-in-one controller for camera, lights, reel and transporter, 15" LCD monitor, DVD rec/player, keyboard data system with onscreen footage, motorized reel with 500' TV/ tow cable. All for only \$32,700. Call 830-249-9756 and talk to the guys that build 'em.

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

CUES TV System: 1999 Ford E-350 truck with pan & tilt camera, slide-out Honda generator, and DVD recorders. \$8,500. 352-419-9093, Ocala, FL.

FOR SALE: Aries CCTV inspection truck, 2008 GMC C4500 4x4, excellent condition & low miles, with laser profiler. Please call 612-210-5524, FL.

Used and rebuilt camera kits in stock: RIDGID Mini Compact, Mini Color, Standard Self-Leveling, General Gen-Eye I, II and III, Aries Seeker, and SRECO kits. The Cable Center: 800-257-7209.

Aries video inspection equipment for sale: 2 badgers, 1 camera, wheels, blocks, spare parts, Satellite III, and portable easement machine with 500' cable, used once. Call 800-356-4468 or email sales@russellreid.com for photos and details. (C01)

VACUUM LOADERS

2012 Western Star cab and chassis, Power Vac 5300, 3,250 U.S. gallon, carbon steel DOT 407/412 regulations vacuum tanker with a Hibon PD blower, 5300 SCFM with vacuum to 28" mercury, dump type with full open rear door, and a Presvac PVB 750 vacuum-pressure pump. (Stock #13518V www.VacuumSalesInc.com, (888) VAC-UNIT (822-8648). (CBM)



VACUUM LOADERS



hi-dump: Brand new blower with warranty from Guzzler, 161k chassis miles, great truck, fresh paint, ready to work! 903-738-2917 TX C01

1991 Ford L9000, 41k miles, Supersucker, dry/wet vac dump, CAT diesel, very good condition. \$14,900. Ray, 856-534-0205.



1999 International w/ Guzzler Ace DF: 139k chassis miles, fresh paint, great truck, ready to work!\$145,000 903-738-2917 TX

VACUUM LOADERS



1997 Ford "Louisville" with Presvac stainless hi-dump, 382k chassis miles, great, versatile truck, fresh paint, ready for work!.....\$125,000 903-738-2917 TX



1991 Freightliner Cajun with 3,000 gallon stainless tank, Demag Wittig vane, 406k miles, nice truck, fresh paint, ready for work!\$55,000 903-738-2917 TX

WANTED

WANTED: I'll buy your sewer truck running or not. Any brand and any make. PH 305-509-0467, Juan. Email trucksofmiami@gmail.com. (C01)

Wanted to Buy: Vactor 2100s and late model Guzzlers. Cash. 800-336-4369.

WATERBLASTING

Gardner Denver T-375M: 21 gpm @ 10,000 psi. Gardner Denver T-450M: 52 gpm @ 10,000 psi. NLB 10-200: 34 gpm @ 10,000 psi. NLB 20-600: 44 gpm @ 20,000 psi. Gardner Denver LC-1500: 390 gpm max, 15,000 psi max. NLB 10-200: 10k max, 34 gpm max. NLB 36-200 6 gpm @ 36,000 psi. Jetstream 4220: 20k psi @ 17 gpm, Allis-Chalmers 10x8x22, 700 hp Wheatley 125: 15 gpm @ 10,000 psi, Wheatley 165: 30 gpm @ 10,000 psi, Wheatley 165: 17 gpm @ 20,000 psi. Boatman Ind. 713-641-6006. View @ www.boatmanind.com. (CPBM)

WATER JETTING EQUIPMENT: We sell. repair and retrofit water blasters. Visit us at: www.waterjettingequipment.com or phone 714-259-7700.

40,000 psi Sapphire Nozzles, UHP hoses & replacement parts. Excellent quality & prices. 772-286-1218, info@alljetting.com, www.alljetting.com.

Cleaner **AVERAGE** MONTHLY CIRCULATION REACHES READERS!

www.eleaner.com SUBMIT YOUR CLASSIFIED AD NOW!! Just click on "Classifieds" — "Place a Classified Ad" Fill in the online form! View Latest Issue » SUBSCRIBE NOW ARTICLES **NEW EQUIPMENT** CLASSIFIEDS **ADVERTISING** INTERACT SUBSCRIBE SEARCH Custom Search

The toughest tools down the line.

The LT1000 Laptop Interface Combines the flexibility of your laptop with your SeeSnake® Reel.





Giving Back Big Cover Story

Digital Edition Current Issue in Ezine Format

Classifieds



THE CABLE CENTER • 1-800-257-7209



24 HOUR TURNAROUND - MIDWEST'S LARGEST FACTORY AUTHORIZED REPAIR CENTER FOR GEN-EYE, GATORCAM & SEESNAKE





- Used Camera Kits Starting As Low As \$500
- G-I Reels
- G-I Monitor/VCR Combo Packages
- G-II Reels
- G-II Monitor/VCR Combo Packages
- G-II Locators

- G-III Monitor/VCR Combo Packages
- DVD Upgrades Available For Additional Charge
- J- 3055 Jetter Demo Models
- J- 3080 Jetter Demo Models
- J- 2000 (One Available, NEW In Box)

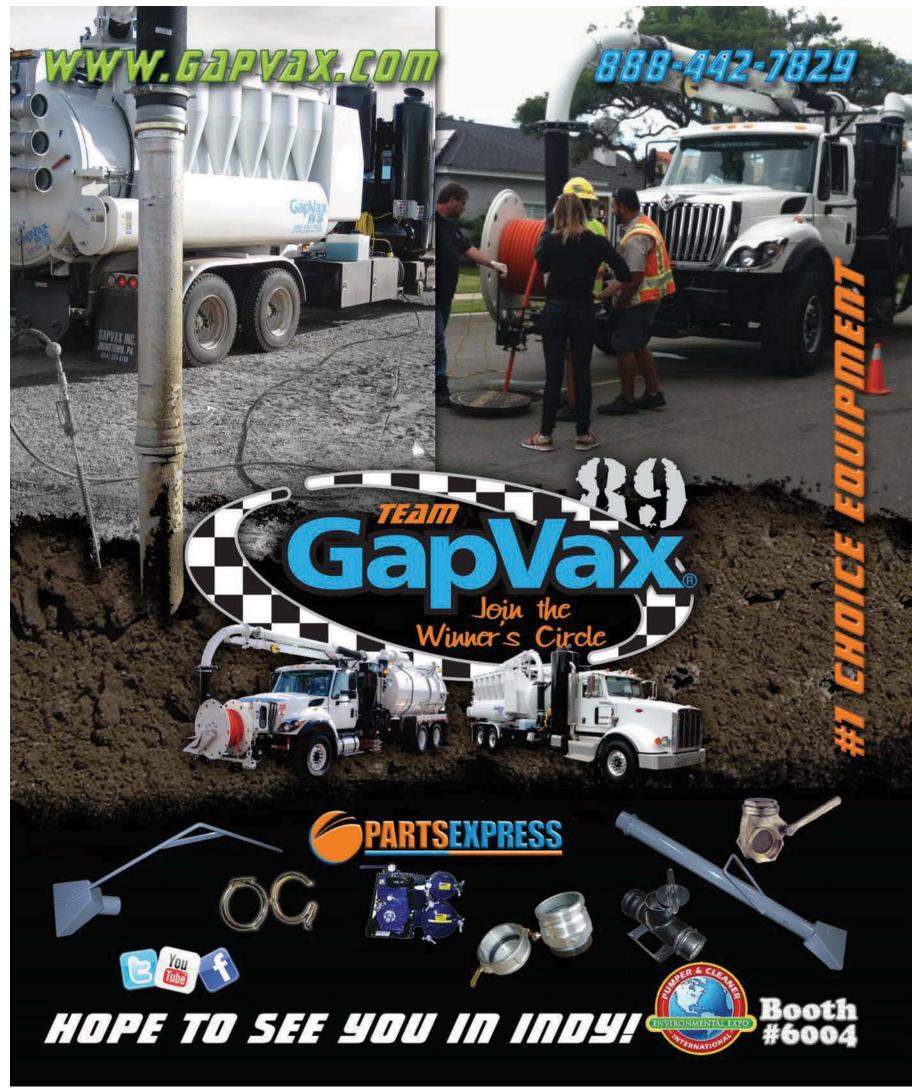
EVERYTHING MUSTE No Reasonable Offer Will Be Refused



















Ultimate Warrior/ Hi-Flow Ultimate Warrior

Introducing the most powerful force in the field. Spartan unleashes two of the industry's toughest jetters. The Ultimate Warrior brings you all the features of Spartan's revolutionary Warrior — a fully enclosed, sound-dampening fiberglass body, the power of 4,000 PSI at 18 GPM, and a 180° pivoting hose reel with optional six-function remote control for easy operation in tight quarters — but in a dual axle configuration with a towable capacity of 600 gallons. And that's not all. Its alter ego, the new Hi-Flow Ultimate Warrior offers 3,000 PSI at 35 GPM, perfect for small municipalities and use in larger sewers.