

Cleaner

FOR DRAIN AND PIPE CLEANING, INSPECTION AND REHABILITATION PROFESSIONALS

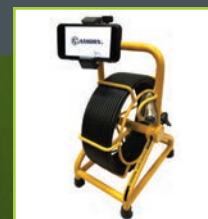
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IN HIGH DEMAND

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PRODUCT FOCUS
LOCATION & LEAK DETECTION, DRAINLINE TV INSPECTION EQUIPMENT / 36

A hand holding a blue surgical mask, with a General Pipe Cleaners machine in the background.

THANK YOU THANK YOU

We stop and give pause, reflecting on all the professional drain cleaners, plumbers and others, dedicated to their craft and continuing to contribute to the community during these extraordinary times.

Thank you and be safe.

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ON THE COVER

After running the service department of a hardware and plumbing store for six years, Michael Reed started his own company in 2017. He runs Big Dawg Plumbing & Backflow as a one-man operation in Buffalo, New York, where he has steadily grown the business and gained a reputation for excellent work.
(Photography by Libby March)

COMING IN JULY

Annual Buyer's Guide

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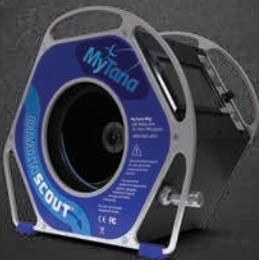


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Jim Koshuta

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NuFlow has teamed up with Pro-Kanal to introduce our newest technology, NuCure Cold Cure UV (CCUV), the original true cold cure UV-LED system. Pro-Kanal has been supplying their Double Helix, low voltage LED UV light core technology to the market since 2016. By combining Double Helix technology with NuFlow's proprietary Cold Cure UV resins we've created an evolutionary leap in light curing technology.

WHAT MAKES NUFLOW'S UV-CURED LINING DIFFERENT?

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NuCure CCUV resin offers many advantages over the legacy CIPP resins. These resins are shelf stable allowing the contractor to wet-out on or off-site, provides a longer pot life, and enables exceptionally fast UV cure times. NuFlow's CCUV resins cure densely within 10 to 20 minutes, drastically reducing installation times and limiting the duration of thermal energy release. The low temperatures and durations mean NuCure CCUV liners can be installed within thin walled plastic pipes, which could not be lined with other CIPP technologies. In addition, the resins have zero VOC avoiding nuisance odors and resident concerns at the jobsite.

NuCure GRP Liner Tubes

NuFlow's NuCure GRP Liner Tubes are engineered for performance. These seamless, radially expandable, ECR, fiberglass tubes are engineered to conform to bends and size transitions. Utilizing NuFlow's Precision PIP (push or pull-in-place) installation methods enables the CCUV to achieve reliably accurate placement without any cumbersome inversion equipment or complex robotics.

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Passing your knowledge along to others is a great way to help our industry



Kim Peterson

I've always enjoyed reading, ever since I was a little kid. I rarely went anywhere without taking a book with me.

I have less time for it these days, but I always have a book I'm currently reading. And when I need a break in between titles, I always have magazines lying around.

I really love magazines. I love all types. It doesn't even matter what the topic is: I'm not as picky about them as I am about books. I love flipping through a magazine — and of course I mean the real thing, the glossy-paged, hold-it-in-my-hands edition, not digital copies. I still subscribe to several magazines and will never stop.

Considering my love of reading, it's no surprise I ended up working in publishing. It's been so interesting to helm this magazine, and I enjoy putting together the stories for each issue.

One thing I value so much during that process is the conversations I have with the contractors we feature. They have been so great to talk to and learn from. It's rewarding to tell their stories and hold them up as examples to inform and educate the rest of the industry. My main goal is to help you, our readers.

I've learned a lot in my time here, about products and technology that were never even on my radar before being introduced to this industry. My hope is that, even if you've been working in this field for a long time, you still find value in these pages.

There's no one correct way to run a drain cleaning business. We've told the stories of contractors with very different philosophies and business plans. But I hope reading about the ways others do things inspires you in your own work. Maybe a tech story delves into a service you don't offer yet, but want to learn more about; or Better Business introduces some new branding or marketing tips you could try out.

But I can't keep this content interesting and, most important, helpful without your help. Every story I assign needs knowledgeable people to help tell it.

I'm always looking for contractors who are doing great things in this industry to participate in our profile articles. If you are growing your business, started branching out into new services or just have a good story to tell, I want to hear about it.

If you recently completed a difficult job or discovered that one piece of equipment that you can no longer do without, reach out. I'd love to hear from you. Send me an email at editor@cleaner.com or call me at 715-350-8441.

I am also always open to hearing any ideas for topics you'd like to see covered in *Cleaner* in the business, tech or safety columns, so if there's something you'd like to see more of, drop me an email and let me know.

Sharing your expertise with others is such a great way to give back, and it also helps elevate the industry as a whole.

I hope you enjoy this month's issue. **c**

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Frame & Reel: 100% Stainless Steel
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Weight: 341 lbs
Dimensions: 55"H (with handle), 43 1/2" (without handle), 38"L x 25"W

1776 Standard Edition



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- Electric / Remote Start • Hour / Battery Gauge
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Patriot - Mini Rod

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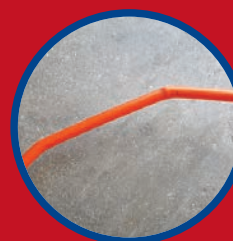
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— The Wide Spectrum of Business Marketing Possibilities
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GIVING BACK

The Benefits of Incorporating Charity Into Business Operations

There is the good feeling that comes with giving back to your community, of course, but your company can be a beneficiary in certain ways as well. This online exclusive takes a look at several different ways you can make charitable actions part of your everyday business operations and the benefits you might find by doing so.

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THE QUIET MAN

Tap Introverts' Potential to Improve Your Staff

Introverts can create negative impressions — that they’re not friendly or not team players or don’t have a lot to add to the conversation. But that’s simply a personality type and not truly reflective as to how effective they can be as employees. This online exclusive looks at strategies you can adopt to bring out the best in quieter crew members. [»cleaner.com/featured](https://cleaner.com/featured)



CHANGING TIMES

COVID-19 Pandemic Forces Drain Cleaners to Adapt

The primary headline of 2020 is the coronavirus pandemic, even as restrictions gradually begin to lessen. This online exclusive from April features Next Plumbing of Southwest Florida, scheduled to be profiled in an upcoming issue. The company is a good example of the variety of new processes businesses have had to implement to deal with the changes brought on by the pandemic. Despite things slowly getting back on track, many of these processes will be the new normal for a while. [»cleaner.com/featured](https://cleaner.com/featured)



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IN HIGH DEMAND

Michael Reed has established himself in Buffalo as the man to call for plumbing remodels, pipe replacement and backflow testing

By Giles Lambertson //

Photography by Libby March

» Big Dawg Plumbing & Backflow owner Michael Reed uses a RIDGID K-7500 drum machine to clear a residential basement drain.



Buffalo, New York, is old and cold. The city dates from very early in the 19th century, and its average January temperature is slightly below freezing. Michael Reed takes it all in stride for two reasons: He's a Buffalo native, and he's a plumber. Cold can be good for business.

"It was 8 degrees F yesterday morning," he said during a February conversation. "We don't get long stretches of bitter cold, maybe two or three days in a week. But then it warms up into the mid-30s, pipes thaw or burst, and I get slammed with calls. It happens often, usually because a basement has a window or there's poor insulation in a wall."

Reed owns Big Dawg Plumbing & Backflow, a one-man shop he opened in 2017 that is steadily growing into a standard of excellence in the city and surrounding Erie County. The company's success isn't all from frozen pipe calls, either. Reed is building his business on three things: plumbing new houses and remodeling old ones, testing backflow devices and personal integrity.

CALL THE BIG DAWG

Reed served in the U.S. Marines and was looking for a job in 2007 when he visited family-owned Hertel Hardware & Plumbing in Buffalo. He inquired about working there, and the owner asked Reed if he knew Matt Valentine.

"Sure, he was my platoon sergeant a few years ago," Reed told him.

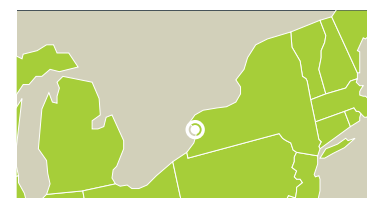
"Cool. When can you start?"

Name-dropping and respect for military service — if only all jobs were secured so easily. Reed made the most of it. He signed on and worked at Hertel Hardware for nine years. He ran the service department for six years.

"If there was a question from a customer — some question about the plumbing equipment or how to tackle a difficult task — the service guys would say, 'Better call the big dawg.' Pretty soon I changed the caller ID on my phone to 'Big Dawg' as a joke. Then customers started calling me that as well. Before long, everyone knew me as Big Dawg." When he went into business for himself in 2017, Reed made it official: Big Dawg Plumbing & Backflow was born.



« Reed adjusts a chain knocker on a RIDGID K9-204 FlexShaft drain machine.



Big Dawg Plumbing & Backflow

LOCATION: Buffalo, New York

OWNER: Michael Reed

SERVICES: Drain cleaning, residential plumbing including kitchen and bathroom fixture repairs, sump pump service, sewer line video inspection and repair, water heater repair and service, backflow testing, natural gas line repair

SERVICE AREA: Buffalo and all of Erie County – 1,200 square miles

WEBSITE: www.callbigdawg.com



» Michael Reed watches progress on the monitor of a Vivax Metrotech vCam MX2, while using a RIDGID K9-204 FlexShaft machine to clean a basement drain.

“If there was a question from a customer – some question about the plumbing equipment or how to tackle a difficult task - the service guys would say, ‘Better call the big dawg.’”

Michael Reed

Two years ago, he brought on a second plumber to help him meet the demand of customer calls. Before long, Reed had to let him go.

“My biggest thing with customers is to try to be honest and upfront.” Unfortunately, his lone employee “didn’t exemplify that,” he says. “I’ve found that if you are honest and very direct, not feeding them any garbage, they become comfortable with you doing your work.”

An honesty policy is clearly working for Reed. The calls keep coming. “At the moment, I’m OK working by myself, but it’s getting to the

point where I am going to have to hire someone. I’m getting extremely busy.”

REPLACE AND REPAIR

The “old” part of the city’s character is apparent in its infrastructure. Many of the sewer mains in Buffalo are formed of bricks rather than clay, concrete or plastic sections, which means they are subject to more leaking and inflow. Most laterals on residential property are fabricated of vitreous clay. Across the western New York region, communities small and large are struggling to have their sewer pipes lined or



replaced with PVC pipe, some of that in response to consent orders from environmental protection offices.

Big Dawg Plumbing & Backflow captures its share of the leaking laterals and drainpipe work. Reed inspects pipes with the company's Vivax-Metrotech MX2 video cameras and cleans them with RIDGID cable machines. He also wholly replaces damaged laterals. Because replacement requires excavation, for such jobs he reaches out to D'Amorie Construction — owned by a friend in nearby Blasdell.

D'Amorie Construction got the call recently after a property owner contacted Big Dawg Plumbing & Backflow to complain about a blockage in a sewer lateral. Reed sent the MX2 into the line and watched it disappear below backed-up water. Subsequent investigation revealed that a faulty city project was to blame.

The city had hired a subcontractor to line a sewer main in front of the house with a cured-in-place product. Unfortunately, during the in-pipe reinstatement process that gives laterals access to the pipe, the robotic cutter miscalculated and only exposed 1 inch of the 6-inch-diameter lateral opening.

Reed was contracted to replace the pipe and reestablish a link with the main. After

D'Amorie Construction opened a hole at the house end of the pipe, Reed inserted a 4-inch PVC pipe into the 6-inch old line, doing 10-foot sections at a time. At the bottom end of the line, another hole was opened so he could connect the new pipe to the opening in the sewer main. The whole project took about five hours. "The customer got a brand-new sewer line, and the town paid for it."



Reed sets up a BossJet water jetter from Amazing Machinery for a drain cleaning job.

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Michael Reed (right) and homeowner Butch D'Agostino watch the camera monitor while Reed cleans and inspects D'Agostino's basement sewer drain.

"I've found that if you are honest and very direct, not feeding them any garbage, they become comfortable with you doing your work."

Michael Reed

IN THE ZONE

The 32-year-old company owner holds several master plumber licenses — in New York, the licensing is done by local jurisdictions. Though he takes on some commercial jobs, Reed is most comfortable remodeling houses and apartments and plumbing new residential construction. He says he likes working with contractors and with the variety of customers who call with home plumbing problems. "I'm in my zone dealing with new people," he says.

Remodeling work generally claims the biggest share of his working time, though last year new construction claimed as much. He had witnessed a "lull" in economic activity in the city center as companies moved away and commercial buildings were vacated, which was followed by a surge of new construction in 2019.

"Not-so-great neighborhoods are up and coming; empty buildings are getting occupied again. I'm getting a lot of remodels and newbuilds. I'm not the cheapest guy, but people see they are getting quality work."

CONTINUED >>

Expanding into PEX

Copper used to be king in waterlines with residential and commercial water systems mostly being fabricated of copper pipe in the last half of the 20th century. Galvanized steel pipes also held a dominant position in the waterline world. Both are being dethroned by plastic lines. Michael Reed works with all three types of pipe in his plumbing work in the western part of New York state.

Reed operates Big Dawg Plumbing & Backflow in Buffalo and surrounding Erie County. The older housing stock in the city contains lots of galvanized and copper pipe, and Reed says he works with copper lines three or four times a week. "Copper drainlines not so much, but there are plenty of copper waterlines."

Galvanized pipe tends to leave discoloration in porcelain sinks, and it eventually rusts through and leaks. "When the galvanized pipe clogs up or rusts, we take it out." The same goes for copper. Reed replaces the failed metal pipe sections with PEX — cross-linked polyethylene — a flexible and durable plastic tubing. He generally utilizes PEXa, which can range from 1/2 to 4 inches in diameter and is certified for use on potable water lines.

The tubing has the virtue of being expandable, swelling up to three times its normal size. In a city situated on the U.S.-Canadian border and subject to freezing weather, the peril of waterlines being fractured by frozen water is real. The flexible plastic is extra assurance against the threat.

Reed uses the tubing in remodeling jobs — when a bathroom is being enlarged, for example, and lines are moved or lengthened — as well as in new construction work. Anywhere there potentially will be freezing temperatures — such as in the crawl space under mobile homes or in uninsulated basements — PEX waterlines are the rule.

Codes specify copper pipe in some cases, however, and sometimes replacing old copper with new copper makes sense. In those cases, Reed breaks out his torch, striker, solder and flux and goes to work like plumbers have for a long time. "I always keep my torch on the truck."

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Plumbing newly constructed residential units can be cold work during the winter, but there is little choice: Construction is done seasonally, Reed says. “What happens is they get the foundation in during the warm months and it’s October or December before I can get in to plumb.”

In those new residential builds, Reed enjoys installing exotic shower systems with multiple body sprays and touch controls, some with a waterfall and a Wi-Fi system. “That would be my favorite job — high-end showers. I’m getting quite a reputation around here for installing them.” Case in point: When another plumber recently failed to get a fancy shower working, Reed was called to finish the job.

FINDING A NICHE

Another strong component of Big Dawg Plumbing & Backflow work is testing and replacing backflow devices. The devices are placed on waterlines to prevent inadvertent flow of water from a possibly contaminated source into a clean-water supply. Reed cites the example a few years ago of leakage from a residential waterline in a cul-de-sac after its device failed. Everyone living on the dead-end street was infected by a bacterial agent that backflowed from the home’s water supply into the mainline where it traveled to neighboring homes.

Two types of backflow devices are used to prevent this: a double check valve assembly, or DCVA, and a reduced pressure zone, or RPZ. The DCVA has two springs, each engineered to resist a pound of water pressure and keep a valve cover closed against backpressure from a private line. The RPZ contains a differential valve as a final defense against bad water incursion.

“I was working with Hertel Hardware in 2013 doing a lot of commercial remodeling and the water authority told us we needed to have the backflows tested when we installed them. That got me to questioning about the devices,” Reed recalls. He learned that an organization called the Cross Connection Control Foundation teaches how to install and test the devices. Reed took a week off from work to take the class. It was an investment of time and money.

“You have to pay a hefty fee to enroll in the class and a hefty fee to buy the testing gauges,” he says. The investment has paid off, however. Today, about a quarter of his business revenue is produced from backflow jobs and that percentage could grow: Backflow testing presently is required only for commercial connections, but

some New York authorities are pressing for installation and testing of residential lines, too.

“It’s not a very high moneymaker at first, but once you build up your clientele, it’s a steady income,” he says. Annual inspection of the devices is required by law, and that generates return customers. Reed estimates one in 20 of the tested units needs replacement and one in 10 needs repair. Some jurisdictions have begun to require that repairs must be done by a plumber with a master license and a testing license, but that’s no problem for Reed.

Half of the company’s backflow clients are Reed’s regular customers; the other half are customers of other plumbers who call



» Reed walks up to retrieve one of his hoses after a drain cleaning job.

him to do the work for them. When a device fails the test, a property owner has 30 days to fix or replace it. Reed’s report goes to the health department, which follows up with a call to the water user. Or Reed follows up. Either way, he usually gets the call to make things right with the device.

COURTEOUS SERVICE

Given Reed’s wide variety of work, he’s become adept at swapping out tools in his GMC Savana truck to support the work of the day. For a repair run, out go the Vivax-Metrotech inspection camera and his RIDGID cable drain machines — he has five, including a K-7500 drum machine and K-45 unit for smaller drains — and in go his chop saw and assorted lengths of PVC pipe. His newest piece of equipment is a custom-built jetter from Amazing Machinery. It’s a 4,000 psi, 4 gpm jetter with a 150-foot hose and RIDGID Root Ranger nozzle.



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“People are pretty good about it. **They don’t call in the middle of the night unless a floor is flooded or a water heater blew. They wait till morning.**”

Michael Reed

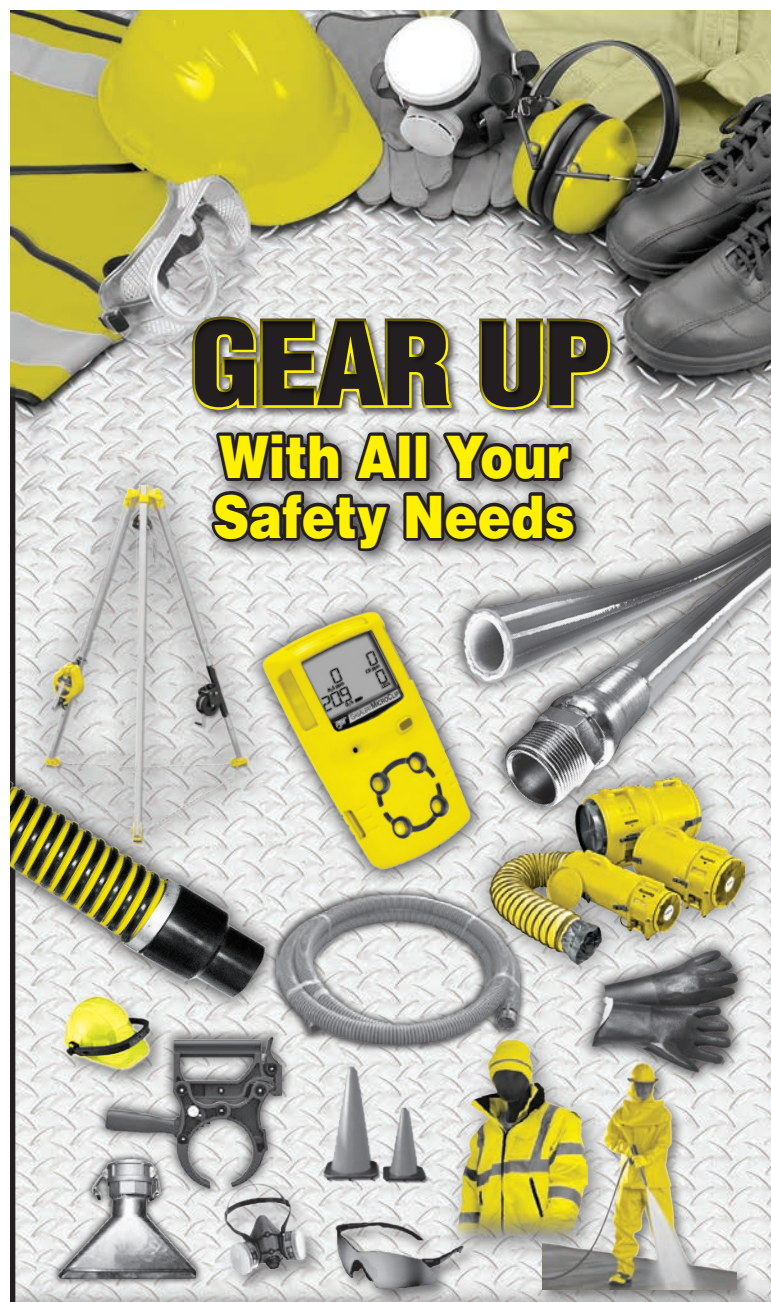
Though he advertises 24/7 service, Reed happily reports that the midnight calls seldom come. “People are pretty good about it. They don’t call in the middle of the night unless a floor is flooded or a water heater blew. They wait till morning.”

The courtesy extends to cutting Reed some slack when his own emergencies come up — such as when his wife, Meagan, gave birth to their second child, Isaiah. He called about a dozen customers whose work had been lined up for the following few days and said he would have to reschedule his visits. “‘Oh, my goodness,’ they said. ‘Call me when you’re free. I’m not calling anybody else.’” **c**

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CUES



Ami Kassir

Explore SBA-Backed Loans When You Need Cash

The federal Small Business Administration doesn't hand out money, but it backs loans that can help your drain cleaning business grow

By Ami Kassir

Where does a drain cleaner turn when he or she needs an infusion of cash to buy a new piece of equipment, launch a new service offering or build a new shop? The first stop for funding toward a new trailer jetter might be the friendly hometown banker who knows you and your business. Or you might approach that well-heeled uncle to invest in your business to help you take that next step.

If you exhaust those two options, consider going to the Small Business Administration, a federal agency that doesn't operate as a bank but acts as a valuable conduit to lenders predisposed to work with businesses like yours.

You might think the SBA is a big, bureaucratic behemoth that would be difficult to tap into for financial assistance. But that is just one of the misconceptions people have about the government agency, which has been around since 1953 and generally receives good reviews from the businesses it assists.

Let's talk about three of the biggest myths surrounding the SBA. You may have heard:

The SBA lends money

Although the SBA can directly lend money in cases of disaster, that's not its main role when it comes to lending. Instead, it serves as a government guarantee program for banks and nonbanks.

That means it essentially serves as a backup to lenders who might otherwise not be interested in making loans to smaller and/or unproven businesses. It offers guarantees up to 85% for loans up to \$150,000 and 75% for loans bigger than that. Because lenders working with the SBA are less likely to endure the full brunt of defaults, they're more likely to make loans to unproven businesses.

The SBA does set requirements and application process details. Applications will require personal background information, a business plan, personal and business credit reports, income tax returns, bank statements and a resume, among other things. It's also possible personal or business collateral is required.

One benefit for the borrower is that loan terms tend to be longer (up to 10 years) and require smaller monthly repayments due to favorable interest rates.

The SBA is only for mom and pop shops

Mom and pop shops are among the kinds of businesses the SBA is looking to help, but they can also work with much larger businesses. Through its flagship 7(a) program, SBA-backed loans can be as large as \$5 million for needs such as working capital. And through its lesser-known 504(b) program, as much as \$12.8 million can be obtained for businesses seeking to buy real estate or major equipment.

Because lenders working with the SBA are less likely to
endure the full brunt of defaults, they're more likely to make loans to unproven businesses.

A \$5 million or \$12.8 million loan is way above what most small businesses need. While there's no one-size-fits-all template for a typical SBA loan customer, most are businesses that are going to have anywhere between \$50,000 and \$5 million in annual revenues and up to 40 employees, which fits the scope of many companies in the drain cleaning industry. Those businesses are likely to be cash flow positive and profitable.

Of course, if mom and pop shops need a loan, small amounts are available, too. There are no minimum guaranty amounts for any SBA loan program.

My banker didn't tell me about SBA-backed loans or said I'm not qualified, so I'm out

Not to fear: You're most likely not "out." About 2,200 banks and other lenders throughout the U.S. write SBA-backed loans. Each one uses the program differently and requires varying qualifications.

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So even if one lender rejects you, it doesn't mean that all will. It's always worth trying another lender (or two or three) if you get rejected — advice that applies when seeking non-SBA loans as well. If you go to a doctor and don't like what he or she says, you may get a second opinion; so why not do the same here?

In addition, there may be other reasons why your go-to lenders may not tell you about SBA loans. Perhaps they're ignorant about the program. Or maybe their employer doesn't give them incentives that make them want to push SBA loans; remember, your banker is trying to make a living, too, and might push you toward more profitable options for his or her own pockets.

It might even be something as simple as your banker doesn't want to go through the necessary paperwork. Lining up an SBA loan usually does require more documentation than a regular loan. And large banks often aren't interested in making small loans, which can be less profitable and riskier than larger loans.

So, if you get rejected for an SBA loan by a large bank, try a smaller bank, which may well specialize in the program and have lenders who are well versed in the process.

UNDER FURTHER CONSIDERATION

Hopefully this clears up some of the misconceptions about the SBA and its lending programs. These programs work, as many business owners will attest, and there's no downside in at least considering an SBA loan the next time you need funding. Its website, www.sba.gov, is helpful as well, providing further information in an easy-to use format. **c**

ABOUT THE AUTHOR

Ami Kassir is chief executive officer of MultiFunding LLC, a speaker and the author of *The Growth Dilemma*. For more information, visit www.amikassar.com.

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Putting It Into Practice

Ongoing training helps keep your employees safe on the job

By Kim Peterson

“**C**ulture of safety” is a phrase that gets used a lot. For a lot of companies, it is a reality — safety is paramount and deeply embedded in every part of the work they do. A dedicated safety manager puts together job hazard analyses before every job; workers are trained monthly on best practices and reminded daily to wear personal protective equipment; and work halts if even the slightest risk becomes apparent.

For others, safety might be given more lip service than actual practice.

A lot of companies probably fall somewhere in between. Safety is important to most companies. Keeping workers safe means productivity and profits, whereas injuries and accidents mean paperwork and downtime, or even fines from OSHA.

But adhering to safety rules when it suits you and having those rules permeate every part of your work environment are two different things. Safety training shouldn't just be required for new employees or restricted to monthly meetings. Training should be constant and ongoing in order to truly achieve that culture of safety.

June is National Safety Month, promoted by the National Safety Council, a nonprofit safety advocate that focuses on saving lives and preventing injuries in the workplace and beyond.

If your safety training could use some freshening up and you're not sure where to start, visit www.nsc.org. The council's website provides tipsheets, articles, social media graphics and more that are specific to National Safety Month, as well as others that are year-round safety training resources.

To help direct training during the month of June, the National Safety Council focuses on a specific topic each week:

June 1-7: Emergency Preparedness

When a medical emergency occurs, time is of the essence. Knowing and performing first aid and CPR can drastically increase a victim's chance of survival.

There are a lot of additional resources that can help you provide training opportunities for your crew or add to what you're currently doing if you're weak in one area.

June 8-14: Driving

Motor vehicle crashes are the leading cause of death in the workplace. Whether you drive for your job or just for your commute, responsible roadway habits can keep everyone safe.

June 15-21: Ergonomics

Poor ergonomics can lead to overexertion, the leading cause of preventable workplace injury.

June 22-30: Employee Engagement

Complacent employees may be unaware of the hazards around them. Getting employees engaged can improve an organization's safety culture and performance.

There are a lot of additional resources that can help you provide training opportunities for your crew or add to what you're currently doing if you're weak in one area. It's easier than ever to get quality training materials.

The OSHA website offers training materials that cleaning companies can use to provide high-quality training opportunities for employees. Online, you can find publications, DVDs and videos for training, along with stand-alone interactive, web-based training tools on occupational safety and health topics. Topics include confined-space entry, excavation and trenching, eye protection, bloodborne pathogens and much more. There's a whole library of resources right at your fingertips.

OSHA's Hazardous Waste Operations and Emergency Response, or HAZWOPER, series of training programs for the handling of hazardous materials — such as sewage — includes specific topics such as decontamination, emergency response plans and respiratory protection. The 24- and 40-hour courses cost far less than any accident, and there are even group discounts available for enrolling six or more employees. The eight-hour refresher course to renew certification is now available online.

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 water jet and vacuum equipment.

And these aren't the only sources for safety training. Websites like www.compliancetrainingonline.com, www.360training.com, www.tpctraining.com and www.grainger.com all offer safety instruction and training options, and there are many other sites offering tips and news that can guide tailgate talks about job site safety.

Ongoing training is the best way to keep your employees safe on the job and immersed in a true culture of safety. **c**

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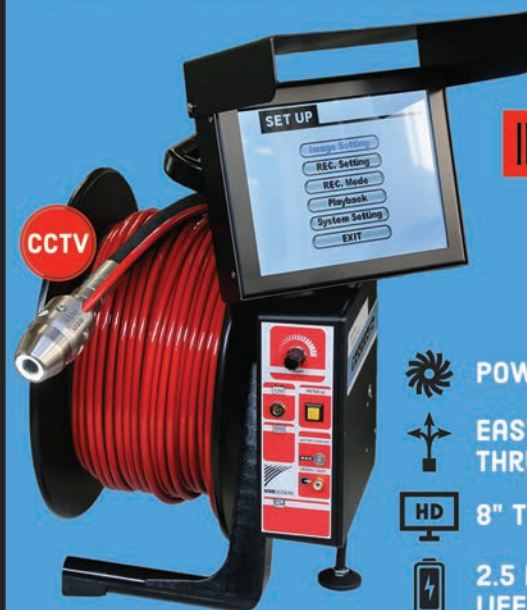
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Rapid Results

Inspection camera gives a Florida contractor a big edge with faster pipeline inspections and quicker assessment reports

By Ken Wysocky

Sometimes it's hard to stand out among competitors. Companies that inspect and assess pipelines, for instance, follow a familiar routine: Clean them, inspect them and send the client a report about a week or more later — rinse and repeat.

But that's not the case at Engineered Lining Systems (ELS) in Jacksonville, Florida, thanks to an investment in a CUES Digital Universal Camera, or DUC, pipeline inspection system. The technology helps the trenchless pipe rehab and assessment company differentiate from competitors by dramatically reducing the time it takes to inspect pipelines and compile assessment reports for clients.

"Less time on each job results in less time tying up traffic and less time bypassing a line, which means taxpayers get their sewer service back sooner."

James Macko

On average, technicians can inspect 3,000 feet of pipe per day as opposed to a more typical 1,000 feet per day. "It provides us with a huge productivity increase," says James Macko, ELS production manager. "That significantly decreases our boots-on-the-ground time.

"Less time on each job results in less time tying up traffic and less time bypassing a line, which means taxpayers get their sewer service back sooner. In addition, we can deliver a higher-quality end product to our clients. It's a total game changer."

In addition, ELS typically can submit video footage and assessment reports within hours, as opposed to days with older technology. And by uploading inspection data onto a Google Earth-style mapping program, customer and lining crews can access and overlay the information in the field with multiple devices, says Don Arch, ELS owner and president.



▲ The CUES Digital Universal Camera helps Engineered Lining Systems dramatically reduce the time it takes to compile inspection assessment reports for clients.

The better end-product stems from CUES' GraniteNet digital-processing software, which creates video by "stitching" together images taken by the camera. Macko compares the effect to how Google Earth software assembles images that enable users to see panoramic street views of various locations.

"The software effectively allows customers to view the video flat on a screen and see the pipe in two halves," Macko explains. "They can quickly see anomalies without having to watch, say, an entire 30 minutes of video footage."

Most clients use popular media-viewing tools that lack good fast-forward options. But the CUES system takes that frustration out of the equation, he says.

For certain applications, the DUC can be replaced with a conventional pan-and-tilt camera that takes regular analog video, increasing its versatility.

ENGINEERED LINING SYSTEMS

JACKSONVILLE, FLORIDA

OWNER: Don Arch

MACHINE: CUES side-scanning Digital Universal Camera system

FUNCTION: Rapid pipeline televising and assessment

FEATURES: 3.1-megapixel, high-resolution camera; wide-angle camera lens with 180-degree view capability; high-output, strobe-lighting system illuminates 6- to 60-inch-diameter lines without externally mounted lighting; GraniteNet digital image-processing software; pan, tilt and zoom capabilities

COST: Approximately \$250,000 (including vehicles and other accessories)

WEBSITE: www.engineeredlining.com

» ELS mounted the DUC system on a Kubota ATV, which allows it to maneuver through otherwise inaccessible job sites.

FASTER INSPECTIONS

Finishing inspections faster is a huge benefit for clients because they often hire ELS for emergency assessments, where speed is critical, Macko says.

The CUES DUC technology achieves such dramatic productivity improvements because of the 3.1-megapixel, high-resolution camera head with a wide-angle lens that provides a 180-degree view. The camera snaps four frames per second.

“With video, the operator has to stop at each pipe joint or anomaly to code it,” Macko explains. “That takes a minute or so at every stop to make notations. But with the DUC system, there’s no coding done in the field. You can do it that way, but you don’t need to.

“Instead, you just drive the camera through the pipeline at around 35 feet per minute, then take the images back to the office and code them there. It’s great because you’re not tying up an entire crew that typically has to wait around if you’re using older technology.” (The camera must be mounted on a CUES wheeled or tracked transporter.)

Finishing projects faster helps the company tackle more projects because inspection crews are more likely to be available when clients call for emergency service. “Our philosophy is get the job done and get back to the office,” he says. “Anytime you can control labor and potential overtime costs, it makes you more efficient and cost-effective.”

EFFICIENCY GAINS

To illustrate the productivity of the CUES DUC technology, Macko cites a recent project for a global company that’s rehabbing a roughly 50-year-old building on 9 acres of land in Jacksonville. The company wanted the project completed in three months.

Concerned about the condition of storm and sanitary sewers on the property, the company hired ELS to map out and assess all the pipelines and create a rehab plan. “They took a proactive approach — they didn’t want to rehab the building without knowing what’s going on underground.”

ELS mapped out all the pipelines and proposed a rehab plan in just three weeks. That probably would’ve taken six weeks with conventional technology, he says.

The company mounted the DUC system on a Kubota all-terrain vehicle, which allows it to maneuver through otherwise inaccessible job sites. The entire system, which includes a Honda generator, the ATV and a box truck to transport it, cost about \$250,000.

But in the long run, Macko is confident the investment will pay for itself. “It’s a very valuable tool in our toolbox.” **c**



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Location and Leak Detection, Drainline TV Inspection Equipment

By Craig Mandli



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3

ELECTRONIC LEAK DETECTORS

1 / GENERAL PIPE CLEANERS GEN-EAR LE

The Gen-Ear LE from General Pipe Cleaners allows users to pinpoint water leaks in residential and commercial waterlines, whether they are under concrete slabs, in walls, swimming pools or hot tubs. The compact amplifier fits easily in the palm of the user's hand and provides noise-free amplification with built-in preset audio filters. High-performance headphones with noise cancellation help block out interference from surrounding ambient noise. The advanced acoustic ground sensor listens for the gurgling or hammering of water escaping from a cracked pipe under concrete, asphalt or tile. For soft surfaces like grass or carpet, use the probe rods. For aboveground pipes or hydrants, use the magnetic attachment. A safety button in the amplifier mutes sudden loud noises when the button is released. Two AA batteries power it for 20 or more hours. 800-245-6200; www.drainbrain.com.

2 / HERMANN SEWERIN GMBH SECORRPHON AC 200

The SeCorrPhon AC 200 from Hermann Sewerin GmbH combines the characteristics of a correlator with acoustic water leak detection, combining prelocation, pinpointing and correlation in one single system. It is based on the tried-and-tested housing and hardware concept of the AQUAPHON A 200 from Sewerin. Each is suitable for use for leak detection across all sections, materials, diameters and lengths of pipelines. Numerous additional functions are also available for complex location scenarios. 888-592-9916; www.sewerin.com.

3 / MYTANA LOCATE AND LEAK DETECTION PACKAGE

MyTana's Locate and Leak Detection Package helps save time finding leaks in utility lines. The LD40 leak detector works like a stethoscope to detect hissing, trickle or seeping sounds while filtering out background noises. It can detect through any surface and has an easy-to-understand, real-time visual response meter, enabling operators to listen and watch for leaks. Five frequency bands help users home in on hard-to-find leaks, so the LD40 is suitable for use on vertical line leaks, slab leaks and irrigation leaks. The package includes the RL8873 locator and RT8872 transmitter, which can locate most buried utility lines. 800-328-8170; www.mytana.com.



ELECTRONIC LINE LOCATOR

4 / RADIODETECTION RD8100

The RD8100 cable locator from Radiodetection is engineered to deliver high precision for damage prevention when locating buried cables and pipes. This advanced range of underground utility locators offers optional integrated GPS and usage logging. Containing an arrangement of five custom-manufactured, precision ground antennas, it allows the user to choose the best method to locate specific pipes and cables. Integrated GPS and usage-logging options automatically generate data for customer reports or in-house quality and safety audits to promote the best working conditions. 877-247-3797; www.radiodetection.com.

PUSH TV CAMERA SYSTEMS

5 / CUES MPLUS+ XL

The CUES MPlus+ XL push system is designed for easy operation and flexibility with an all-in-one setup and quick removal of the control unit, which can be used separately. It includes a coiler configuration and pan-and-tilt camera for mainline and larger pipeline applications up to 500 feet. It integrates video observation coding, observation coding interface and digital recording. The lightweight system includes large, durable wheels for portability and a balanced footprint for stability. It is manufactured to handle rigorous field use. 800-327-7791; www.cuesinc.com.

6 / ELECTRIC EEL ECAM PRO 2

The Ecam Pro 2 mainline inspection camera system from Electric Eel has a stainless steel-housed, 1.68-inch, self-leveling color camera

with sapphire lens; 20-LED light ring with an impact-resistant polycarbonate light ring cover; and 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 premium braided fiberglass 1/2-inch-diameter pushrod (with a capacity of 400 feet available on the reel), industry-standard 512 Hz sonde, 10.4-inch daylight-readable monitor with click-touch controls, and one-touch recording directly to a USB flash drive. It has an on-screen footage counter, a two-hour battery with built-in charger, adjustable light controls, 16 pages of text writing with memory saves, voiceover recording, an 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.

7 / ENVIROSIGHT VERISIGHT PRO

The VeriSight Pro from Envirosight has a stainless steel, self-leveling camera with shadowless, variable LED illumination to capture crisp video footage, regardless of pipe material. With supplied centering devices, it inspects lines 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 almost any locator. Its welded steel coiler comes with 130, 200 or 330 feet of pushrod. The system runs continuously for six hours off internal rechargeable lithium-ion batteries or off main or vehicle power. Its multilanguage controller displays footage on an 8-inch thin-film-transistor LCD and captures up to 90 hours of MPEG-4 video on an SD/SDHC card or USB stick. It has 3x zoom, captures images in JPEG format from both live and recorded video, and offers a 16-page text writer with full QWERTY keyboard. 866-936-8476; www.envirosight.com.



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8 / EPL SOLUTIONS GVISION

The Gvision camera system from EPL Solutions offers a rugged, compact solution for inspecting pipelines 3 to 12 inches in diameter. Available with 200 to 400 feet of pushrod, the reel has a stiff, yet flexible fiberglass cable that is optimized for farther pushes through turns and bends. The color camera is self-leveling and includes a powerful, convenient, always-on 512 Hz transmitter for quick and precise area determination. The anti-glare LCD monitor delivers a clear, crisp picture even in direct sunlight. To record video inspections, connect a USB storage device or Apple mobile device directly into the USB port. The DVR outputs HD quality videos, which can be stored and shared from a mobile device. 714-453-9760; www.epls-usa.com.

9 / FORBEST PRODUCTS FB-PIC3188XX/4188XX

The FB-PIC3188XX/4188XX portable lay-flat camera system from Forbest Products comes with a 1-inch waterproof color camera head or 1-inch self-leveling color camera head with a built-in 512 Hz sonde transmitter, stainless steel spring kit and bright LED lights. It comes with 130 feet of 5.3 mm or 200 feet of 6 mm fiberglass cable, with a high-resolution 7- or 10-inch color control station with USB and SD recording. Typing and editing is optional for the 10-inch multifunction control station. The lay-flat design is convenient for one user to operate the camera independently. 877-369-1199; www.forbestusa.net.

10 / HATHORN M5W MICRO REEL

The M5W Micro Reel from Hathorn delivers everything needed to perform quick inspections in pipes ranging from 1 1/2 to 3 inches in diameter and up to 100 feet in length. The camera is easily portable, weighing only 15 pounds. The system comes equipped with a 512 Hz transmitter and a resettable on-screen footage counter.

The video is streamed directly to any mobile device, which can be used as your monitor. Audio and video can be recorded to a mobile device as well. The files are saved on the device and can then be transferred via email or text or to the cloud. 905-604-7040; www.hathorncorp.com.

11 / INSIGHT VISION CAMERAS IV2

The IV2 inspection camera system tablet from Insight Vision Cameras has a 10.1-inch, daylight-readable tablet screen. The unit can be powered with either AC, DC or a Milwaukee Tool M18 battery. The system performs on-demand recording and snapshots and has an on-screen distance counter. It has a self-leveling color camera head with modular design and an always-on, built-in 512 Hz sonde. The tablet rotates to any angle and offers one-touch recording to USB. 800-488-8177; www.insightvisioncameras.com.

12 / PEARPOINT (USA) P540C

The Pearpoint (USA) P540c offers an intuitive graphical user interface with built-in user manual, a full-size QWERTY keyboard and a choice of six different languages at launch. Context-sensitive, ATM-style buttons on both sides of the display provide access to the easy-to-use menus while an additional seven buttons offer direct control of the most-used functions. It has the capability to use the newly designed command module with any reel system. This will provide contractors the flexibility of having multiple rods for different uses while only needing one command module. 800-688-8094; www.pearpoint.com.

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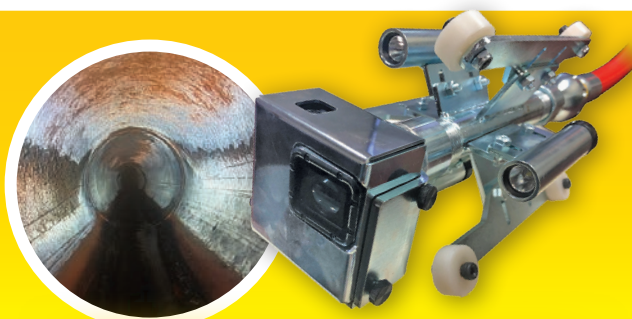
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13

13 / RAPIDVIEW IBAK NORTH AMERICA MICROLITE PUSHROD SYSTEM

The MicroLite Pushrod System from RapidView IBAK North America is a lightweight, small-diameter push system with durable steel-frame construction that delivers a high-quality image for all contractors and plumbers. Fitted with 100 feet of push cable, powerful LED lighting and an auto-uprighting camera, it is designed to inspect pipelines 2 to 4 inches in diameter. The entire system is powered by rechargeable batteries and is equipped with the positionable MicroLite Command Console, which includes a 10-inch touch-screen monitor, full Windows operating system, two USB connections and recording software. 800-656-4225; www.rapidview.com.

14 / RATECH ELECTRONICS PLUMBER'S HELPER JR.

The Plumber's Helper Jr. pipe inspection system from Ratech Electronics is based on a small-scale reel and comes with 100 feet of mini Gel Rod cable, a removable compact command module with 7.1-inch LCD, a built-in battery and an SD recorder for recording digital images and video. This mini pipe inspection system is available with a full-spectrum, 1.375-inch, self-leveling color camera; a standard color camera; or any of the company's three micro camera heads (5/8-, 3/4- or 1-inch diameter). 905-660-7072; www.ratech-electronics.com.

15 / RIDGID SEESNAKE COMPACT2

The RIDGID SeeSnake Compact2 with CS6x Versa camera system delivers big performance in a small package. It offers 100 feet of flexible push cable and has the ability to fit in smaller-diameter pipes, navigating through tight turns with a 2.5-inch minimum bend radius. Its self-leveling camera head provides an image that is always upright. The quick-release dock for the CS6x Versa monitor



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with Wi-Fi provides fast, efficient job setup. The CS6x Versa is an ergonomic, all-in-one solution for capturing media and delivering inspection results to the customers, and it offers multiple mounting positions with an adjustable kickstand to suit job site conditions. A 5.7-inch, daylight-viewable display provides a crisp, clear in-pipe image. A sturdy metal frame provides a solid base that makes it easy to push and retrieve the cable. Its FleXmitter sonde has long range and preserves the camera's ability to make turns. 800-474-3443; www.ridgid.com.

16 / SPARTAN TOOL EXPLORER

The Explorer modular camera system from Spartan Tool has a control box that is compatible with five different pushrods up to 400 feet in length, letting the user quickly adapt to any environment. Included WinCan software allows the user to map full plumbing systems for future reference, and files can be saved to a WinCan account, the cloud, external USB drives and the system's internal storage. The stainless steel camera head provides a crisp, color picture to the super-bright, sunlight-readable LCD. Change out reels to create a system that provides the ability to tackle any size job. 800-435-3866; www.spartantool.com.

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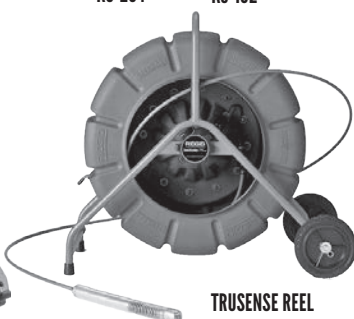


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17 / SUBSITE ELECTRONICS PRIVATE EYE II

The Private Eye II mainline inspection system from Subsite Electronics comes enclosed in a Pelican waterproof and crushproof case. Weighing just 30 pounds, it provides extreme portability without sacrificing field durability. It is a suitable solution for easements, off-road manholes or any locations that are hard to get to. It is also suited for smaller municipalities or contractors who need the power and capabilities of a full mainline inspection system in a mobile package. It is compatible with all the company's mainline cameras and tractors. When combined with the compact portable reel loaded with single-conductor cable, it can inspect 4- to 200-inch-diameter pipelines up to 1,000 feet in length. 800-767-1974; www.subsite.com.

18 / VIVAX-METROTECH VCAM-6

The vCam-6 HD inspection system from Vivax-Metrotech includes features such as text writer, voice-over, locatable sonde and traceable pushrod as standard equipment. The standard reel is available with 200, 300 or 400 feet of pushrod and choice of 1.3- or 1.8-inch self-leveling HD camera. The system includes a daylight-viewable control module with a 9.7-inch HD LCD monitor, distance counter and internal rechargeable batteries with five-plus hours of battery life. Video recording and JPG-format pictures can be saved to the internal 1 TB hard drive. The control module has built-in Wi-Fi to stream live video and snapshots to smartphone apps or directly to a computer for recording to the hard drive. 800-446-3392; www.vivax-metrotech.com.

SMOKE LOCATOR

19 / SUPERIOR SIGNAL SMOKE GENERATOR

Smoke generators from Superior Signal locate sources of surface inflow resulting in wet-weather sanitary sewer overflows. A fast, inexpensive and easy way to find leaks and faults in collections systems, smoke candles provide visible smoke to detect more faults at longer distances in sizes to meet any need. Smoke candles, blowers and fluid systems for smoke testing are available. 800-945-8378; www.superiorsignal.com. c

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Location and Leak Detection, Drainline TV Inspection Equipment


By Craig Mandli

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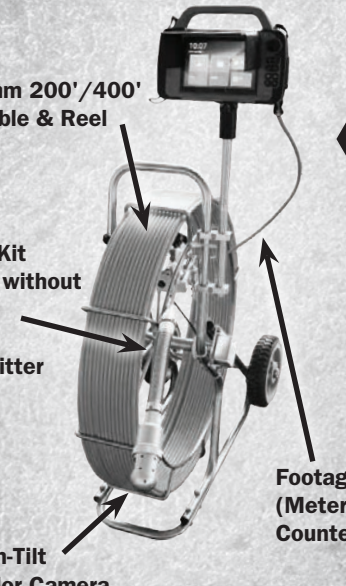
PROBLEM / By the time Mack Plumbing showed up on a rural Ohio job, the customer was stressed because a sewer pipe was backing up. No amount of plunging by the customer had helped. A plug in the pipe leading to the septic tank was easily accessible in the basement. Once removed, several buckets were used to collect sewage. Even then, strong flashlights could not show the problem.

SOLUTION / A Mack technician installed the CPI Products / Cavallero Plastics Trapmaster to get a 1.5-inch push camera into the 4-inch pipe and was able to pass by the remaining debris to view the blockage and determine exactly where it was. It turned out to be the last remaining section of a more than 30-year-old asphalt-coated paper pipe that had collapsed. The technician was able to pinpoint the location, and the collapsed section was easily accessed. This saved time compared to the alternative of digging up the entire pipeline.

RESULT / The repair was completed quickly, and the customer has a proper line all the way to the septic tank. 413-443-0925; www.cplproducts.com. **c**



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By Tim Dobbins



Serious drain cleaners know that a reliable, high-quality jetter is an important part of their equipment arsenal, and finding a jetter powerful enough to handle big jobs in a compact size can be difficult.

Patriot Sewer Equipment & Repair had both large-scale projects and compact design in mind when fabricating the Patriot 1812 skid jetter. Located in California, the makers of the Patriot 1812 saw narrow streets limiting the ability of a trailer hydro jetter and engineered a unit that provides the power of a larger trailer jetter in a size small enough to be mounted in the back of a work vehicle.

"Being a service and repair shop for plumber and contractors, as well as manufacturing dolly jetters, we have learned what we like and dislike on various models of equipment," says Thomas Hlavac, president of Patriot. "Listening to customer feedback and needs has helped us dial in what has been missing in the midsized hydro jetters currently on the market."

One feature the Patriot 1812 uses to save space is a 250-gal-lon portable water bladder that can be folded up when not used. Bladders are being used instead of relying on large water tanks built onto the units. Patriot does offer permanent water tank installation if the customer desires.

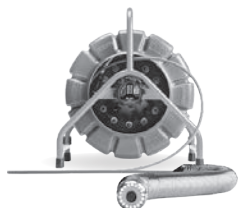
"A lot of time is spent dialing in the right motor and pump options, which can be limited," Hlavac says. "Instead of just choosing the standard, we fabricate our own parts when necessary."

The Patriot 1812 is smaller compared to other jetters in its class, but it still features a 37 hp EFI engine capable of producing 3,300 psi at 17 gpm. The unit is available with a 300- or 500-foot, 1/2-inch Piranha black hydro jetter hose on a stainless steel electric hose reel. Units also come with a remote control capable of turning the engine and water supply on and off, as well as throttle control up to a 1-mile range.

Every unit is custom-built and features performance-monitoring gauges for motor hours, fuel, oil, voltage and pounds per square inch. Building each unit by hand allows the team at Patriot to manufacture each jetter specifically to the customer's unique needs and application. It features a stainless steel frame, panels and reels so customers won't have to worry about rust in cold, wet climates.

"Feedback has been great," Hlavac says. "Customers cannot believe the small footprint and gpm of the Patriot 1812, let alone all the others features in such a compact size." 888-318-9888; www.patriot.us.

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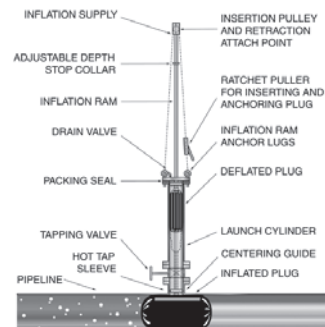
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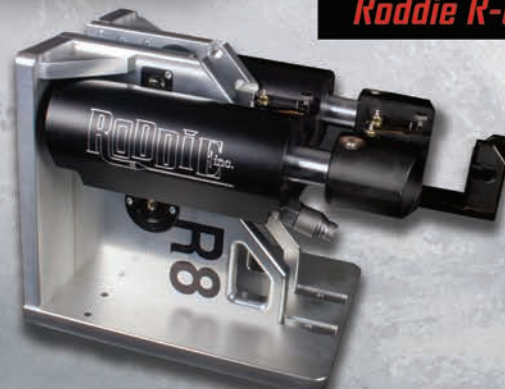
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