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#2

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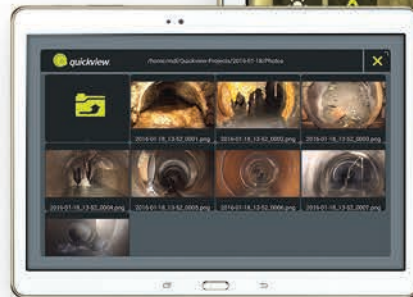
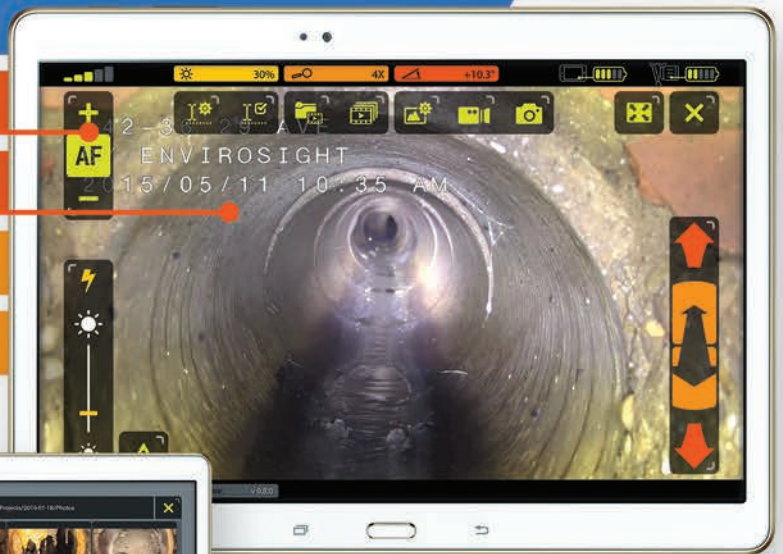
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Residential & Commercial Sewer & Pipe Maintenance

MONEY MACHINES: Contractor smokes out problems

SAFETY FIRST: Play it safe on the streets

MONEY MANAGER: Cut taxes, save for college



ON THE COVER

N.W. Sewer & Drain owner Spencer Chynoweth has built his Seattle-based business around residential lateral work. Providing trenchless pipe repair for other contractors has been an important part of the company's success. (Photo by David Ryder)



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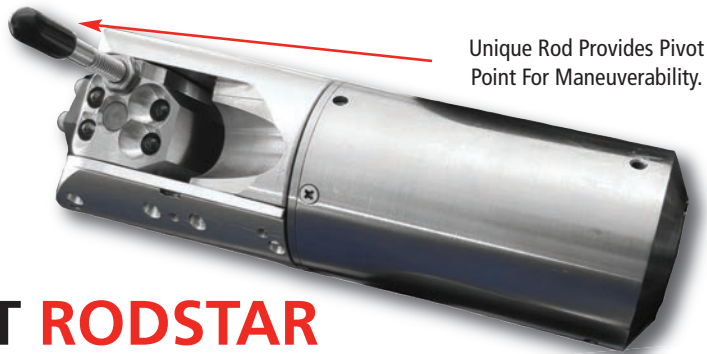
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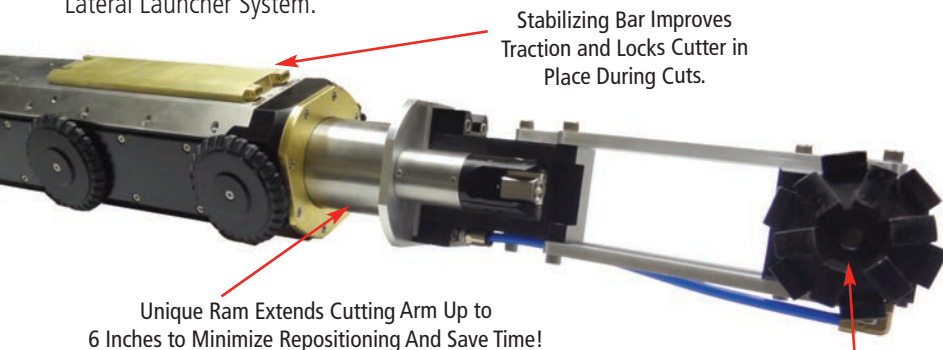
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Luke Laggis
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You Are the Real Story

Conversations with quality people provide fuel for the future

By Luke Laggis

I had a great time at the WWETT Show this year, mostly because of the people I met.

There were more than 13,000 attendees at this year's show. I met less than 1 percent of them, and I still had enough great conversations to fuel *Cleaner* for the next year.

One of the things I really enjoy over the course of the year is seeing everything from the show come to life in the pages of this magazine, from new insights to tools and equipment, and, of course, the people. Regardless of whether you were able to attend the show, you'll be able to share my experiences in future issues.

One of those experiences was meeting Doyle Parsons, a plumber and drain cleaner from Ball, Louisiana. Doyle woke up one Monday morning after

two years of hurricane relief work in New Orleans and decided to start his own business to better provide for his family. He had no tools or equipment, no service van and no customers. So he picked up the phone and started making calls. He went out and met potential customers. On Tuesday, he had 10 hours of work.

That was 10 years ago. In 2016, Parsons Plumbing, Heating & Cooling generated \$1.8 million in revenue and donated a significant portion to local charities. It's a success story you'll be reading more about in a future issue.

I also met Chuck Lang, owner of CST Utilities in Grove City, Ohio. His father started Chuck's Septic Tank Service in 1970, and as the company evolved to include more services, the name changed to CST. It's still a family company — Chuck and his dad, Chuck Sr., were both at the show along with Chuck's wife and kids.

CST has built a massive fleet of trucks and equipment. The entire fleet is wrapped with graphics, and everything is tracked with GPS. Chuck was showing me where various operators were and what they were doing back in Ohio as we stood and talked on the show floor. It was impressive, and so is the range of projects CST and its sister companies handle on a daily basis.

And then there was Bill Shuster, a young New Jersey plumber with a desire to provide community education opportunities and help kids get into the trades. We met at the Industry Appreciation Party, had a beer together and talked about everything from drain cleaning to education to tattoos. He's got a great story to tell, and I'm looking forward to sharing it with you.

In the middle of my conversation with Bill, another drain cleaner came up to introduce himself. It was one of the shortest conversations I had, but it was probably the most rewarding. Ben Smith of Marvel Sewer and Drain in Fridley, Minnesota, shook my hand and introduced himself simply to say reading *Cleaner* has changed his life. He started his business shortly after I took the reins of the magazine, and he credited *Cleaner* with helping him create his own success.

That's why I do what I do. That's the payoff. It made my whole trip to Indy.

Enjoy this month's issue. **c**

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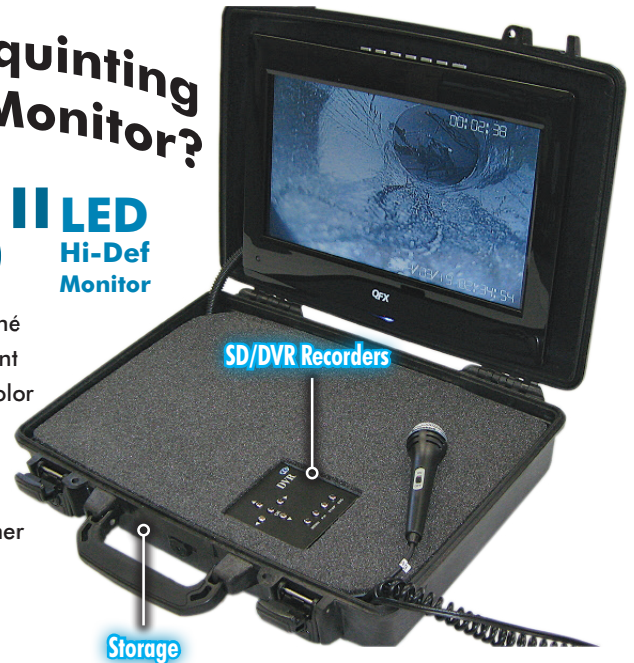
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How Can We Sell Our Business Fast?



Erik Gunn is a magazine writer and editor in Racine, Wisconsin. Direct Money Manager inquiries to editor@cleaner.com.

Put this 6-step strategy to work so you're prepared if unexpected life changes force you to sell your company quickly

By Erik Gunn

It's been a tough few years for the folks at family-owned pumping company John's Septic Solutions in Wilmington, Massachusetts. John and Paula Murphy have built the company over many years on elbow grease and a single, dependable vacuum truck. Along the way, they've earned the loyalty of more than 500 customers.

Then came terrible losses — the death in 2013 of John's brother and, not even a day later, the death of the couple's teenage son. Those personal tragedies took a toll on John's health, and a few weeks before Christmas, his illness led to the loss of his CDL. Suddenly, the Murphys were confronted with the need to divest the business.

Paula Murphy acknowledges they were feeling stuck for what to do. How could they possibly sell their business as quickly as possible and not feel they would just be throwing it away? As Paula points out, "You can't maneuver your way through this with just your QuickBooks."

The problem they're facing is one that seldom crosses the minds of small-business owners of any kind — what do you do when you need to get out fast?

Harry Hecht, a business consultant and entrepreneur coach in Orlando, Florida, has some advice. He's among the advisors for SCORE — a nonprofit group that helps small businesses get off the ground and grow, educates and mentors entrepreneurs, and is supported by the U.S. Small Business Administration.

The fact is, if you face a dilemma like this one, there is help. First, take a deep breath. Then break it down, step by step. Here's how:

Step 1: Get professional help.

All small-business owners "need to have a close relationship with a good attorney and a good accountant," Hecht says. If you don't already, find someone you can trust in those professional roles now. Ask around. Check with your trade association, your suppliers, even competitors. Who do they call on?

Step 2: Get everything in order.

"Any taxes need to be cleaned up," says Hecht, but don't stop there. Bring all your business record files up to date. Reconcile any discrepancies. Make sure you have year-to-year data on sales, employee records, business expenses large and small, outstanding debt and the path to paying it off. And don't forget your customer records and contacts.

The lawyer and the accountant will help you assemble this information. The object, says Hecht, is to have everything about your business sorted properly and in one place. When it comes time to divest, "the more turnkey you can make it, the better it will be."

Step 3: Get an evaluation.

Now your professional advisers will earn their keep. Enumerate and evaluate your assets — and not just obvious ones like your equipment and real estate. What's your workforce worth — in years of experience, depth of training, knowledge of how your company does things and your customers? And those customers — what are they worth? "You can put a monetary worth to that," Hecht points out.

Benchmarks for your industry can help. Enlist your state or national trade association if you need to.

Understanding your annual performance trends is critical. "If the business is growing moderately year over year, and you can show that, you can keep the price up" when it comes time to sell, he explains. If it isn't, the prospects might be tougher.

"If you have a customer that's been paying you revenue for years, that contract can be sold to a new buyer. You can monetize that."

Harry Hecht

For this analysis, pay more attention to your top line than the bottom one. "A company that's got revenue growth, even though profits are not up to speed, can still get a good price," Hecht says.

Step 4: Look realistically at your options.

By the time you've gotten this far, you should have a pretty good idea of whether you can sell the business as a going concern or are better off liquidating.

"That's the worst-case scenario — liquidation of assets," Hecht says. "If your business is somewhat successful and has a brand, there's no reason you can't sell it."

But you should also face up to when liquidation has its rewards. For example, "If you own some real estate, depending upon where it is, that could be positive," he says. "It can make up for a business not being that valuable."

Don't let wishful thinking inflate what your assets are really worth, though. "My experience is that customer lists aren't all that valuable," Hecht warns. "You can buy those lists for nothing."

More valuable is the detailed data only you can supply and customer relationships that carry greater force than simple loyalty. "If you have a customer that's been paying you revenue for years, that contract can be sold to a new buyer," he points out. "You can monetize that."

Step 5: Consider alternatives to an immediate cash sale.

Yes, you might think things are urgent, but can you buy some time? Consider taking on a business partner, Hecht says. You can sell to that person over time, phasing out your own role in the operation. Or you could sell your business to your employees, if you have some.

Don't want to stick around, even with a partner? You could sell it to an outside buyer, but finance the deal yourself. Yes, that does demand more involvement at first, and it also carries the risk that if things go south, you wind up having to foreclose, owning a business you were trying to sell. But on the upside, "the seller can get the most out of that type of a sale," he contends.

Step 6: Decide if a business broker is right for you.

Picking a business broker is like choosing a real estate agent for your house. "There's good ones and there's bad ones," Hecht warns. "Making that decision on who's going to represent your business is an important decision."

And like most important decisions, it can be time-consuming. Hecht suggests you consider 10 or 15 candidates and evaluate them critically. Are they experienced in your industry? How long are their properties on the market? When they close a deal, do they tend to get their list price or close to it? You want a careful student of the market skilled at sizing up the businesses they represent. You don't want someone who slaps on a pie-in-the-sky price that time on the market grinds into crumbs.

And if everything you've read so far is just hypothetical, then you might consider ...

Step 0: Run your business so you can expect the unexpected.

The best time to prepare for an emergency is when there is no emergency. Always position your business for sale. Don't wait until you find you must act now.

For Hecht, the simplest strategy is to run your business with the discipline of a franchise: Develop ongoing operations manuals; have a rolling, regularly updated business plan; establish and organize personnel policies, including job descriptions; construct clear and achievable financial standards and projections; and pull together everything you know about how to reach new customers and keep existing ones coming back — your fundamental market strategies.

"All that kind of stuff should be organized in a process manual and an annual business plan," Hecht says. "As a business coach I spend 90 percent of my time doing that with my clients."

So if you've got to sell now, take that deep breath and follow those first six steps. And if you don't, then consider going straight to Step 0.

Either way, you may find it a lot easier to sleep at night, and know that now — or later — you'll get the best price you can for all you've put into your business over the years. **c**



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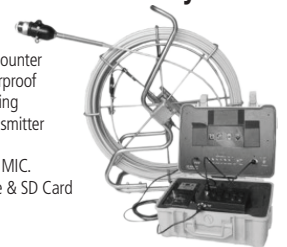
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PIPE LINING HACKS

What To Do When Your Liner Isn't Inverting

More pressure is not the answer when your liner stalls in the pipe. Exceeding the pressure rating on an inversion tank or other equipment puts you at risk for severe damage — even death if you're in close proximity to the exploding debris. Regular contributor John Heisler provides his advice about how to tackle the problem of a stuck liner.

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TO THE VICTOR GO THE SPOILS

Large Municipal Customer Base Makes Winning the Bid Vital

Municipalities have rules to follow when hiring private contractors to take on public works projects, such as going through a formal bidding process when work reaches a certain price threshold. That accounts for about 90 percent of New York-based Kandey Company's workload, so to remain sustainable it's important for the company to come out on top in the bidding process as much as possible. If you're in a similar position, here's how Kandey Company approaches it. [»cleaner.com/featured](http://cleaner.com/featured)

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BUYING EQUIPMENT

Busting the Top 9 Truck Financing Myths

Without the right equipment, your business comes to a grinding halt. However, procuring that equipment isn't always easy, and one of the most common methods used — financing — is shrouded by myths and misconceptions. Here are some of the top fallacies debunked. [»cleaner.com/featured](http://cleaner.com/featured)



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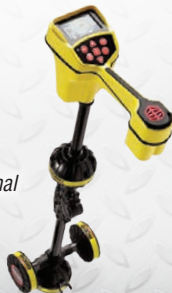


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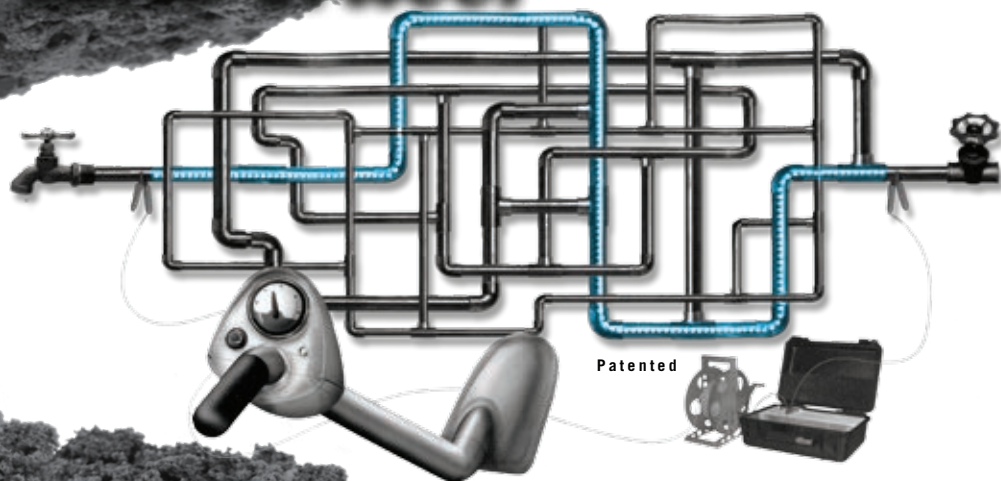


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MAKING A NAME

STARTUP COMPANY CLIMBS THE LEARNING CURVE AND
BUILDS ITS REPUTATION WITH SATISFIED CUSTOMERS

BY MARIAN BOND
PHOTOGRAPHY BY DAVID RYDER

S pencer Chynoweth went from painting airplanes to excavation work, and then, with some encouragement from friends, launched his drain cleaning business in 2001.

As an entrepreneur, it's not a path he recommends. He had little background in the industry. He had to dig his way through the newest technology and the challenges of developing a customer base, but he had the grit and determination to pull it together and make a name for his company. Along the way, his expertise grew and he learned how to run a crew efficiently.

When he formed N.W. Sewer & Drain in Seattle, Chynoweth's goal was to target lateral work for residential customers. Pipe bursting was one of his first moves into newer technology. He bought a system from Vermeer and dove into the process.

He built his customer base significantly by contacting local plumbing companies to offer services they weren't prepared to invest in or provide. If Chynoweth saw a plumbing van driving down the street he would note the telephone number and call the company to explain what he could provide as a subcontractor or referral company for specific needs.

If he noticed a community was getting ready to install sewer lines where homes had been on septic systems, he was there offering his help to homeowners.

SERVING CONTRACTORS

Working with other contractors has been a key piece of N.W. Sewer & Drain's growth and evolution.

"Clearly the most important things we did in the beginning were to work in conjunction with other firms — the plumbing contractors, excavation contractors — and to offer trenchless pipe repair. Many of those first customers have become an integral part of the customer base. Then we also had word-of-mouth."

Working as a subcontractor has provided opportunity for the business, but it also presents additional challenges.

<<< Cleaning and inspecting lateral lines has formed a solid platform for Seattle-based N.W. Sewer & Drain's growth and success.





««« Spencer Chynoweth steers the ship as owner of N.W. Sewer & Drain, but a good crew is critical for good work. Chynoweth is pictured with (from left) Josh Schemmel, Braeden Pickering and Derek Thomas.

DT #2

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BASED IN MARYSVILLE, WASHINGTON



FOUNDED: 2010
OWNER: Spencer Chynoweth
YEARS IN BUSINESS: 16
EMPLOYEES: 6
SERVICES: Drain cleaning, jetting, CCTV, pipe bursting, relining, waterline replacement
CUSTOMER BASE: Residential, some small commercial
WEBSITE: www.nwsewer.com
ASSOCIATIONS: PHCC



ABOVE Derek Thomas pulls hose off the reel and keeps a hand on the trailer jetter controls while clearing a commercial sewer line blockage.

>> RIGHT Josh Schemmel (left) and Braeden Pickering inspect the clogged line with a RIDGID SeeSnake.



“The most important thing is for us to do the best job possible when we have been recommended for a job, because we are a reflection on the other firm,” Chynoweth says. “Whether they just hand us the job and say ‘take care of our customer’ or if we work in a partnership where they pay us as a subcontractor.

“We have to use our own good morals and communicate that we are not out to steal a customer.”

CREATING A NAME

Building the company name has required more than just developing relationships with other contractors.

“Advertising is a very expensive thing. It requires many different approaches to keep up with the competition. That’s what we try to do,” Chynoweth says.

Creating a company website helped the company establish a stronger presence, but Chynoweth says it’s not a magic bullet. “Nobody goes to a website unless they’re an existing customer, and then they already know about you. Getting new customers on a website is a whole different matter. You have to hire an expert or a special service.”

In the end, he says it’s the customer who holds the ultimate power over the success and growth of any company because they share both good and bad experiences with others.

“Having satisfied customers is huge. You cannot please everyone, but it is critical to deal with an unhappy customer in the best way you possibly can to avoid criticism online. I recently had a complaint from a customer, although I had provided a copy of the video inside the sewer pipe, provided a map of where it was and how deep it was. He was not happy. Protecting the reputation is so important. We worked out a solution. That was fortunate.”

The company is listed on Angie’s List, and earning several Super Service awards has helped build a strong reputation. Chynoweth also recently joined the local PHCC chapter, which has provided another avenue to promote drain cleaning and other specialized services to plumbing companies.

GOING TRENCHLESS

Early on, Chynoweth would hire another firm to come in and inspect lines, but he eventually bought a camera and then a jetter in 2008. They were pricey items, but as he grew the company and customer base he was able to buy equipment and add services. He also purchased relining equipment from Perma-Liner Industries to go along with the Vermeer bursting equipment.

The company also offers waterline replacement through the use of directional drilling. Trenchless work in general is essential to the area they serve and currently accounts for about 50 percent of business.



“CLEARLY THE MOST IMPORTANT THINGS WE DID IN THE BEGINNING WERE TO WORK IN CONJUNCTION WITH OTHER FIRMS — THE PLUMBING CONTRACTORS, EXCAVATION CONTRACTORS — AND TO OFFER TRENCHLESS PIPE REPAIR. MANY OF THOSE FIRST CUSTOMERS HAVE BECOME AN INTEGRAL PART OF THE CUSTOMER BASE.”

Spencer Chynoweth

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They see a variety of pipes, from terra-cotta clay to concrete to Orangeburg. If a line is in very bad condition, pipe bursting can be the better option, but relining is still the more common approach. Chynoweth says evaluating the best way to handle a job can be extremely challenging. Each project is different, and so are the solutions.

Local sewer lines are often buried quite deep, up to 18 feet, and homes are often very close together, so digging up deep sewers for replacement is a monumental challenge as well as a safety issue.

“We do very little excavation to replace sewer lines,” he says. “We do excavation as required for pipe bursting or relining.”

The company also offers waterline replacement through the use of directional drilling, and standard cleaning and inspection work are another big part of the equation.

“In addition to our camera work and jetting, we offer locating and diagnostics to learn the condition of



Braeden Pickering wipes off the camera head before putting it away after an inspection.

“HAVING SATISFIED CUSTOMERS IS HUGE. YOU CANNOT PLEASE EVERYONE, BUT IT IS CRITICAL TO DEAL WITH AN UNHAPPY CUSTOMER IN THE BEST WAY YOU POSSIBLY CAN TO AVOID CRITICISM ONLINE.”

Spencer Chynoweth

the sewer lateral,” he says. “If the sewer line is backed up, our job is to find the solution. We do a lot of hydrojetting.”

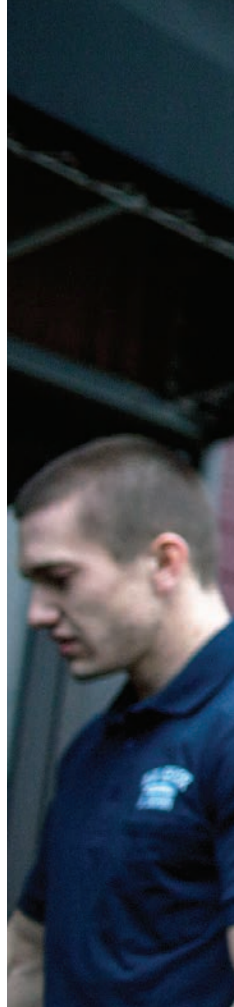
He now has two jetters, one from O’Brien (Hi-Vac) and another from Mongoose, both producing 4,000 psi/18 gpm.

The company handles its excavation work with four Kubotas, one Bobcat and a large Komatsu. His vehicles include a Ford Econoline, Dodge Sprinter, an Isuzu box truck and a Nissan van. He uses the Nissan for estimating and camera work, and a Freightliner step van carries all the lining equipment.

STAFFING UP

Like most owner/operators, Chynoweth is very selective in who he hires, and finding qualified technicians who meet his standards is a challenge.

“I have equipment that is not being used right now because of the difficulty in finding more qualified crews.



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◀◀ Spencer Chynoweth runs the trailer jetter on a commercial sewer cleaning job.



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◀◀◀ Josh Schemmel keeps an eye on the monitor as he feeds the SeeSnake cable into a clean-out behind the jetter hose.

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“I HAVE SPENT A LOT OF TIME WORKING IN THE FIELD, AND I DON’T THINK ANYONE CAN LEARN THIS BUSINESS WITHOUT THE FIELD EXPERIENCE.”

Spencer Chynoweth

At every meeting I attend, this is discussed and lamented.”

As a boss, Chynoweth likes to lead by example. He says he’s more than willing to get into the trenches and work with his team.

“I have spent a lot of time working in the field, and I don’t think anyone can learn this business without the field experience. It took years for us to really get going, but we’ve been in it long enough now so we know how

important it is to keep up with the latest technology. It can certainly be a risky business.”

His crews are universal and trained in all trenchless procedures, and everyone takes part in competent person training for excavation.

Chynoweth says running the company has been very rewarding. He appreciates being able to provide valuable services while being fair to customers. He is also happy that the company can offer good benefits for the employees and their families.

“I am grateful to my employees,” he says. “I could not do it all myself. I like to know we help them and appreciate them. I like to thank them for helping our company get things done.” **C**

WALKING THE MUNICIPAL HIGH-WIRE

Working with various cities has been a challenge for N.W. Sewer & Drain, but it has also been an important learning experience for owner Spencer Chynoweth as he has grown his drain cleaning and repair business in the Greater Seattle region of Washington.

In addition to developing the business with basic hands-on learning and experience, he has had to learn the intricacies and unique requirements of working within the various municipalities, as each has its own regulations and codes.

“Within a 5-mile radius we interact with four different cities, and each has their own set of license requirements and specifications,” says Chynoweth. “One might require 5/8-inch crushed rock around the pipe, and another want pea gravel, while the third will ask for 5/8-inch clean crushed rock. There is not a single standard for all. One city stated they would not allow pipe lining in their city, but after our working with their engineering department they added pipe lining to their specifications.”

He says they must deal with taxes, requirements for permits, insurance and much more, such as bonding and business licenses.

Chynoweth started his business with little experience in the industry, and his advice for anyone interested in starting a business is getting a job with an active company and learning before starting your own operation.

“I would never advise anyone to do it the way I did,” he says. “It was a slow beginning as I learned in the field. Beyond that, my advice would be to do your best to treat other people as you want to be treated, and that includes customers, employees, suppliers, and the competition as well.”

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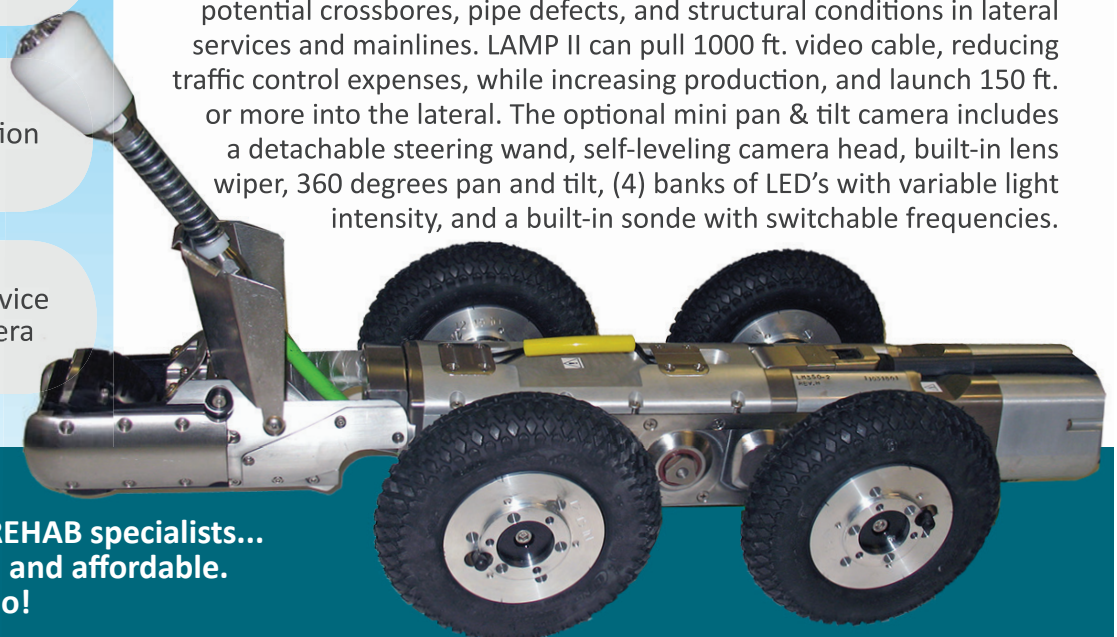
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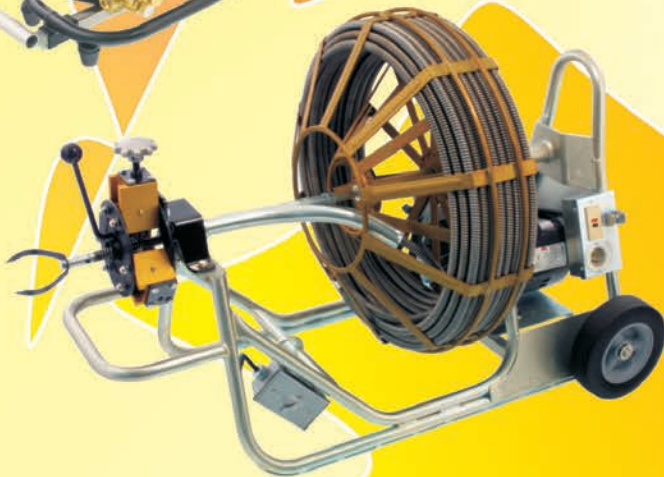
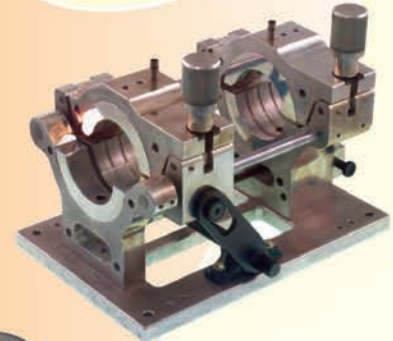
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Get in the Pit

Pipe bursting provides advantages and opportunities, but don't go in blind

By Luke Laggis

Your business is growing. You've diversified services and now you're thinking about adding pipe bursting to the mix. Where do you begin?

Pipe bursting offers many advantages compared to open-cut installations. First and foremost, the new pipe follows the path of the host pipe, so there's rarely a problem with hitting any other buried utilities. Disruption to roads, yards and other surfaces is also greatly minimized because excavation is only required for entry and exit pits.

The same can be said of other trenchless solutions like CIPP lining. Unlike lining, however, pipe bursting offers the ability to up-size pipes for additional flow capacity, sometimes up to five times larger than the host pipe's diameter.

THE MACHINES

There are two main types of pipe bursting machines — static and pneumatic. Pneumatic machines use a hammer in conjunction with a constant tension winch, while static machines use high-tonnage static pull.

Static machines can be used for all types of jobs while pneumatic machines work more quickly, but cannot be used in potable water systems since the hammer exhausts liquefied petroleum products into the pipe being installed and would find its way into the water system, says Kent Westendorf of HammerHead Trenchless Equipment. Pneumatic systems also have a footprint 50 percent smaller than static systems, which means crews need to do less excavation — a plus for many contractors.

"You need to decide between the two which one will work better for your project," Westendorf says. "A lot of contractors like the advantages of the pneumatic machines, but then find out it might not work the best for every job they have."

Static and pneumatic pipe bursting machines come in a variety of sizes and can handle pipes ranging in size from 4 to 24 inches in diameter, even larger in some cases. The equipment should always be sized to install a pipe of the same size or one size larger.

"Size is related to power and choosing the right power is related to the pipe size," says Brian Kelly, president of Pow-r Mole Sales in Lancaster, New York. "The physical footprint can be especially important on certain jobs, especially if the site is crowded. You need to have enough room for the selected machine."



CONTRACTOR'S PERSPECTIVE

No-DigTec is a Dallas-based contracting firm that specializes in pipe bursting. The company uses both the pneumatic and static processes. The former method is used primarily for replacing gravity-fed pipes and the latter mainly for replacing pressurized pipes.

Company owner John Newell says he immediately saw the future the first time he saw a contractor doing a pipe bursting job 18 years ago. Today, No-DigTec is the largest pipe bursting contractor in north Texas and one of a handful of firms nationwide that has the expertise and equipment to burst large-diameter pipes (generally defined as 24 inches and larger).



Since Newell formed the company in 2000, No-DigTec has invested about \$3 million in equipment and employs about 25 people.

“Bursting looks easy, but there are lots of tricks of the trade you learn only by experience,” he says. “For instance, there are things you can do to minimize the chances of your hammer stalling during critical bursts, like under roads and highways. If it does stall, they’re not going to close down a highway so you can dig it out, so you’ll have to get another line under the highway. So a \$200,000 job could turn into a \$1.5 million liability because you didn’t have the experience to set it up right.”

Murphy Pipeline Contractors, based in Jacksonville, Florida, is another successful business built around pipe bursting and other trenchless work.

“It all comes down to education and working with clients to explain the processes and the benefits,” says company owner Andy Mayer. “It’s taken about 15 years, but what I’ve seen in the U.S. — particularly with pipe bursting — is that trenchless technologies have become very accepted. It’s now gathering a lot of momentum.”

Education has been an integral part of Murphy Pipeline’s growth since the company’s founding in 1999. It remains so today. Company educational director Todd Grafenauer leads those efforts from the Murphy’s Milwaukee office.

“That’s primarily what my involvement has been since day one,” says Grafenauer, who was introduced to Mayer during one of the company’s first major projects. “It’s the first step we need to do before we can actually work because human nature is what it is. People do things they’re comfortable with. Why are there communities that only do open cut? Because that’s the way they’ve always done it.”

The company uses a variety of different educational methods. Grafenauer often travels to potential customers’ locations to give technical presentations about the trenchless methods. He’ll cover the history of the technology, show videos of the work in progress, highlight case studies, explain the technology’s value from a construction and design standpoint, and spend time afterward answering questions. Murphy Pipeline also holds “open days” at working job sites and sends out invitations so people can see the technology firsthand.

For contractors who rely heavily on customer education to ultimately sell their services, Grafenauer says it’s important to understand the full scope of what customers need to learn. He also says contractors should be prepared to do a certain amount of work up front with no guarantee that it will turn into a profitable job.

“There are all these companies that will bring salespeople in. We truly don’t have salespeople,” Grafenauer says. “Our main goal is to educate communities on these technologies and the value involved. If we do a good job, it’s a pretty easy decision for them to move forward.” **C**

MaryBeth Matzek, Kyle Rogers and Ken Wysocky contributed to this story.



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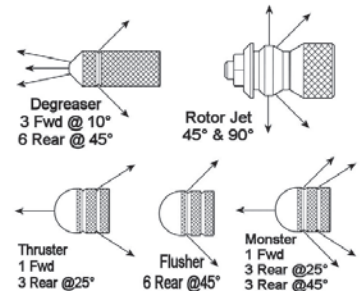


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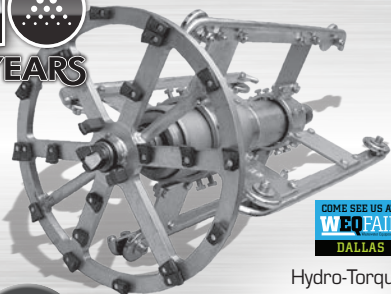
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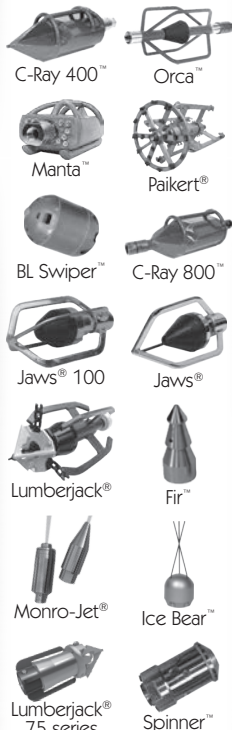
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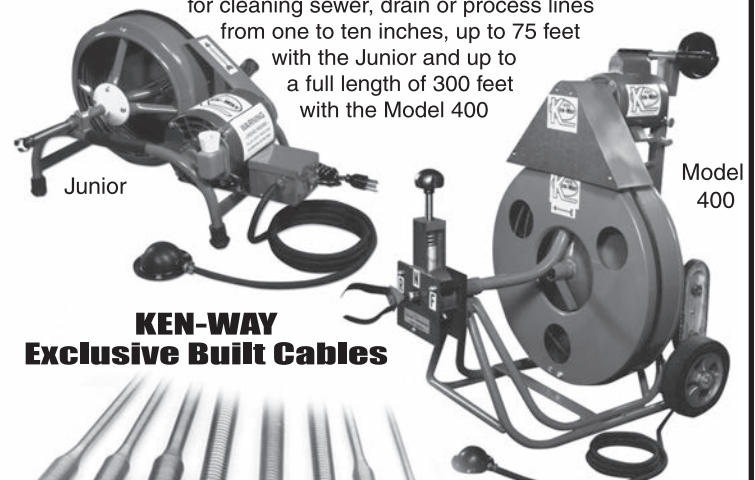


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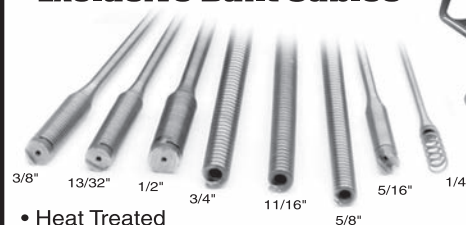
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BY KEN WYSOCKY
PHOTOGRAPHY BY DAVID RYDER

ONE THING LEADS TO

WASHINGTON CONTRACTOR BUILDS A ROBUST BUSINESS AS HIS COMPANY DIVERSIFIES AND MOVES INTO HYDROEXCAVATION

Jacob Sabin built a strong foundation for his excavating business a few years ago by primarily focusing on traditional machinery and techniques. But now that Greenfield Services in Puyallup, Washington, is firmly established, he's intent on employing different technology — hydroexcavating — to take his company to the next level.

When Sabin struck out on his own in 2013, he concentrated on basic services such as residential and environmental excavation. Just four short years later, the company does everything imaginable: land clearing, excavation work for laying water and sewer lines and installing grease traps, digging construction footings, exposing buried utility lines, remediation of contaminated soil, sewer line jetting and vacuuming, and cleaning car-wash sumps, to name a few.

Why branch out into so many different services? Sabin realized that the more he offered, the more attractive his company looked to potential customers who'd rather hire a one-stop shop than deal with multiple contractors. Moreover, as the saying goes, one thing inevitably leads to another. One job can unexpectedly generate more work as problems arise.

"They absolutely do complement each other," he points out. "Hydroexcavating creates work for excavating and vice versa, for example. We go out and jet a line, for instance, and find a break in the line that needs repair or replacement. So then we can send out an excavation crew. That's a good example of how these two divisions complement each other so well."

Diversified services also help to offset cyclical highs and lows, especially in boom-or-bust markets

like construction. "I like to be diversified so it evens things out — there's not so much up and down in terms of business cycles," he points out.

The backbone of the company's hydroexcavating division is a Vac-Con combination vacuum truck with a hydroexcavation package, built on a 2004 International truck chassis. While hydroexcavating currently generates only about 20 percent of the company's gross revenue, it produces higher profit margins than any of the company's other services. As such, Sabin is interested in expanding further into the hydroexcavating market.

"I have every intention of growing the hydro-excavating division," Sabin says. "I'd love to buy another hydroexcavating truck every year."

QUALITY AND GROWTH

The diversified approach generated rapid growth. In just four short years, the company's annual revenues have grown almost eight-fold, from \$350,000 in 2013 to about \$3 million in 2016.



profile

GREENFIELD SERVICES INC.

PUYALLUP, WASHINGTON

OWNERS: Jacob Sabin

ESTABLISHED: 2013

EMPLOYEES: 15

SPECIALTIES: Hydroexcavating, environmental construction

SERVICE AREA: Western Washington

WEBSITE: www.greenfieldservicesinc.com





Brian Minter (left) of the Port of Tacoma and Greenfield Services driver Mark Jones (right) watch Greenfield environmental division lead John Raring pothole around utilities at the Port of Tacoma using a Vac-Con hydroexcavator.

ANOTHER

John Raring, Mark Jones and Brian Minter (from left) evaluate an excavated utility line at the Port of Tacoma.



“THE ONLY WAY TO COMPETE IS TO OUT-PERFORM EVERYONE ELSE. AND WE DO THAT BY INVESTING IN QUALITY EQUIPMENT AND KEEPING IT WELL MAINTAINED, AS WELL AS HIRING QUALITY EMPLOYEES.”

Jacob Sabin

Aside from diversified services, Sabin’s formula for this remarkable growth spurt wasn’t all that complicated: Hire great employees. Create an I’ve-got-your-back company culture that promotes teamwork. And invest in quality equipment that boosts productivity and, in turn, increases customer satisfaction.

“We probably have hundreds of guys doing excavating in western Washington,” says Sabin. “The only way to compete is to out-perform everyone else. And we do that by investing in quality equipment and keeping it well maintained, as well as hiring quality employees.”

In addition, Sabin points out that he never low-balled on job bids in order to gain a foothold in his service area. “I’ve never worked cheap,” he notes. “I’m not a cheap guy, I’m a quality guy. I believe that quality sells itself. If you do a good job for everyone you work for, they’ll tell other people about it.”

Sabin relies heavily on one of his excavating foremen, Nick Watkins, whom he recently promoted to a superintendent in order to free up more time for Sabin to find more hydroexcavating customers.

“Nick is a great employee,” Sabin continues. “He went from working as a pipe layer to equipment operator, to foreman and now to superintendent. I’ve got really good employees — I’m very blessed. They’re really loyal, honest and hardworking people.”

Sabin also praises John Raring, manager of the company’s hydroexcavating division. He not only operates the hydrovac truck, he also helps out with sales and customer service. “Since he runs the truck, he’s out on the front lines — the guy who makes it all happen,” Sabin says. “He’s really kicking butt and is willing to work long hours without compromising quality.

“John also frees up my time to focus on managing, which is critical,” Sabin adds, noting he used to operate the hydroexcavating truck. “I strongly believe that profit margins are won or lost based on how well you manage operations.”

HIS OWN WAY

The seeds of Sabin’s career were sown in high school. He worked on farms and discovered

>>> Greenfield Services driver Mark Jones guides the vacuum boom on a Vac-Con hydroexcavator.

BELOW John Raring (right) and Mark Jones excavate a utility line at the Port of Tacoma.



he loved to drive tractors. Because he struggled academically, he knew college wasn't in the cards. So upon graduation, he instead took a job as a heavy-equipment operator, building logging roads. "It was an awesome experience," he says.

Eventually, Sabin worked for other companies and learned how to operate excavators and bulldozers, and drive dump trucks. He also learned how to do excavating for laying new water and sewer lines.

Along the way, he also learned something else: He'd rather work for himself than for somebody else. "The truth of the matter is that I'm not a great employee," he candidly notes. "I'm headstrong and opinionated and that usually doesn't go over well.

"Too often, someone would ask me to do something the wrong way — cut corners and do things on the cheap," he continues. "I struggled with that, because I take a lot of pride in what I do. The bottom line is if you don't want a quality job, you've hired the wrong guy."

So Sabin decided to strike out on his own. It wasn't a completely daunting task, since he'd already developed relationships with potential customers. Between that and word-of-mouth referrals, he soon financed the purchase of a Caterpillar 304 mini-excavator. "It was a very versatile piece of equipment, but still was small enough that I could tow it with a pickup truck," he explains.

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A SMALL BUSINESS WITH STRONG CULTURE

Before Jacob Sabin started his own company, Greenfield Services in Puyallup, Washington, he'd never heard the term "corporate culture." But he picked up on the concept pretty quickly and it's made a big difference for his young company, established in 2013.

By promoting a team atmosphere and going the extra yard for employees, Sabin has developed a loyal base of employees, which leads to minimal turnover, increased productivity and a high level of customer service. He preaches teamwork all the time. It even receives prominent mention on the home page of the company's website and the domain name of the company's email address is "goteamgreenfield."

It all started by asking another business owner a simple question. "I noticed that a local trucking company always keeps its good drivers for a long time, so I asked the owner what he does to achieve such low turnover," Sabin explains. "He told me you always have to put your employees high on the priority list. It can't be all take — you've got to give some, too.

"You have to build a culture where everyone feels like they're on a team, working together," he adds. "It's not 'him' and 'me,' it's 'us.' I know it sounds kind of cliché, but it's true. ... We try really hard to work as a team and take care of each other."

What does that mean in real life? As an example, Sabin points out that he's pulled shifts for up to 36 hours so an employee could attend an important family event. He also cites an instance where supervisor Nick Watkins filled in on a job when another employee had a last-minute family emergency. "We had to leave the yard at 3 the next morning, and Nick showed up at 2:30 to work as a laborer on the vac truck, even though that's not what he normally does," Sabin says. "He made it happen."

Sabin says he does other things to engender employee loyalty, such as pay competitive wages and give raises as often as possible. "There's a lot of things we can't do for people because we're a small company, but there also are lots of things we can do." Like pay for an employee's honeymoon. Or buy parts for an employee with a broken car and have the company mechanic perform the repair. Or let employees borrow company vehicles and other equipment when needed.

"I'm blessed with a really cool opportunity to create an environment that's positive and uplifting for employees," he says. "I spend more time at work than I spend with my wife and kids, so I want to make it enjoyable and hire people upon whom I can depend.

"I figure that if I do everything I can to take care of my employees, they'll do everything they can do to take care of our customers," he concludes. "After that, hopefully the money follows."



Brian Minter (left) and John Raring estimate the location of a pipe at the Port of Tacoma.

From there, he gradually added more equipment, primarily through rent-to-purchase arrangements. "That way, if I finished up a job but had no more work lined up for that particular machine, I could turn it back in — no harm, no foul," he says. "It takes a lot of risk out of the initial purchase."

"TOO OFTEN, SOMEONE WOULD ASK ME TO DO SOMETHING THE WRONG WAY — CUT CORNERS AND DO THINGS ON THE CHEAP. I STRUGGLED WITH THAT, BECAUSE I TAKE A LOT OF PRIDE IN WHAT I DO.

THE BOTTOM LINE IS IF YOU DON'T WANT A QUALITY JOB, YOU'VE HIRED THE WRONG GUY."

Jacob Sabin

HYDRO POWER

The center of Greenfield's push into hydroexcavating is a Vac-Con combination vacuum truck with a hydroexcavating package that is largely immune to breakdowns. Built on a 2004 International truck chassis, the unit features a 12-cubic-yard debris tank, a three-stage Vac-Con blower, a 1,300-gallon water tank and a water pump that generates pressure of 3,000 psi and flow of up to 80 gpm.

The hydrovac truck is used for a wide array of services, ranging from excavating and removing contaminated soil, to exposing underground utility lines, to cleaning municipal water and sewer lines. And it keeps customers happy by running. And running. And running.

"I have prior experience with Vac-Cons and I think they're the best product out there," Sabin contends. "For a machine with so many moving parts moving at high speeds, it's amazing how durable it is. Everything on it is made to last."

Maximizing equipment uptime has been a critical factor in Greenfield's success. "The truth of the matter is if you have a new customer and you have to call them and say, 'Sorry, our truck broke down,' they won't give you a second chance — you won't get invited to the party again. Instead, they'll just go down the list and the next guy up is going to get the chance to form that new customer relationship."



The Greenfield Services team includes (from left) driver Mark Jones, President Jacob Sabin, project manager Duane Meyer, and environmental division lead John Raring.

Sabin says the Vac-Con moves more air volume than any other unit he's worked with. That, coupled with the high-pressure water pump, makes short work of tough jobs. "Almost every week, we get a job where we're digging, say, 20 feet deep and you're 200 feet away from the truck," he explains. "In fact, I've pulled 300 feet of distance with 15 feet of head pressure (elevation difference) and the truck still performed like a champ. And that's without having to upgrade any features — it's a really high-performance machine right out of the gate."

"GROWTH IS EXPENSIVE. BECAUSE OF OUR RAPID GROWTH AND THE GROWING PAINS THAT COME WITH IT, I'M PLANNING ON SLOWING DOWN A LITTLE IN 2017 AND FOCUSING MORE ON PROFITABILITY."
Jacob Sabin

KEEP HUSTLING

Bolstered by a healthy regional economy, Sabin expects the company's growth to continue — at least in the long run. But in the short term, he plans to tone down expansion efforts in 2017 and instead focus on improving profit margins.

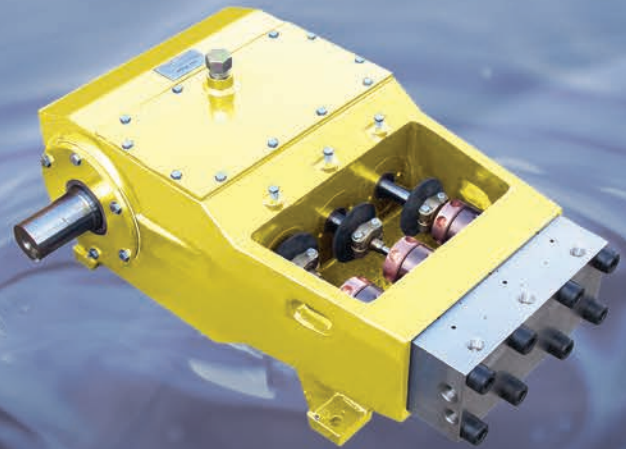
"Growth is expensive," he notes. "Because of our rapid growth and the growing pains that come with it, I'm planning on slowing down a little in 2017 and focusing more on profitability."

In the long run, Sabin says he's motivated to keep building the business so it's a strong and healthy entity when one or more of his four kids are old enough to take over, provided they're interested. "I like the idea of building something my kids can take over — passing along a legacy to them, if they choose to become part of this industry," he explains.

"The other part is that I'm greedy and lazy," he says with a laugh. "It's going to be awesome when I grow up some day and become comfortable financially. But in the meantime, I'm going to keep hustling and busting my butt every day — until I don't have to anymore." **C**

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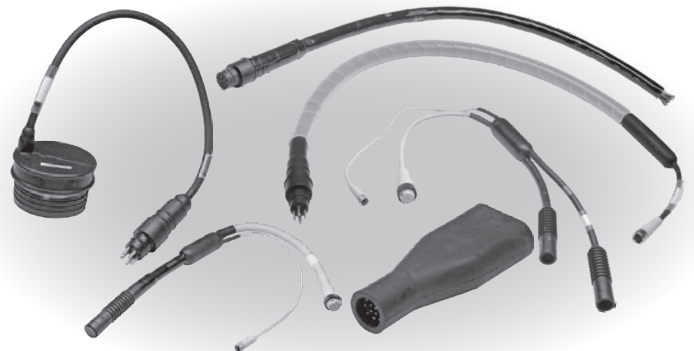
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A Sound Investment

Acoustic assessment technology helps sewer cleaning contractor quickly determine whether mainlines need further inspection

By Ken Wysocky

When trying to determine if sewer lines need cleaning, municipalities face a Catch-22. On one hand, it doesn't make sense financially to hire a contractor to inspect a line if it's not actually blocked. On the other hand, it's hard to assess how badly a line is blocked without a camera inspection.

But there's a solution to this conundrum: the SL-RAT, an acoustic pipeline assessment tool developed by InfoSense. SL-RAT stands for Sewer Line-Rapid Assessment Tool — an apt name for a device that can assess sewer line blockages (or lack thereof) in as little as three to five minutes, or 10 to 20 times faster than a typical camera inspection.

That speedy evaluation significantly reduces the cost of an assessment compared to a conventional camera inspection — especially if the televised inspection reveals a free-flowing sewer line that didn't need an inspection in the first place. The technology also eliminates confined-space entry, precleaning and contact with waste flow.

"The SL-RAT provides a rapid assessment of pipe flow," explains Bruce Jameson, regional manager for Ace Pipe Cleaning (part of the Carylton Corp.), a sewer inspection, cleaning and rehabilitation company headquartered in Kansas City, Missouri. "Think of it as a pre-screening tool you can use before doing a conventional sewer cleaning and CCTV inspection. It can help prioritize the need to do expensive camera inspections."

The SL-RAT is designed to assess 6- to 12-inch-diameter pipes, but only in manhole-to-manhole increments. The technology centers on a simple



ABOVE: The Sewer Line-Rapid Assessment Tool uses acoustic technology to assess sewer line blockages in as little as three to five minutes, or 10 to 20 times faster than a typical camera inspection.

<<<LEFT: The SL-RAT essentially consists of two paired devices that are deployed atop adjacent manholes. The transmitter sends a series of tones down into the pipe, while the receiver uses sophisticated algorithms to create a blockage assessment, based on what it "hears."



OWNER: Ace Pipe Cleaning Inc., Kansas City, Missouri

EQUIPMENT: SL-RAT acoustic pipeline assessment units made by InfoSense

FUNCTION: Fast assessment of sewer line conditions without inspection cameras

CAPABILITIES: Usable in rain and temperatures from 0 to 140 degrees; transmitter performs 50 to 80 measurements on a fully charged battery; reliably measures up to 800-foot segments of pipe at depths down to 35 feet; best suited for 6- to 12-inch-diameter pipes; works while sewer line is in service

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concept: As sound travels through a pipeline, obstructions — such as tree roots, grease buildup, joint offsets, bad lateral connections or sediment and other debris — block and dissipate sound, just like they impede water flow. In effect, the SL-RAT measures how quickly sound energy dissipates in the air space between sewage flow and the pipe wall, giving the operator a clear idea about the conditions inside the pipe.

Powered by one lithium-ion battery in each unit, the SL-RAT can also be used in remote manhole locations that aren't easily accessed by camera and vacuum trucks, he adds.

Jameson points out another benefit from acoustic inspections: To do the work, a crew must remove manhole covers, which also allows them to visually inspect the manhole itself. Municipal workers typically don't regularly open

“This technology is especially suited for small municipalities, which usually just don't have the money to spend on camera inspections. We can assess an entire small town in four or five days and tell them where to focus their resources, so it's a very effective tool for them.”

Bruce Jameson

The SL-RAT essentially consists of two paired devices — an 18-pound transmitter and an 11-pound receiver — that are deployed atop adjacent manholes. The transmitter sends a series of tones down one manhole and into the pipe, while the receiver uses sophisticated algorithms to create a blockage assessment, based on what it “hears.” The system ranks pipelines on a scale from zero to 10; the higher the score, the lower the level of blockage.

Established in 1954, Ace Pipe started using the SL-RAT about five years ago and now owns seven units. While Jameson cautions that an acoustic inspection cannot provide an exact measurement of the amount of debris blocking a mainline or determine what's causing it, it can quickly give the operator a general idea about whether the pipe is open or closed. If the acoustic inspection results in a score of five or below, a camera inspection is required, he says.

The SL-RAT also increases productivity because a two-man crew can inspect more linear feet per day compared to a conventional cleaning and inspection crew. If properly trained, a two-man crew can assess up to 10,000 linear feet per day. “This technology is especially suited for small municipalities, which usually just don't have the money to spend on camera inspections,” Jameson says. “We can assess an entire small town in four or five days and tell them where to focus their resources, so it's a very effective tool for them.”

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Brandon Smith (foreground) and Exavier Moceton of Ace Pipe Cleaning make a quick assessment of a sewer line segment with the SL-RAT.

up manholes to look for signs of surcharging, tree roots or buildup of grease, sediment and other debris. “So it’s a huge benefit to the (sewer) owners because we’re opening every manhole and doing reconnaissance they otherwise wouldn’t do. And you can find out a lot just by opening a manhole cover.”

Because the SL-RAT offers such a cost-effective mainline assessment — less than \$1 per linear foot — the technology helps Ace Pipe get a foot in the door that “otherwise might not open,” Jameson says. “And I’d say that opening the manholes alone is worth the cost of an (acoustic) inspection.”

Management at Ace Pipe first heard about the SL-RAT when another Carylton company, Bio-Nomic Services, beta-tested the product. Then Ace Pipe used an SL-RAT to successfully assess sewer lines in a Tennessee city and decided to invest in the technology. “In the beginning, I was a little skeptical,” Jameson says. “It sounded a little bit futuristic. But we’ve proven that the technology is accurate by comparing the scores to an actual camera inspection. We’ve also developed a template that breaks down what we can expect from various scores. It’s become a product that we truly believe in.”

If customers have reservations about the technology, Ace Pipe does product demonstrations. Sometimes the company also agrees to do a smaller pilot assessment program to give potential customers more confidence in the product. In other instances, municipalities only sign on for regular assessments of sewer line “hot spots,” where surcharges and overflows often occur. “Not every city understands the value,” Jameson notes. “But it’s widely accepted technology across the country and has a very good reputation.”

The technology also helps position Ace Pipe as a progressive company in the eyes of customers. “If you have an SL-RAT, you have another valuable tool in your toolbox, which helps people view you as more professional,” Jameson says. “When companies invest in technology like this, I think customers perceive that they also invest in other technologies from which they’re likely to benefit. It goes to the nature of our company’s interest in investing in technology other than just the basics.” **c**



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Raising the Game

Use the five pillars of teamwork to build a stronger culture at your company

By John Hendershot

Have you ever noticed that the teams with superstars are not necessarily the ones who win the championship? There is something more valuable than superstar ability or taking the shot every time you get the ball. We have all witnessed a tier-two sports team upset a top ranked, top talent team, and we scratch our heads asking “How in the world did that happen?”

Most sports fans have heard of famed basketball player Earvin “Magic” Johnson. Magic was so good in high school that his coach would tell him to take the shot every time he got the ball. Even though they would win big, Magic could see the faces of the parents who came to watch their sons play the game, and the disappointment in it. At one point he decided to make a huge change in the way that he played the game.

Magic decided to positively affect the play of everyone on his team by raising their game and acting more like a team working together for a common goal. Magic’s change was to pass the ball. Over Magic’s famed career he passed the ball so well that he holds the career record for assists at 11.2 per game. Arguably, Magic Johnson is one of the greatest players ever to play the game of basketball, and he did that by making everyone around him better. Not by taking the shot every time he got the ball.

You see, being a leader or a great team doesn’t require the “superstar” to take the shot every time, but what it does require is that everyone work collectively for a common goal with a set game plan. Good businesses realize they are not competing with like companies in their industry, but instead competing with themselves. Business is a perpetual game, so we should not worry about what the “competition” is doing today, but instead focus on our team, and how we are going to positively impact our industry.

The million-dollar question is how do we make our teams better and not focus on the competition? What steps are necessary in beginning to understand and implement this process?

1. Humble yourself and admit you do not have all of the answers. In doing so, you allow yourself to see that you already most likely have team members that possess different strengths than you do — surround yourself with them. Don’t work independently on projects, but start to have discussions with your team, because I am certain there will be a lot of valuable input they bring to the organization.

2. Provide education and training opportunities to your team members. None of us have the capability to grow if we do not invest in a conscious decision to do so. In an effort to spur on development within your team, you have to encourage and present the challenge to your team members to learn new skills. I know training and development can be expensive, but if you do not invest in your team members and encourage them to grow, they are going to cost you more money in the long run.

Good businesses realize they are not competing with like companies in their industry, but instead competing with themselves.

3. Surround yourself with the right team. Spend a lot of time determining what characteristics you want the leadership on your team to have. In doing so, make sure you do not compromise on what you deem to be important (humility, empathy, drive, growth, integrity, etc.).

4. Find the right outside business partners. A lot of business owners do not do a great job in this area, because they tend to go with whoever the bank recommends, who they know personally, or the first person who shows up on a Google search. Outside business partners are those that come alongside of you in order to help assist you in running the administrative duties of your business (key partner life insurance agent, general liability and workers compensation insurance, attorney for contracts review, collections, human resources issues, your business banker, marketing company, accountant and payroll processing company and so on). Make sure that you interview, get quotes, and compare those that you use as your key partners. Ensure that they thoroughly understand your business, the nuances, the risks and the challenges. A key partner is not going to be able to effectively meet your needs unless they fully understand your business.

5. The right kind of communication. Life is busy! Business is busy! But we have to understand that if we do not take the time to ensure that we are effectively sharing information throughout our company, we could be stifling morale and production. Where there is a void in communication, people tend to make up answers and assume things. If we are not communicating effectively, it is our problem; it is everyone’s problem. Knowledge is power, and you would not give the play you are running to the quarterback and receiver, but leave the other nine players out of the loop. That would handicap your offense and set your team up for failure. Unfortunately, that is exactly what a lot of businesses do, and precisely why a lot of them fail.

There are a number of other things a business could do to increase teamwork, but I believe the five pillars I have shared with you are paramount in the journey to effectively begin this process.

Remember that you are not alone in this process. Every great leader must go through stages of unlearning in order to discern how to step away from myths we have been taught about leadership and teach ourselves how to serve our team in a way that brings everyone together toward a collective vision. **C**

ABOUT THE AUTHOR

John Hendershot is the CEO of DIG-IT INC., a utility and telecommunications construction contracting company, and the president of the Great Lakes Trenchless Association.



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When Is It an Emergency?

Be aware of when something seemingly minor could pose a more significant threat

By Doug Day

Rub some dirt on it and walk it off was probably good enough health advice for the playground when we were kids. While it might still work for some routine workplace injuries, there are times when it's wise to take a few minutes to make sure that normal boo-boo isn't something more serious.

How would you handle the situation if one of your employees or co-workers slipped and hit his head when you were almost done with a cleaning job? Or felt sick after being exposed to chemical vapors as you were setting up for a job? Would you tell him to take a break? How would you determine if it warranted a higher level of concern? Making the right call, and taking extra precaution when required, could make the difference between a bad day and someone's last day.

The American College of Emergency Physicians (ACEP) says a medical emergency is an event that includes "severe pain, bad injury, a serious illness, or a medical condition that is quickly getting much worse." Some examples:

- Loss of consciousness
- Severe shortness of breath
- Facial drooping or weakness in an arm or leg
- Chest pain
- Bleeding that does not stop after 10 minutes
- Head trauma
- Seizures
- Severe reaction to insect bites
- Major broken bones
- Coughing or vomiting blood

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Despite the name, urgent care centers are intended to treat common medical problems when you can't see your normal doctor or after regular office hours. As ACEP describes them, "They treat minor illnesses and injuries, such as flu, fever, earaches, nausea, rashes, animal and insect bites, minor bone fractures and minor cuts requiring stitches. Many centers also do physical exams, vision and hearing screening, and lab tests and X-rays." So they may be appropriate for follow-up care after a minor injury, but an urgent care center is not the place to go for a serious injury or medical condition.

WHEN TO CALL AN AMBULANCE

Whether it's the cost, the bother, or just not wanting to tie up emergency personnel, people do hesitate to call an ambulance and decide to transport the victim, or themselves, to a hospital. ACEP says these questions will help you decide if you should pick up the phone and call 9-1-1.

- Is the condition life- or limb-threatening?
- Could the condition worsen quickly on the way to the hospital?
- If you move the victim, will it cause further injury?
- Does the person need skills or equipment that paramedics or EMTs carry right away?
- Would distance or traffic cause a delay in getting the person to the hospital?

And then there are times when it is necessary to call 9-1-1 and get professional medical assistance on scene as soon as possible. These include:

- Severe difficulty breathing, especially that does not improve with rest
- Chest pain
- A fast heartbeat (more than 120-150) at rest especially if associated with shortness of breath or feeling faint
- You witness someone faint/pass out or someone is unresponsive (comatose)
- Difficulty speaking, numbness, or weakness of any part of the body
- Sudden dizziness, weakness or mental changes (confusion, very odd behavior, difficulty walking)
- Sudden blindness or vision changes
- Heavy bleeding
- Broken bones visible through an open wound, or a broken leg
- Severe burns
- Allergic reaction, especially if there is any difficulty breathing
- Extremely hot or cold
- New severe headache
- Sudden intense severe pain **C**

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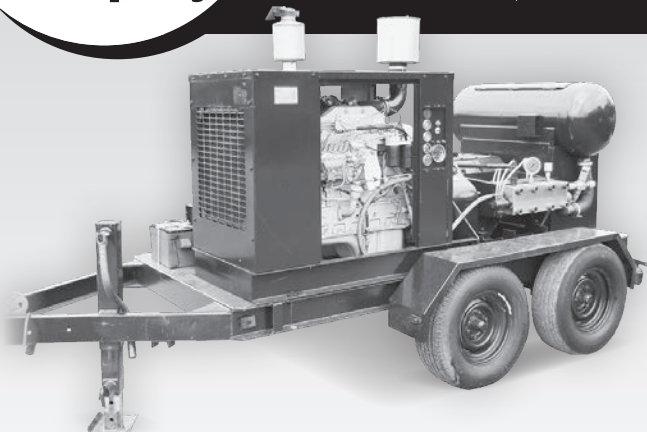
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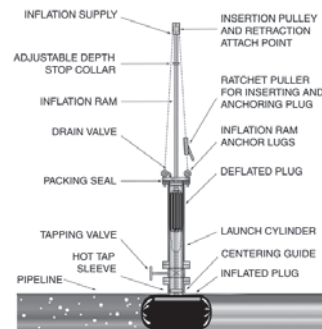
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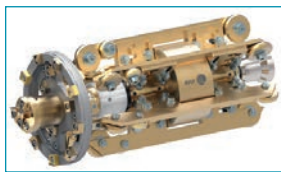
Pipe Bursting Methods and Projects

By Craig Mandli

HORIZONTAL DIRECTIONAL DRILLING

ENZ USA GOLDEN JET IMPACT DRILLING CUTTERS

Golden Jet Impact Drilling Cutters from Enz USA are designed to remove stubborn deposits like concrete and injection cement as well as calcareous and mineral deposits. In many cases, the use of a percussion milling cutter is the only alternative to digging up pipes under foundations or roads. It can also cut out dropped liners and prep for a reline job. Cutters range from 4- to 24-inch pipe diameters. They come with tungsten carbide and/or diamond-tipped teeth, and work with the percussion system of 600 to 3,000 impulses per minute and up to 12 tons of impact force. All impact drilling cutters can be operated without impacts by means of a simple mechanical changeover. 877/369-8721; www.enzusainc.com.



HYDROEXCAVATION

DITCH WITCH FX65

The Ditch Witch FX65 vacuum excavator has advanced airflow at 1,215 cfm — 20 percent more than the FX60 Model. Powered by a 74 hp turbocharged Deutz diesel engine, it is designed for super-size cleanup jobs. It offers 500-, 800- or 1,200-gallon vacuum tanks and 200-, 300- or 500-gallon water tanks. Additionally, the machine has an advanced three-stage filtration system with a cyclonic filter, which cleans the air prior to reaching the filter. 800/654-6481; www.ditchwitch.com.



GAPVAX HV56

Constructed of 1/4-inch ASTM A572-Grade 50 steel, the HV56 hydroexcavator from GapVax has a 15-cubic-yard debris body and water tank options ranging from 350 to 1,200 gallons. Its positive displacement blower is rated 5,250 cfm at 28 inches Hg. The tailgate is fully opening with a field-adjustable hinge and dual cylinders, and also has four individually adjustable locks to ensure a complete seal. Options include a cold weather recirculation package, sludge pump, auger unloading system, body pressurization system, remote pendants and wireless remotes. It can be used for excavating, locating utilities, digging potholes, tunneling, slot trenching, conveying dry gravel and sand, or general cleanup. 888/442-7829; www.gapvax.com.



HURCO TECHNOLOGIES VAC 250 AND 500

VAC 250 and 500 units from Hurco Technologies are a portable solution for potholing and exposing buried utilities. They use a Gardner Denver 14-inch Hg positive displacement vacuum pump and a Giant 4,000 psi, 4.2 gpm high-pressure water pump. The pitched-angle tank eliminates mechanically complicated lift and dump systems for faster and more efficient debris unloading. The 97-gallon water tank sits under the debris tank, balancing the load over the center of the axle, resulting in little change on tongue weight and ensuring a safe towing configuration. All units can be configured to meet specific needs, including auxiliary hydraulics and water heaters. All are powder-coated. 800/888-1436; www.hurcotech.com.

HYDRA-FLEX RIPS AW

The Ripsaw rotating turbo nozzle from Hydra-Flex has a cone-shaped flow pattern ideal for potholing applications. It blasts a 0-degree water stream at up to 3,200 psi while rotating at a high speed to provide an 18-degree cone of coverage. These heavy-duty, high-impact nozzles are constructed with a stainless steel housing and tungsten carbide wear surfaces to withstand harsh environments and provide long life. Repair kits are available for extended life and lower operating costs. The nonconductive urethane coating on the nozzle body protects the operator and sensitive underground utilities. It offers greater impingement, allowing the technician to use a smaller nozzle size while getting the same impact as nozzles with higher flow rates. 952/808-3640; www.hydraflexinc.com.



LMT SMART-DIG HX-2100

The SMART-DIG HX-2100 hydroexcavator from LMT is powered by a 59 hp Kubota VT2403 diesel engine that drives a 1,300 cfm Tuthill blower and 2,200 psi Udor water blaster. The compact design includes a 700-gallon debris tank and 300 gallons of freshwater. The trailer has a fully automatic rear-open door with wireless remote control for ease of use. Filtration is provided by the SMART-DIG dropbox and washable PTFE filters. An antifreeze winterization system is standard, and an optional diesel-powered water heater is available for improved digging performance in colder climates. 309/932-3311; www.vaxsteel.com.



NOZZTEQ MONRO-JET

The MONRO-JET hydroexcavation nozzle from NozzTeq combines the power of a solid-stream pencil jet with the large coverage of a fan jet. Its circular water jet motion generates tremendous power at modest gpm rates, allowing the operator to move faster whether hydroexcavating, surface cleaning or cleaning sewer lines. It can be used for other types of surface cleaning such as concrete, steel, castings and large surface areas including line removal from runways. It can be modified for internal pipe cleaning of sewers and pipes of all types. An orbital design increases performance at a lower gpm rate and pressures as high as 36,250 psi. 866/620-5915; www.nozzteq.com.





PRESVAC HYDROVAC

The **Presvac Hydrovac** is a versatile hydroexcavator designed for cold weather operation with optional full compliance with DOT collection of transportation of hazardous materials specifications. The

high-vacuum blower allows extraction of all types of soils, gravel, rock, clay, water and silt material, with knockout features in the debris tank minimizing carryover. Modular filtration configured to blower size provides blower protection and minimal maintenance. It comes with a heavy-duty 8-inch boom that extends up to 25 feet, with six-way hydraulic power and wireless controls for all boom functions, soft-start water pump, vacuum breaker and truck engine speed. **800/387-7763; www.presvac.com.**



RAMVAC BY SEWER EQUIPMENT HX-3

The **HX-3** truck-mounted hydroexcavator from **Ramvac by Sewer Equipment** is the smallest model in the Ramvac truck family, but it comes equipped with large productivity

features. This unit offers a 3-cubic-yard debris body, a 0 to 10 gpm at 2,500 psi water system all in a temperature-controlled enclosure, a compact footprint, NEMA-rated electrical system, debris blow-off system and a fully hydraulic powertrain for durability. **888/477-7638; www.ram-vac.com.**

SOIL SURGEON

The **Soil Surgeon** hydroexcavating tool fits any sewer combination truck equipped with a telescoping 6- or 8-inch boom. The tool has a 1-inch water connection. The operator controls water pressure and power through truck controls. It has a 6-foot Tuff Tube with handles to guide the unit down for potholing or side to side for trenching. Six jets boring inward cut the soil, while six boring outward bring the tube down. **949/363-1401; www.soilsurgeoninc.com.**



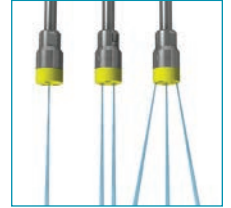
SOUTHLAND TOOL HYDROEXCAVATOR ATTACHMENT

The **Hydroexcavator Attachment** from **Southland Tool** is a lightweight attachment for the end of a suction tube that allows the operator to connect a 1-, 3/4- or 1/2-inch sewer hose to blast away dirt and rocks, suck up the wet mixture and dig holes. Suction tube sizes come in 6- and 8-inch diameters and with a choice of

flange, including Vactor, Vac-Con, Camel, Vacall and Aquatech. The all-welded steel wet ring comes with 4, 6, 8 or 10 jets. All are 0 degrees and pointed slightly away from the center of the suction tube. An 8-inch-long Kanaflex hose is bolted to the end of the excavator to protect utility lines. At just 13 inches long and under 20 pounds, the unit is easily carried on a truck. **714/632-8198; www.southlandtool.com.**

STONEAGE HYDRO-X HYDROEXCAVATION TOOLS

The **Hydro-X** line of hydroexcavation tools from **StoneAge** offers four options for accessing utilities and precisely excavating an area with high-pressure water. Tool configurations include a single hard-hitting jet head for accurate digging, a dual-jet head that divides a pump's power into a wider jet path, and a triple-jet pattern that delivers a wide swath for fastest material removal. The 60-inch single-jet lance provides extra reach for digging deep, focused holes. The tools use high-quality, long-lasting carbide nozzles and are capable of up to 5,000 psi and 12 gpm. **866/795-1586; www.stoneagetools.com.**



SUPER PRODUCTS MUD DOG 1200

The 12-yard debris capacity **Mud Dog 1200** hydroexcavator from **Super Products** offers several capabilities that can increase job site performance, operator convenience

and operational cost savings. Its rear-mounted boom is capable of a 19- to 27-foot reach, 335-degree rotation, 45-degree upward and 25-degree downward pivot, allowing crews to achieve greater work area access and deeper digging without the need to halt production to reposition the trunk. It employs easy-to-use ejector plate unloading technology for fast, thorough and safe debris removal. The unit's tilt-unloading feature ensures that liquids in the debris tank are cleared quickly and efficiently even when unloading in an up-slope/nose-down position. Options include the Acculevel load sensor system that offers precise debris tank level measurement. **800/837-9711; www.superproductsllc.com.**

TORNADO GLOBAL HYDROVACS F3 ECO

The **F3 ECO** from **Tornado Global Hydrovacs** holds 12 cubic yards of mud and more than 1,700 gallons of freshwater. This unit is over 2,000 pounds lighter than the company's older models, meaning the operator can carry extra payload in the debris tank. The boom has a 342-degree rotation and a 26-foot reach. All critical components are housed in an insulated and heated aluminum van body. Operators do not need to hoist the tank to empty it, eliminating the dangers of dumping on uneven ground and near overhead power lines. **877/340-8141; www.tghl.ca.**





TRANSWAY SYSTEMS TERRA-VEX

The **Terra-Vex** all-season hydroexcavator from **Transway Systems** has a Robuschi RB-DV145 6,400 cfm blower with OMSI transfer case and insulated acoustical enclosure with walk-in storage. Water

pressure is achieved with a hydraulically driven Pratissoli KT20 water pump, delivering 10 gpm at 6,000 psi. The 3,000-gallon debris tank has a hydraulically operated hoist, and door locks with full-open door. The 1,200-gallon HDPE water tank supplies a 420,000 Btu diesel-fired burner permitting operation in subzero temperatures. The water pump and water tank compartments are heated by a diesel-fired heater and 12-volt engine coolant heater. The 26-foot hydraulically operated 8-inch suction boom is equipped with joystick control and wireless remote control. All parts are painted/powder-coated off the unit, and it includes marine-grade plywood floor enclosure, three-camera back-up system and digital water level display. **800/263-4508; www.transwaysystems.com.**

VAC-CON X-CAVATOR

The **X-Cavator** from **Vac-Con** is powerful, durable and easy to operate. It comes fully loaded and features a hydrostatic drive that uses the chassis engine for the vacuum, creating a more efficient system that eliminates the need for PTO, clutch and gearbox operation. It is available with water systems up to 4,000 psi, and a mobile wireless remote control system that enables the operator to work the chassis engine rpm, boom, automatic vacuum breaker, dump controls and hydraulic door locks from remote areas up to a 1/2 mile. The boom rotates up to 270 degrees. **904/284-4200; www.vac-con.com.**



VACALL ALLEXCAVATE

The **Vacall AllExcavate** hydroexcavator provides operating efficiency and cost control for excavating around water and sewer lines and other underground utilities. The design uses a chassis engine to provide power for vacuum and jetting functions, slashing fuel consumption, eliminating emissions from a second engine, and reducing costs and downtime for routine maintenance. It has a high-pressure water system with rheostat control to vary water volume and capacity output. A heated compartment encloses the water system to protect components against freezing. Water tanks are made of high-quality aluminum for extra strength. The AllSmartFlow intelligent control system enables precise adjustments in boom movement. It has double-cyclone filtration with a simplified design to reduce maintenance, extend performance and increase working life. Its rear-mounted boom front-loads debris. An optional cold weather package includes heated cabinetry that encloses the boiler, warming the water when temps drop below freezing. **330/339-2212; www.vacall.com.**



VECTOR HXX HYDROEXCAVATOR

The **Vector HXX HydroExcavator** provides up to seven hours of continuous operation with onboard water. The standard variable-flow water system allows lower water flow, resulting in less operator fatigue and a cleaner, more precise digging process. The system allows for up to 25 gpm for projects requiring higher water flow capabilities. Using the DigRight Technology, operators select the maximum desired working water pressure for their application based on vacuum excavation best practices. This selection will limit the water pump from exceeding site, industry or customer maximum pressures to ensure a safe and nondestructive method of excavation. DigRight Technology also reduces wear and tear on the water system, extending product life. Its boom turret provides increased vertical range of motion for improved operator performance and productivity, enabling the operator to complete most applications with only one dig tube. **800/627-3171; www.vector.com.**



WESTECH VAC SYSTEMS HYDROVAC CODE TC407

The **Hydrovac Code TC407** excavation truck from **Westech Vac Systems** is specified with a TC407 rating (hazardous goods transport capable). The truck allows quick access to buried water mains and natural gas and petroleum pipelines, cutting through hardened scale and frozen ground with reduced risk of damage. It is designed to handle unpredictable off-road applications and unknown hazardous materials, in every type of weather, from -40 to 95 degrees F. It is quick and easy to set up so work can begin immediately, maximizing efficiency and productivity. Debris body capacities range from 11.8 to 13 cubic yards. It has heated rear door valves, a heated hose reel cabinet, and glycol and air purge winterization systems. **780/955-3030; www.westechvac.com.**

X-VAC, A PRODUCT OF HI-VAC CORPORATION, X-6 HYDRO EXCAVATOR

The truck-mounted **X-6 Hydro Excavator** from **X-Vac, A Product of Hi-Vac Corporation**, has a 6-cubic-yard debris tank and can store 570 gallons of freshwater, with an optional 1,000-gallon tank. The adjustable triplex water pump exerts up to 3,000 psi and is set independently of the blower speed. Vacuum systems range in size from 2,600 cfm at 27 inches Hg vacuum to 3,400 cfm at 16 inches Hg of vacuum. Its 6-inch vacuum hose exposes any type or size of underground utility, especially in residential areas where space is tight and crews want to avoid blocking residential streets. **740/374-2306; www.x-vac.com.**



PIPE

RIDGID STRAPLOCK PIPE HANDLE

The **RIDGID STRAPLOCK Pipe Handle** simplifies the installation and maintenance of large-diameter plastic pipe by helping users securely grip the pipe and apply force in all directions. It grips pipe 3 to 8 inches in diameter, with rapid size adjustment to quickly move between pipe sizes and a specialized strap that provides maximum grip while minimizing marring. Its fixed handle position helps align and hold joints in place while glue sets. It is ideal for wet and cold environments where getting a grip on pipe can be difficult, gives maximum leverage in tight quarters, and has a locking design for quick applications. The handle can also be used in pairs to aid in complex installations. 800/769-7743; www.ridgid.com.



PIPE BURSTING TOOLS

POW-R MOLE SALES MODEL PD-33M

The **Model PD-33M** pipe bursting machine from **Pow-r Mole Sales** is designed to replace existing underground pipes 2 to 6 inches in diameter. Its nonslip cylinder-activated jaws prevent cable damage while providing 60,000 pounds of pulling force. It offers a cost-effective alternative to opencut excavation, which reduces customer disruption and increases company profits. The process replaces the existing pipe with a fused HDPE pipe, which eliminates all joints and allows the operator to pull through bends such as 45-degree fittings. This system is modular, and can be easily disassembled and reassembled for manhole and basement applications. With a compact design and very small footprint of only 20 by 20 inches, this unit can be used in tight locations. 800/344-6653; www.powrmole.com.



RODDIE LATERAL PIPE BURSTING MACHINE

The lightweight lateral pipe bursting machine from **RODDIE** slides apart into two components of 50 and 60 pounds that can be lowered and reassembled by hand in the excavated pulling pit. In most cases this machine is powered and operated by a mini-excavator or Bobcat tractor. It is capable of 30 to 50 tons of pulling force and can be used on 4-, 6- and 8-inch sewer laterals, but can also replace 1- to 4-inch water services. 888/406-3821; www.pipeburstingamerica.com.



SHORING

AMERICAN SHORING SLIDE RAIL SHORING SYSTEM

The **Slide Rail Shoring System** from **American Shoring** can be used in a number of configurations, including for bore pits under roadways, streams or other obstacles. The sheeting system can be used at depths up to 30 feet and is installed with an excavator, with no need for special equipment. The system can also be equipped with a doghouse panel to accommodate the casing pipe. 800/407-4674; www.americanshoring.com. **C**



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Pipe Bursting Methods and Projects

By Craig Mandli

PRECHLORINATED PIPE BURSTING PROVIDES NEW WATER MAINS WITHOUT DISTURBING RESIDENTS

PROBLEM: Bloomfield Village in Oakland County, Michigan, was ready to replace water mains, but it wanted to do so with minimal interruption of water service to local residents. Space along street rights-of-way was also limited, so officials wanted to limit excavation.



SOLUTION: The village specified prechlorinated pipe bursting replacement in its plans and chose to upgrade the existing mains with 8- and 12-inch HDPE pipe. Pipe bursting specialist Bidigare Contractors was chosen for the job. For bursting operations Bidigare used its own hydraulic pipe bursting machine from the **HammerHead Trenchless Equipment Hydroburst** line. Although the machine was capable of up to 100 tons of pulling force, Bidigare said the average burst required only about 20 tons.

RESULT: Bidigare Contractors replaced between 200 and 500 feet of pipe a day using this method. Residents were never without water service aside from the day the work was done. Bidigare is on schedule for completion of the project in mid-2017. **800/331-6653; www.hammerheadtrenchless.com.**

UNIT HELPS PULL NEW HDPE PIPE THROUGH COLLAPSED CLAY MAIN

PROBLEM: A residential customer in Germantown, Tennessee, was experiencing slow drains. Upon investigating, plumbers found extensive root infiltration in the home's main sewer line. They also discovered that the house had an old clay pipe that was collapsing and needed total replacement. Due to the condition of the pipe, relining was not an option. There were also several large, mature trees in the front of the home, coupled with a large landscaped berm forming a natural water barrier. Traditional approaches to trenching and replacing the sewer pipe were not possible.



SOLUTION: The **Spartan UnderTaker** flawlessly pulled the new pipe through the old clay pipe — something that would have been nearly impossible without the proper equipment. In less than three hours, over 90 feet of failing clay sewer main was replaced with a new 4-inch HDPE pipe.

RESULT: The unit helped the homeowner avoid thousands of dollars in landscaping repairs. The home's occupants continued to use their sinks, showers and bathroom as the plumbing techs performed repairs on the line. While this was great for the homeowners, it is also a fit for commercial properties, such as supermarkets, where a complete closure would mean the loss of revenue. **800/435-3866; www.spartantool.com.** c

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PRODUCT SPOTLIGHT

New Sewer Equipment combo unit eliminates auxiliary engine and complicated controls

By Craig Mandli

Sometimes simple is better. Equipment that is easy to operate means less fuss for operators, and an easier learning curve for new employees. That was the main objective when technicians at Sewer Equipment designed the Model 900 ECO sewer cleaner.

The unit eliminates potentially complex touch screens and digital displays in favor of manual controls designed to make the unit easy to operate and maintain. A simplified powertrain system also makes the 900 ECO combination sewer cleaner more efficient — essentially combining the cost savings and capabilities of a new combination truck with the operating simplicity of trucks that came out decades ago.

“What really sets this unit apart is the efficiency of the Hydro-Drive system,” says John Wichmann, executive vice president for Sewer Equipment. “It completely eliminates the need for gearboxes.”

According to Wichmann, the benefits of the 900 ECO are threefold. Not only does the Hydro-Drive system reduce the long-term cost of ownership and improve natural resource management, the intentional separation of the chassis system from the module systems creates clear lines of responsibility when problems arise. The only interface between the module and chassis is via the throttle control port, an intentional lack of integration aimed at eliminating potential CANbus communication problems between the chassis and module. The easy-to-understand controls enhance safety while making the unit easier to operate.



“Because the systems are separate, it eliminates the idea of the chassis supplier blaming the equipment OEM and the equipment OEM blaming the chassis supplier,” he says. “Also, simplicity of operation allows for short training cycles, thus better facilitating the reality of rotating operating crews and associated operation of the equipment.”

The unit operates at 35 percent lower rpm than a typical sewer cleaner, consuming considerably less fuel and emitting less noise than traditional designs. The unit also features simple controls. Once the operator flips a switch to put the truck into work mode, its water pump, blower and throttle switches can be engaged.

The 900 ECO is available in 6-, 9-, 12- and 15-yard debris capacities, with respective water capacities of 1,400, 1,750 and 2,100 gallons. The water tank is made of Duraprolene, which offers immunity to corrosion and dents for long service life, and also eliminates the need for draining during storage. The fully baffled construction eliminates sloshing and allows for safe travel at highway speeds while full. The boom features a full 10-foot extension and 180-degree rotation, enabling a hydroexcavation option. It is aimed at municipalities and contractors that specialize in municipal sewer work. 877/735-4640; www.sewerequipment.com.



1

1 RIDGID CS65X DIGITAL REPORTING MONITOR

The CS65x digital reporting monitor from RIDGID provides immediate drainline inspection footage and features Wi-Fi and Bluetooth capabilities to simplify footage viewing and transfer. It has a built-in, water-resistant keyboard for easy addition of on-screen titles and annotation of captured media, and daylight viewable display for clear in-pipe images. A companion app is available for download and is compatible with Android and iOS devices. 800/769-7743; www.ridgid.com.



2

2 VACTOR RAMJET 850 SERIES TRUCK JETTER

Vactor Manufacturing has updated the RamJet 850 Series truck jetter, offering an optional aluminum rear shroud with heavy-duty, see-through Lexan windows that keep the hose and components warm while working in extremely cold conditions. The RamJet 850 comes standard with a certified water pump flow of 0 to 80 gpm at a variable pressure up to 2,500 psi at the hose reel and features a choice of front or rear hose reel locations. 800/627-3171; www.vactor.com.

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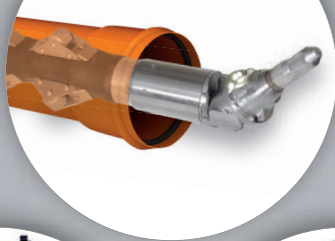
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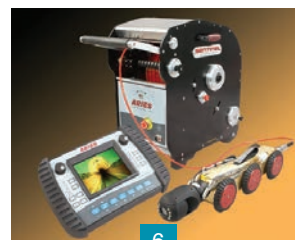
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4



5



6

3 COXREELS ROLLER BRACKET ASSEMBLIES

The roller bracket assemblies for the Challenger Series from Coxreels assist in guiding the hose during both extension and retraction. It is only available in a four-way upper roller format due to the compact size of the Challenger platform. The roller bracket assemblies are available in 8-, 12.5- and 18-inch-wide drums, depending on the size of the Challenger model. 800/269-7335; www.coxreels.com.

4 TRIC HYDRAULIC PUMP

TRIC Tools' 14 hp, 6,000 psi hydraulic power pack is designed to accompany the TRIC lateral pipe bursting system. The pump delivers 2 to 8 gpm to the pulling unit, and the Kohler engine couples directly to the oil gear pump, eliminating the need for a Lovejoy connector between the pump and the engine. It also has a muffler heat shield and an all-welded steel frame for strength and durability. The wheels have been upgraded to withstand rigorous field use. 888/883-8742; www.trictools.com.

5 VALLEY INDUSTRIES HARDCORE HOSE REELS

HardCore fluid-handling hose reels from Valley Industries are made with Schedule 40 316 stainless steel, making them corrosion resistant. Available in manual and electric drive units, each frame is made of lightweight aircraft-grade aluminum. The electric drive units use a heavy-duty gearbox system and can be disengaged for easy unspooling. 800/864-1649; www.valleyind.com.

6 ARIES SENTINEL PORTABLE INSPECTION SYSTEM

The Sentinel inspection system from Aries is an integrated system with components operated by an all-in-one controller. The compact, portable unit combines a tractor, camera and lightweight reel. The control unit has an 8.4-inch LCD screen and internal DVR and can be hand-held or mounted on a desktop. The tractor has various wheel sizes and can be set up for standard operation in 6- to 15-inch pipe. A large line kit facilitates navigation in pipes up to 36 inches. The pan-and-tilt camera has auto focus, white balance and a 40:1 optical zoom. 800/234-7205; www.ariesindustries.com. **c**

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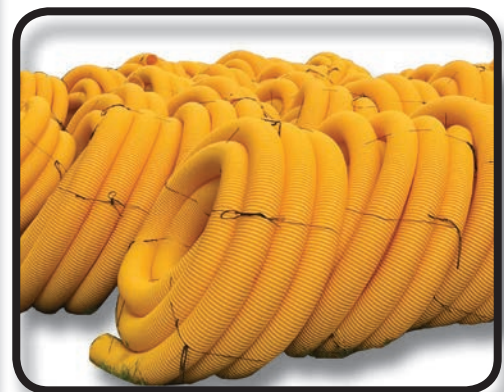


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Eric Palm named president of American Water Resources

American Water Works Co. has named Eric Palm president of American Water Resources, the company's homeowner services business. Palm joins American Water Resources after a tenure at Direct Energy, where he led the company's solar operations and service business areas involving protection plans, operations and a customer service call center.

Itron recognized as a leader for Meter Data Management products

Itron has been named to the leaders quadrant in Gartner Inc.'s Magic Quadrant for Meter Data Management for the fourth consecutive year. Itron's Enterprise Edition MDM is in production at 76 utility companies with more than 38 million cumulative meters.

Rausch announces new distributor

Rausch Electronics announced Peirce-Eagle Equipment of Branchburg, New Jersey, as the newest addition to their list of authorized distributors. Peirce-Eagle will provide Rausch Electronic equipment sales, service and parts to the municipal sales market. **C**

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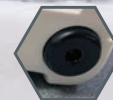
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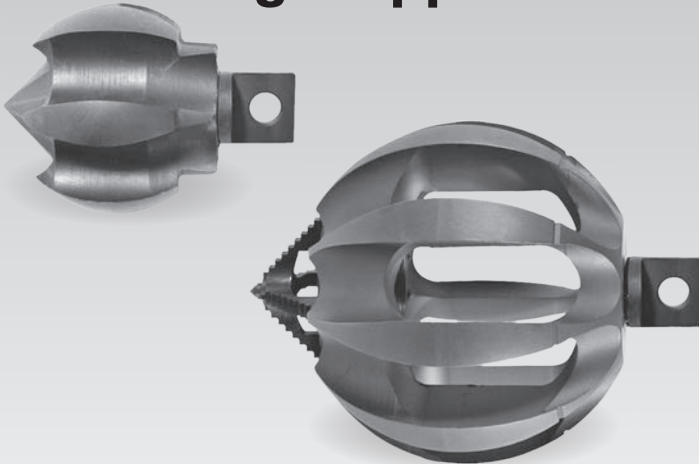


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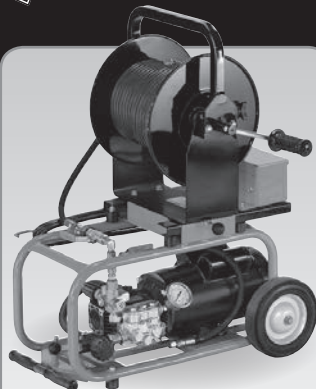
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