

# Cleaner

FOR DRAIN AND PIPE CLEANING, INSPECTION AND REHABILITATION PROFESSIONALS

NOVEMBER 2018  
CLEANER.COM

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### ON THE COVER

President Jim Guerin (left) feels fortunate to run JG Environmental with his son, Jim Guerin II, now vice president of operations. The company, located in Lancaster, Pennsylvania, has grown steadily, at times exponentially, since its founding in 2008. (Photography by Jeremy Drey)

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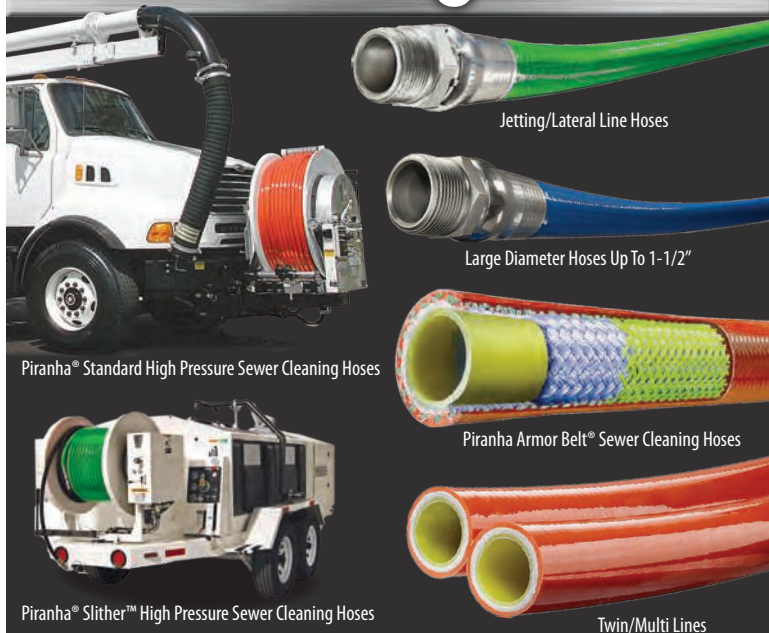


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# Thank You

This is an industry full of good stories and better people, and I'm thankful I've gotten to know you

Sometimes you have to move on, even from really good things, if you want to keep progressing.

I left the newspaper business behind in 2003 when I moved home to take care of my mom. It called me back in 2007, and almost exactly four years later, I left again for the opportunity to join COLE Publishing and take the reins of *Cleaner* magazine.

After starting with *Cleaner*, I took over *Municipal Sewer & Water*. Since then, I've worked on *Gas, Oil & Mining Contractor*, *Plumber*, and our latest launch, *I&I*. I've also had the opportunity to help launch some other projects, but *Cleaner* has been the one constant. Over the past seven years, I've established a relationship with this industry. I've gotten to know a lot



Luke Laggis

of good people who've helped me and allowed me to tell their stories. I'm grateful for that opportunity.

Sometimes, however, you need to take on new challenges. I was recently given a new opportunity with a magazine that has nothing to do with sewer and drain work, and both the timing and the challenge are right. My workload dictates that I have to give something up, and since *MSW* and *I&I* are so closely linked, it makes the most sense to hand off *Cleaner* to another editor. But I have to say, it wasn't an easy decision.

I really feel like I've become a part of the industry. I've met and worked with so many great people, from contractors and manufacturers to the people here in the office who help put this magazine together every month. I'll still see the people in the office every day because I'll be sitting at the same desk and doing much of the same work, but since I'm stepping away from *Cleaner* I have to mention a couple people who play just as big a role as I have.

Kayla Bisnette is the main sales rep for *Cleaner*. She's been great to work with and was a huge help to me when I came on board. She helped me get a handle on the industry, and she introduced me to many people with whom I've since developed good relationships.

Keri Heibel is the graphic designer who puts these pages together. She's a pleasure to work with and does a great job with the magazine. She's the reason it looks so good every month. For that, I can forgive the fact that she's a Minnesota Vikings fan.

There are so many other people who have proofread, advised and assisted in a variety of ways. They've all helped me tremendously, and they're all a big part of this magazine.

And now, it's time for Kim Peterson to step in as editor. She's held a few different roles at COLE and I have no doubt she'll do great things with *Cleaner*.

Thanks to all of you for the past seven years. It's been a pleasure telling your stories. I've enjoyed and appreciated all of it.

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

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RISING TO THE CHALLENGE

## New York Contractor Embraces the Toughest of Jobs

R.I.C. Plumbing of Lockport, New York, was featured in the August issue. In this online exclusive, you can read more about two of the company's past jobs that are prime examples of its willingness to take on any challenge in the name of quality customer service.

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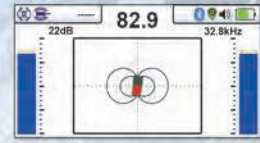
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contractor  
**PROFILE**

# CLIMBING the Ladder

Georgia contractor gives employees a path to success that feeds its own growth in the hydroexcavation market

By Ken Wysocky

Photography by Kaylinn Gilstrap

» Southern Hydro Vac apprentice Cedric Watson (left) and senior crew leader William Dubose use a GapVax hydroexcavator in downtown Atlanta on a job locating existing utilities for an electric company.





President Guy Rimoldi (left) and Chief Financial Officer Ed Morgan started out together with a site-development business before starting Southern Hydro Vac.

To deliver better value to customers, Southern Hydro Vac relies on a two-pronged strategy aimed at maximizing productivity and equipment uptime: investments in technologically advanced equipment and comprehensive training that helps employees fully utilize the equipment’s capabilities.

That approach has helped the hydroexcavating and industrial cleaning company, based in the city of Powder Springs on the outskirts of Atlanta, record double-digit annual revenue growth since it was founded in 2003. Moreover, it allowed the company to dramatically expand its geographic service area during that time from just Georgia into Alabama, Florida, South Carolina and Tennessee. Its primary customers are energy and telecommunications companies, developers and general contractors, and manufacturing facilities, says Guy Rimoldi, president of the company.

The growing acceptance of hydroexcavating as a safer alternative to mechanically exposing underground utility lines certainly didn’t hurt the company’s growth. But its expansion — reflected in a jump from two hydrovac trucks in 2003 to 13 today and from four employees to about 40 now — wasn’t just a case of lucky timing.

“Our success stems from much more than being at the right place at the right time,” Rimoldi says. “We developed a training and mentoring program that produces employees who can utilize our equipment, innovations and technology in ways that deliver superior value to customers.

“We evaluated the industry and recognized a need for better production and employees with superior training. Our training includes learning how to identify soil types, which affects what kind of wand operators use. It’s one thing to have the technology in place, but it’s a whole different matter to train employees so that they know how to maximize that technology.”

### GROWING DEMAND

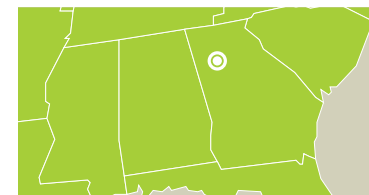
Industrial and sewer cleaning contractors interested in entering the hydroexcavating market might take some cues from Southern Hydro Vac’s approach. The seeds of the company were planted back in 1986 when Rimoldi and Ed Morgan, now the firm’s chief financial officer, established a site-development business called Earth Development.

The company did site grading and underground utility work. As

hydroexcavation became more popular, the company increasingly relied on subcontractors because it didn’t own trucks with that capability. So when businessman Tim Coleman approached the duo about creating a hydroexcavating company, they seized the opportunity and jumped right in. (Coleman passed away in 2013, leaving Rimoldi and Morgan now the sole owners of the company.)

“We started with only two trucks (made by GapVax) and the business grew from there,” Morgan says. “Tim already had a list of clients because he had run a hydroexcavating company before. And a lot of local municipalities were putting hydrovacuuming into their project specs.

“We’ve had a steady annual increase in gross sales of 12 to 14 percent, even during the recession. Energy, communication and construction companies kept finding practical applications for the hydrovac industry. All that came into play and fell into place.”



### Southern Hydro Vac

**LOCATION:** Powder Springs, Georgia

**OWNERS:** Ed Morgan and Guy Rimoldi

**FOUNDED:** 2003

**EMPLOYEES:** 40

**SERVICES:** Hydroexcavation, plant/detention-pond maintenance, soil removal

**SERVICE AREA:** Alabama, Florida, Georgia, South Carolina and Tennessee

**WEBSITE:**  
www.southernhydrovac.com



“It’s one thing to have the technology in place, but it’s a **whole different matter to train employees so that they know how to maximize that technology.**”

Guy Rimoldi

### TRAINED FOR PRODUCTIVITY

A central component of the company’s business model is a comprehensive employee training program. Thorough training enables truck operators to maximize the productivity of the machines they work with on a daily basis, as well as work safely, Rimoldi says.

“Superior equipment and well-trained employees are basically our whole business model,” he notes.

During the company’s early years, training took as long as two years. Now it’s down to about 13 months and covers all phases of hydroexcavating, including how to drive and operate a truck, OSHA excavation and confined-space training, learning about different soil types and the best hydroexcavating techniques to handle them, power-safe training provided by local utilities (which covers how to work safely near structures such as electrical substations), how to flag and manage traffic, and CPR.

The training is provided by in-house experts and outside groups such as OSHA and utilities. Each level of in-house training also requires employees to spend a certain number of hours at various tasks out in the field before they achieve certification, Rimoldi says.

“After a trainer says an employee has put in the required hours and mastered the skills, then another trainer comes in and gives the employee the test,” he says. “It’s a good checks-and-balances system. ... We want a different person than the trainer to do the testing. They come in with a different set of eyes. Our goal is to make sure our employees are the most productive hydrovac operators possible and that they also understand the possible dangers and follow safety protocols.”

Aside from minimizing the risk of injuries and keeping insurance costs in check, the training provides another benefit that’s critical to employee retention: a clear, well-defined path to career advancement and higher pay. Employees can aim for nearly 20 different levels of certification and get corresponding pay raises every time they take another step up the certification ladder.

“It offers a transparent path for employees to move up in the company,” Rimoldi explains. “They’re tested every step of the way. We have four dedicated trainers who go out on the trucks and train guys as they come through the ranks. Their titles change and pay increases every time they get a different certification.”



◀ Cedric Watson (left) and William Dubose use a GapVax hydroexcavator to locate buried utility lines.





📍 The Southern Hydro Vac team with the fleet of GapVax units and a Cat 259D compact track loader.

### EARNING EMPLOYEE LOYALTY

The training program helps employees more easily adopt the company's operating and business philosophies. It also boosts company loyalty because employees appreciate that the company is investing in their future. "As employees move ahead and make more money, they buy into the program," Rimoldi says. "They become experts in their field, which makes them more valuable. And at some point, if they're aggressive enough and stay with the company, they can become trainers."

Employee turnover in the hydroexcavation industry is common enough, given the rigors of the work. "It's very labor-intensive," he says. "And when you're in Georgia, with 90-degree F heat and humidity, it's really hard work. So you have to do something to make employees feel good about the team they work with and money they make."

Furthermore, it's expensive to keep recruiting, hiring and training employees who eventually leave. As such, higher pay and a structured career path offers workers a big incentive to stick around, Morgan says. "They take a look around and decide to stay because they know they can make more and more money as they move up each level."

In addition, Rimoldi points out that employees benefit from a sense of accomplishment and earn the respect of fellow workers as they advance.

Advancement isn't limited to fieldwork, either. Sometimes fieldworkers move into administrative positions if they show leadership potential. As examples, Rimoldi cites two fieldworkers, one who became a service coordinator and another who stepped into a marketing role. "In the old Wild West days, lack of transparency (regarding career advancement) may have worked," he says. "But times have changed. Millennials think differently."

# JETTER MEETS CABLE MACHINE... END OF STORY

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✔ Crew leader William Dubose coils jetter hose back on the truck after a utility locating job in downtown Atlanta.

## Unique 'soil' conditions complicate hydrovac project

While Powder Springs, Georgia-based Southern Hydro Vac routinely takes on difficult projects, Guy Rimoldi, company president, can easily point to one that was particularly challenging: a 1,500-foot-long fiber optic line upgrade in downtown Charleston, South Carolina, performed for a major national telecommunications company in 2012.

"It was a pretty interesting job," Rimoldi says. The path of the fiber optic line was so congested with other underground utility lines that the city wouldn't allow a mechanical excavator to expose them.

The job required considerable resources, including three hydrovac trucks and 20 employees working 18 to 20 hours a day for about six weeks. Work started on June 20 and finished on Aug. 8, one week ahead of schedule. The path for the upgraded line ran right down St. Philip Street, directly through the middle of the College of Charleston campus, a busy area, he points out. Moreover, the job had to be finished before the next semester of school started.

The job became even more challenging due to the unique "soil" crews had to contend

with. "As we excavated down the street, we found the remnants of an old canal that once was used for marketing merchandise before there were streets," Rimoldi says. "When it was abandoned, people filled it in with everything they could find: rocks, bricks, anything and everything. That's what we were digging through, plus all of the college's steam lines, other fiber optic lines, and water, gas, and sewer lines. But we never broke an existing utility during the project.

"We wove our way through all of them, up and down and over and around. On a job like that, you have to sort of feel your way through it to find the correct path."

Intense planning was critical to the project's success. Plans included job safety analysis, developing waste-disposal cycles and figuring out how to route trucks depending on traffic patterns at different times of days. "You don't want guys standing there, waiting for a truck to come back from a landfill," Rimoldi says. "Logistics are paramount to the service value you give to the customers."

As another retention effort, employees receive health insurance, including company-paid premiums (for just the employee, not family members), a 401(k) retirement program, and profit sharing, Morgan says. A benefits package like this sets Southern Hydro Vac apart from competitors and helps the company attract quality employees. "That's another reason our business is growing," Rimoldi says.

### EFFECTIVE EQUIPMENT

Southern Hydro Vac regularly reinvests in newer equipment in order to minimize on-the-job downtime. When a truck hits about 20,000 hours, it gets traded in for newer technology.

"We have to give customers the confidence that our trucks will be productive while on the job," Rimoldi says. "A lot of times, our trucks are support pieces that work in conjunction with other companies, so if our machine goes down, it stops the entire production. We don't want to be 'that' contractor."

The company owns 12 GapVax HX-56 hydrovac units built out on Peterbilt chassis, plus one Kenworth. Each truck features a 15-cubic-yard debris tank, a 1,000-gallon water tank, an air-injection Hibon Inc. (a division of Ingersoll Rand) positive displacement blower, a Giant Industries water pump (19 gpm at 2,900 psi), and a 25-foot telescoping

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**“It’s all about how many up hours you get out of your truck annually and the amount of billable hours, versus the ownership costs.”**

Guy Rimoldi

boom. Southern Hydro Vac also owns a GapVax MC 1510 combination sewer truck equipped with a hydrovac package; it features a 10-cubic-yard debris tank, a 1,500-gallon water tank, a Hibon positive displacement blower, and a Giant Industries water pump (80 gpm at 2,000 psi). “It’s primarily a flushing (jetting) truck, so it has a larger water tank and a smaller debris tank,” Rimoldi says.

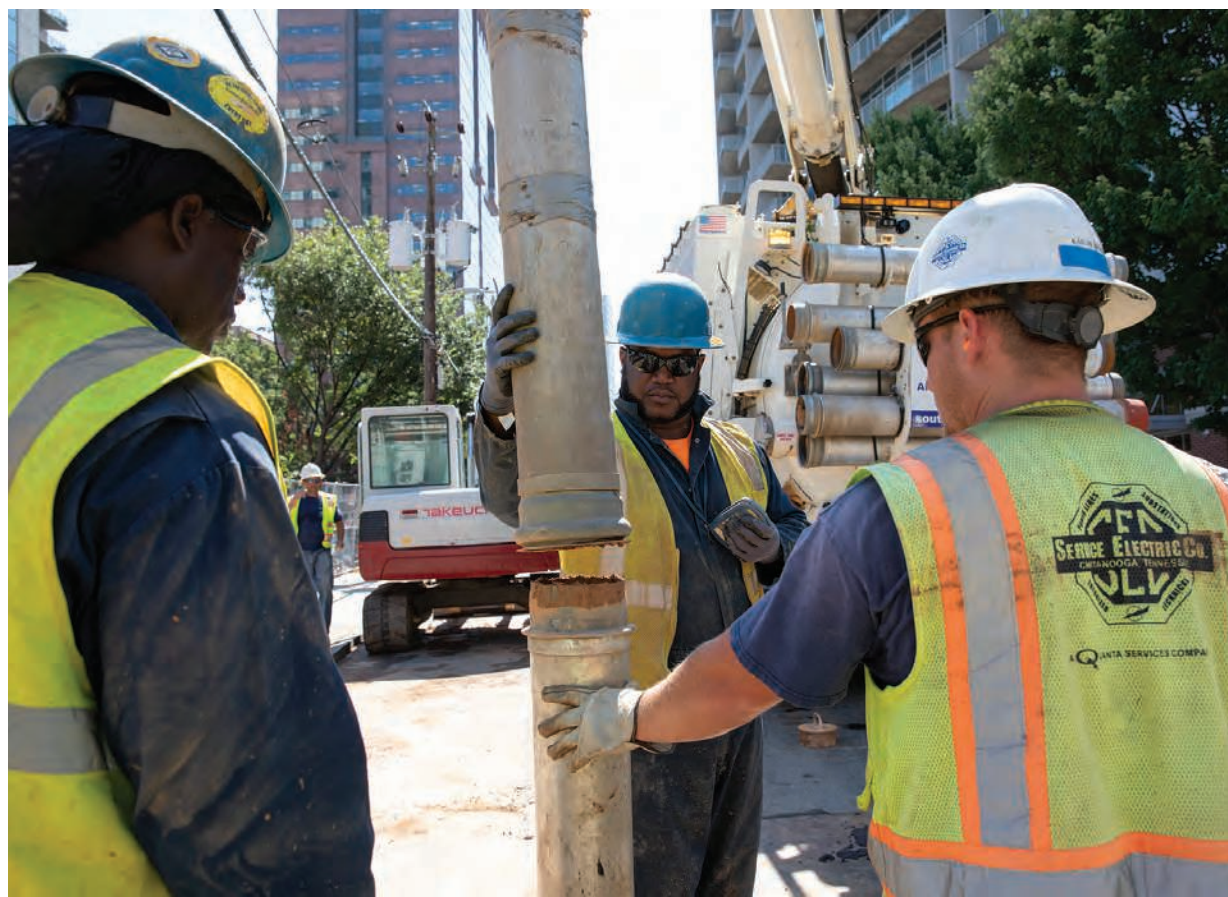
To keep equipment working, the company operates an in-house maintenance and repair department with three full-time employees and four service bays. The technicians typically work second shift to ensure the hydrovac trucks are ready to roll out around 5 a.m. daily, Rimoldi says.

The company also carries a full inventory of repair parts, and sticking with one hydrovac truck manufacturer helps the department run more efficiently and cost-effectively. “When the trucks are all the same, you can buy parts in bulk,” Morgan points out.

While there’s definitely a cost to carrying parts inventory, the ability to utilize the fleet to its fullest capability outweighs the expense. “It’s all about how many up hours you get out of your truck annually and the amount of billable hours, versus the ownership costs,” Rimoldi explains. Moreover, in-house repairs also help employee-retention efforts because no one likes to come to work and find his or her rig isn’t working. “Our trucks don’t limp in and limp out,” he says.

## ROOM TO GROW

Morgan and Rimoldi expect continued growth for Southern Hydro Vac. That could include opening up facilities in strategic locations in other states to reduce travel-related expenses. “We see great potential in the hydrovac business and would like to duplicate our business model in locations in the Southeast,” Rimoldi says. “Once you get to a certain volume, it only makes sense to duplicate it in another location to reduce travel costs. Savannah, Georgia, or Montgomery, Alabama, is a long way to go for work. Companies are willing to pay (for the travel), but it would be better for customers if we could be closer.”



↗ Cedric Watson raises the boom arm to attach an extension tube with William Dubose and a member of the electric crew.

The company also plans to keep diversifying its customer base by exploring creative new ways to use hydroexcavation technology. For example, during construction of a new concrete runway at Hartsfield-Jackson Atlanta International Airport in 2015, workers had already installed a significant amount of rebar when heavy rains rolled in. Crews couldn’t pour concrete into the rebar framework because of the underlying mud, so Southern Hydro Vac workers figured out how to run their vacuum hoses through the rebar to remove the mud.

“That saved them a tremendous amount of money,” Rimoldi says. “We’re always looking for new and different businesses that can use our trucks and services. We’re always exploring different ways to work our trucks and utilize our team.”

“We absolutely love this stuff. It’s all we think about — it’s what we do.” **c**

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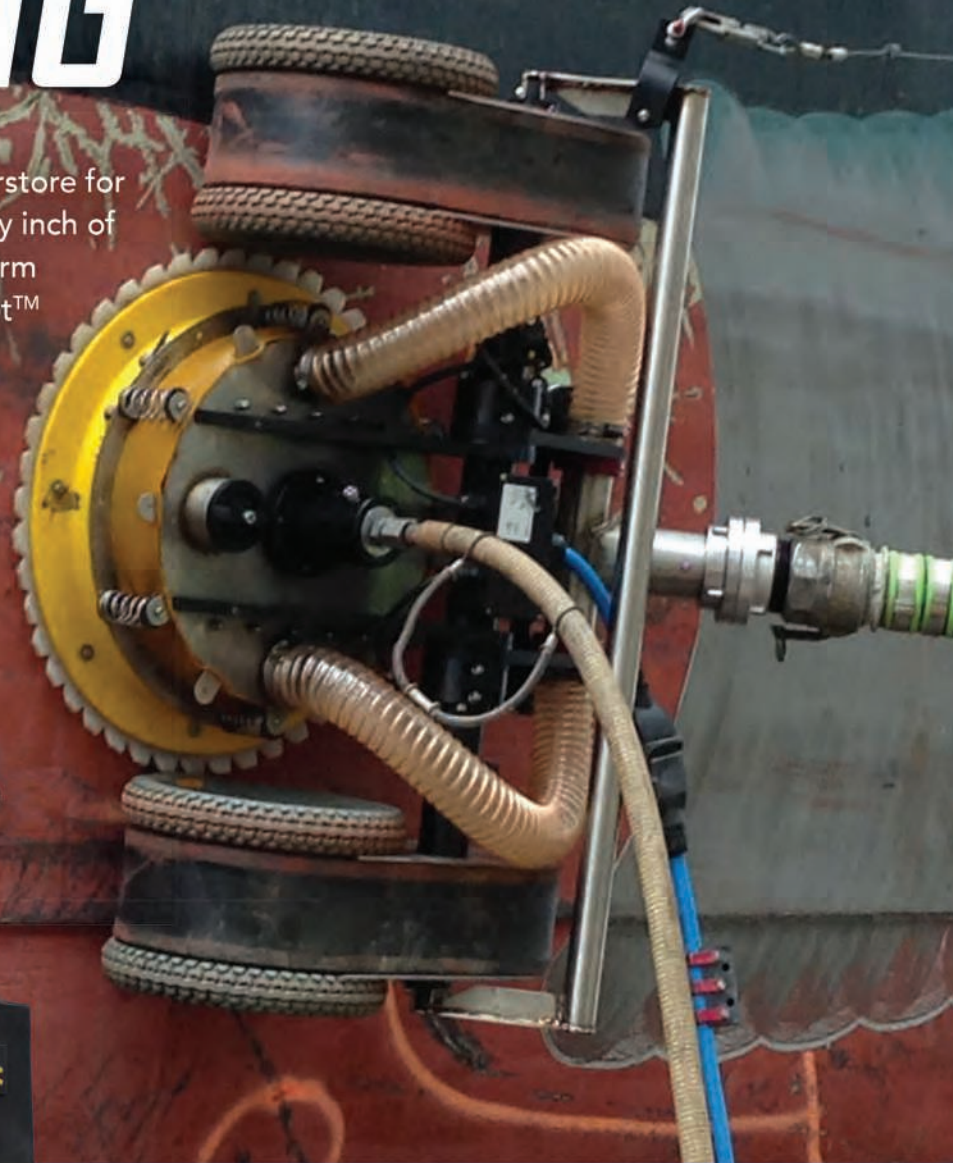


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Erik Gunn

# Are You Paying the Right Wages?

Doing some research to find the compensation sweet spot will retain great workers without breaking the bank

By Erik Gunn

**Y**our business is growing and it's clear you'll need to hire another employee or two by next spring.

Have the wages you're offering kept up with what people expect? Are you unwittingly paying a lot more than the market rate?

Knowing the appropriate pay rate for the people whose jobs are at the core of your business — service technicians, plumbers, and even the clerical staff who answer the phone, keep the books, and send out the bills — can be a significant challenge, but there are ways to arrive at the right answer systematically.

**“If I am viewing my humans who are working for me as an asset, then maybe I’m going to pay a little higher than everyone else does, provide milestones for people, and skill-based pay programs.”**

Lisa Bazzoni

recommending that approach. But more than a few businesses operate that way.

“At the other extreme,” Bazzoni says, “there are employers who will say of their employees: ‘This human being is an asset, and I want that asset to be with me for the long haul.’”

Whether you're trying to live by that approach, its opposite, or something in between, she says, “A lot of pay decisions — and a lot of other people decisions — are going to play into whatever the philosophy is.

## PEOPLE PHILOSOPHY

Lisa Bazzoni is compensation director for MRA-The Management Association, an employers association based in Wisconsin and with offices in Illinois, Minnesota, and Iowa.

“The first thing a business owner needs to do is really determine what his or her *people* philosophy is,” Bazzoni says. “A lot of people skip this step, but it really provides a lot of clarity for the rest of the process.”

There's a range of such philosophies. Some companies view workers as an expendable resource — just a “warm body” who has a specific set of tasks to fulfill and can be replaced when necessary.

To be clear, Bazzoni isn't recommending that approach.

“If I am viewing my humans who are working for me as an asset, then maybe I'm going to pay a little higher than everyone else does, provide milestones for people, and skill-based pay programs.”

## GATHERING DATA

Figuring out those market rates — whether your aim is to match them or consciously exceed them — is the next step.

Of course you can go online and probably find a lot of isolated examples, not to mention every opinion under the sun, for free. But even at that price, it's probably not worth what you're paying for it.

“It's not very reliable,” Bazzoni warns. “Reliable data has a price tag on it.” Reliable, she says, means “data that we can track to the source and verify its accuracy.”

Most likely you will get the best information if you turn to a consulting firm or an employers group like MRA — and if the data you get is compiled from sound methodology. Typically it will be collected from highly detailed surveys, anonymous so the employers participating can provide more candid answers. Ideally they will be answered by those employers' human resources departments.

Solid data will be validated to reflect geographic differences and also different ways companies may define particular jobs.

“Job titles can be meaningless,” Bazzoni says. Good research will drill down beyond those to enumerate the different skill sets and responsibilities employers may assign to a particular position “so that your ‘computer operator’ is the same as my ‘computer operator.’”

## BY THE NUMBERS

In these days of low unemployment, such data is likely to change often. “We typically recommend businesses look at this data annually,” she says. “When unemployment was higher, companies could get away with every three or four years.”

If you're able to get solid data in hand, you need to refer back to your fundamental human resources approach. “If the market says the going rate is \$20 an hour” for a particular job, Bazzoni explains, “what you're going to want to do is establish a range around that.”

For instance, if you want to pay above market as part of a strategy that builds long-term loyalty and commitment to the business, consider setting the wage in that context a few dollars an hour higher. Are you deliberately paying under market rates knowing that you'll probably experience more turnover? Perhaps you'll go down to \$17.50 an hour.

And you'll probably want to structure more complex wage systems, with bands for various titles and skill levels and then metrics for choosing where a given worker fits in those bands.

You can find that kind of information by searching for compensation consultants and making sure they're in your business field. And employers associations are found in most parts of the country; consider checking out what they have to offer and whether it would benefit your business to join one.

Still, even the best quality sources can have some limitations. If you're in a rural area, the data is less rich because the labor pool is smaller, making it hard to establish the actual market price for particular skill sets.



If you can't find any resources of that kind in your area or if the price tag is steeper than you feel you can afford, there are other options for information. Some may have drawbacks, but they might be better than nothing.

### SEEKING ALTERNATIVES

The U.S. Bureau of Labor Statistics publishes lists of occupations and their pay rates by regions. You can find it on the bureau's website ([www.bls.gov](http://www.bls.gov)) and then check listings by state or by metro area.

While reliable, it's also likely to be a year old or more because of the time that passes between when it's collected and when it is published. "Your labor market might have changed in that period of time," Bazzoni says.

There might be some data closer to home than you are aware of. Check your local chamber of commerce to see if it has conducted a compensation survey of its members, for example.

Still another source may be public-sector pay scales for people in the trades you're employing. As public information, those should be relatively available. But they also come with limitations: government wages may be higher or lower than their private sector counterparts.

"I did a proposal for somebody who said, 'We don't want to compete with county employees — their salaries are very low and we're drawing our people from the private sector,'" she recalls. In other geographic areas, the opposite may be true: that government scales are higher than those in the private sector.

### EMPLOYER OF CHOICE

Sometimes businesses rely on wage data from other locations, then factor in local cost-of-living data to adjust their own pay rates. That can be tricky, though. "Cost of living and cost of labor are two different issues," Bazzoni says. "For some jobs, you may have to pay more just to attract someone to your area."

Having established your basic structure, "You really have to keep your ear to the ground." Casual employee chitchat, requests from job applicants for a particular pay level — none of these have the authority and reliability of a carefully conducted survey. But they do provide insight on people's expectations in your industry and geographic area.

To be sure, pay alone won't keep good workers or attract applicants, and pay alone might not be why people turn you down. Even if that's what they tell you.

"When people turn down your offer, they're always going to say it's about money," Bazzoni says. And if they do — and it happens repeatedly — take it seriously.

But be aware that might just be an excuse for something else, including a bad reputation as an employer for other reasons: management style, poor communication, a lack of opportunity for advancement and many others.

"Are you an employer of choice? If you're not training people well, if you're not treating them well, no amount of money is going to help you." **C**



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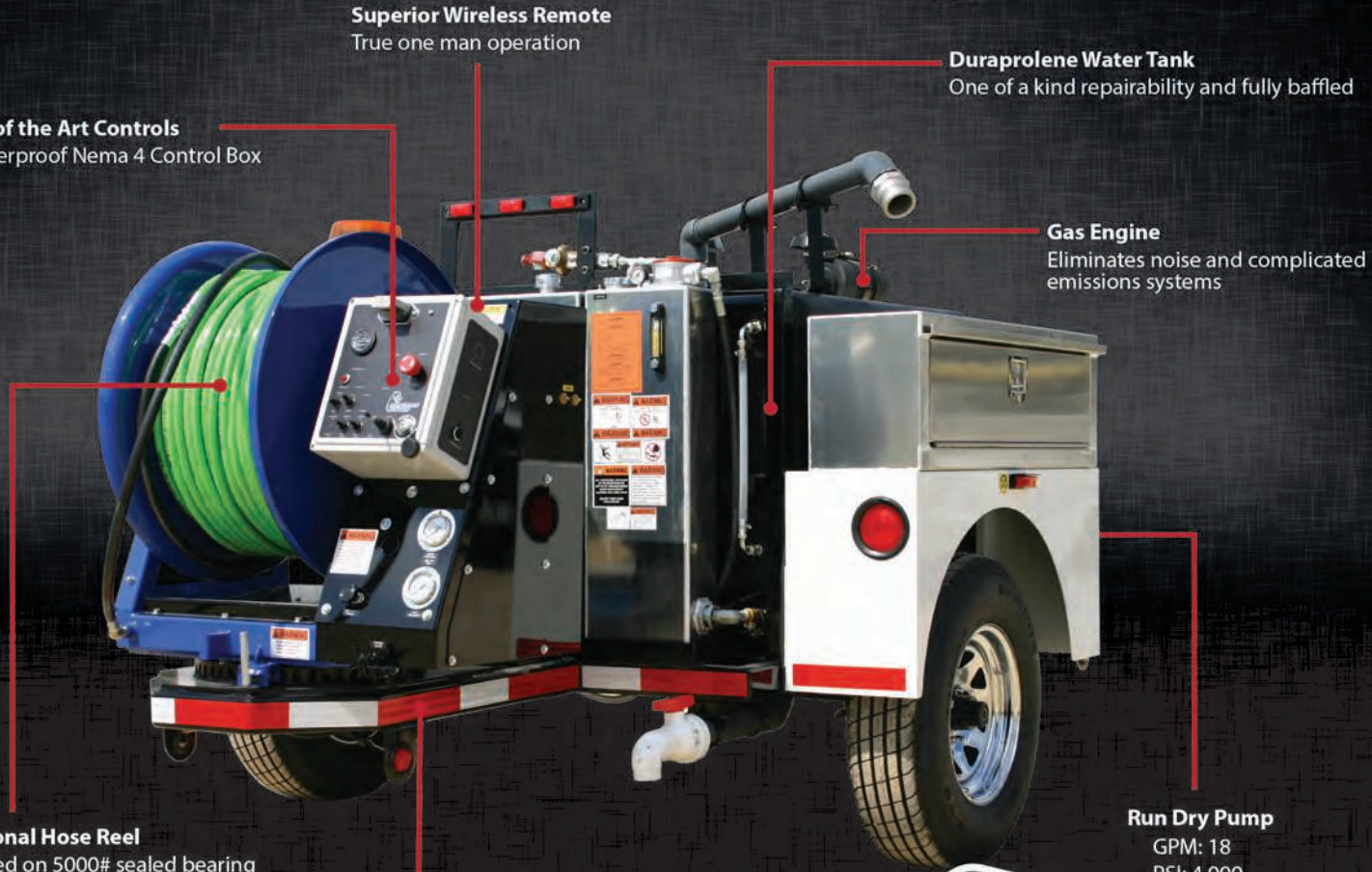
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# Gambling on GROWTH

Father-son company maximizes growth by anticipating demand and staying a step ahead

By Jared Raney // Photography by Jeremy Drey



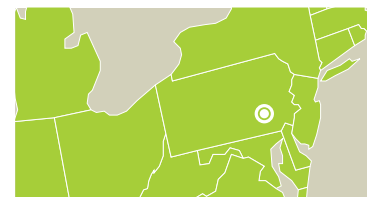
JG Environmental in Lancaster, Pennsylvania, has grown steadily, at times exponentially, since it's founding in 2008. Vice President of operations Jim Guerin II (left) joined his father, President Jim Guerin, in the business after finishing college.

Not many people were starting new businesses at the peak of the 2008 recession, but Jim Guerin took that leap.

Defying popular wisdom, Guerin resigned from his longtime, well-paying job to start his own operation and achieved remarkable success with a single guiding principle: Take chances at the right time.

Using skills he cultivated as a business development strategist for a large wastewater management company, the owner and president of JG Environmental in Lancaster, Pennsylvania, started his own outfit purely as a brokering operation — bidding, planning, and coordinating jobs without actually owning or operating any of his own equipment. He made a run of it that way before taking the plunge into full-fledged environmental waste operations.

“It was a big personal financial risk for me, but the timing was good because the poor economy was prompting potential clients to reevaluate the cost of their current environmental service contracts,” Guerin says.



## JG Environmental

**LOCATION:** Lancaster, Pennsylvania

**OWNER:** Jim Guerin and Jim Guerin II


**ESTABLISHED:** 2008

**EMPLOYEES:** 15

**SPECIALTIES:** Industrial tank cleaning, bulk waste hauling and processing; full-service environmental waste removal

**WEBSITE:** [www.jgenvironmental.net](http://www.jgenvironmental.net)





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The decision reveals a knack for planning ahead that has helped him find success running his own company.

“I wanted full responsibility and the ability to make decisions regarding the direction of the business,” Guerin says. “I saw room in the market, and since the timing was right, I decided to take a leap and start my own business.”

### ROUNDAABOUT BEGINNING

Guerin’s first dive into entrepreneurship was a car wash. The venture wasn’t exactly a success, but it led to a conversation with an operator who was pumping the car wash basin. He discovered that the wastewater management company had no sales department, prompting a bold decision.

“I became their first sales guy and worked my way up to sales manager and then business development,” Guerin says.

After 11 years, he took his leave in 2007, citing growing discontent with his level of control in the company, and founded JG Environmental. “I started off thinking I was going to be a broker,” he says. “I told my wife, ‘We don’t need employees. We don’t need equipment. I know what I’m doing.’”

Guerin would go out and find jobs, then plan and bid them,

subcontracting all the hands-on work to various environmental companies. It worked for about a year. Eventually, clients started asking why they needed a middleman for jobs when they could go straight to the contractors. He realized it wasn’t a sustainable business model, and in 2009 he bought his first truck.

“I had the experience, but mainly at sales, not hands-on as far as the truck. I had seen it done so many times, and I’ve always been a hard worker,” Guerin says, citing early work as a farm and moving company laborer. “Now I have that experience doing the work myself.”

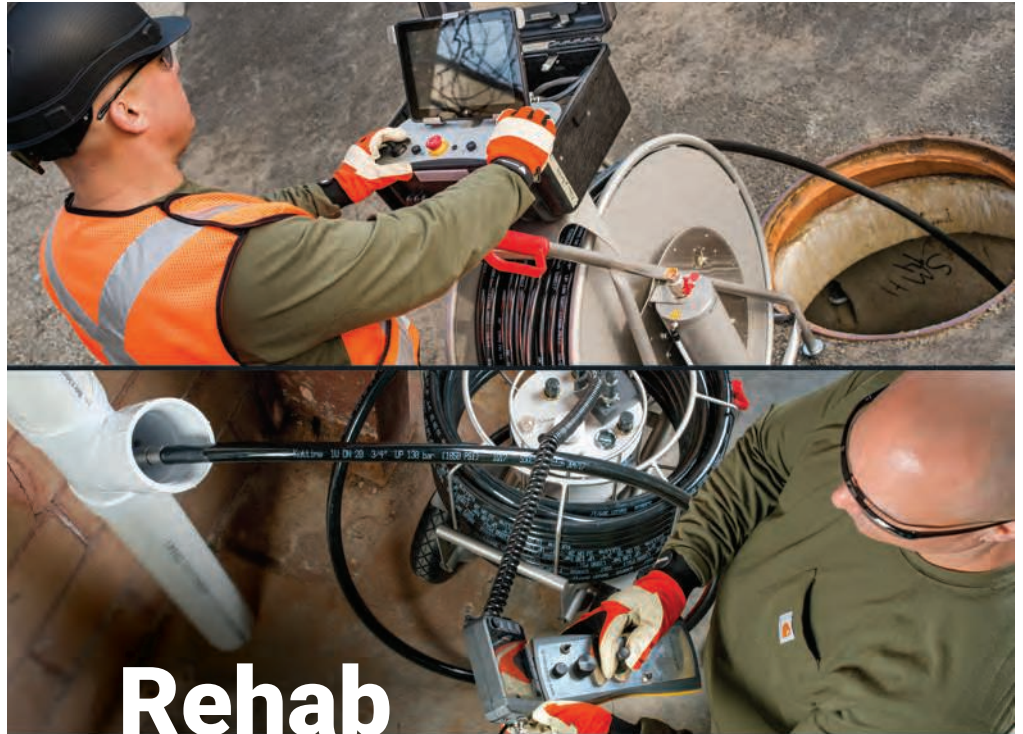
Guerin’s son, Jim Guerin II, helped during breaks while attending the University of Delaware, starting as a laborer while the company was still brokering and eventually running a truck as they transitioned. After graduating, he joined the company full time, eventually becoming part owner and operations manager.





“I wanted full responsibility and the ability to make decisions regarding the direction of the business. **I saw room in the market, and since the timing was right, I decided to take a leap and start my own business.**”

Jim Guerin



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◀◀◀ Technician Brendan Perry helps power wash a chlorine contact tank at a wastewater treatment facility after the team vacuumed it.

⚡ Field service technician Jesus “Chewy” Rivera feeds out a jetter hose to clean a tank.

⚡ JG Environmental has slowly grown their fleet, which includes a brand-new 2019 GapVax that joins two GapVax wet-dry units with Hotsy Cleaning Systems.





The new GapVax hydroexcavator is ready to work at a job site in Lancaster, Pennsylvania.

### AN UNEXPECTED ADDITION

"I never thought it would be a father-son operation — never in my wildest days — I really didn't," the elder Guerin says. "I thought: He's smart, smarter than me. I thought he would come out of college and do something else."

Growing up around cars gave the younger Guerin an interest in machines and a proclivity for mechanical things, making him a perfect fit for the operational side of JG Environmental.

"He was significantly helping grow the business, through a lot of dedicated, hard work," the elder Guerin says. "He became integral to the business, so I asked him to stay."

While the elder Guerin focuses on managing the business end — bidding jobs and managing growth — his son quickly took on more responsibility and became the operations specialist. He spent only two years as a driver before transitioning into a leadership role.

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## Mob legacy makes haulers' lives difficult

"He's vice president of operations, and it has become so easy. I just throw everything on him," Guerin says with a laugh. "My job is basically to go out, bring the work in, and his job is to get it done."

With Guerin's talent for management and operations, the growth has been so explosive — with services now running the gamut of nonhazardous environmental waste removal — that the company is looking to restructure yet again, adding on to its processing facility.

"It was easy for (Jim II), three, four, five years ago, but now he has nine drivers, there are five field service people underneath him, and we also have a full-time mechanic. He's responsible for all the equipment, and then we get a treatment facility, so what do I do? 'Jim, you're responsible for that.'" Guerin says. "We need more help, absolutely we need more help, which is part of the plan once we build the addition. We're going to hire more people to take the processing off his hands."

An abundance of challenges comes with starting a business, let alone one in a saturated market in the middle of a major recession. For Jim Guerin, owner and president of JG Environmental, in Lancaster, Pennsylvania, one of his biggest challenges wasn't the competition, but instead the red tape that accompanies environmental waste services.

"Getting our permit to be able to transport the spoils of hydroexcavation is important because each state requires different permits to haul on its streets and roads," Guerin says.

JG Environmental has permits for Pennsylvania, New Jersey, Delaware and Maryland. Not all permits and certifications are created equal — case in point, New Jersey's waste hauling permit.

"When I say it's a challenge: It takes anywhere from two to three years to get a permit to operate in New Jersey," Guerin says.

Part of the reason for the difficulty in that area dates back to the days of the mob, which used garbage hauling operations as fronts for money laundering, using intimidation and violence to win lucrative bids, and often using falsified paperwork to appear legitimate.

"We get fingerprinted by the FBI; my son and I got fingerprinted. A full background check from the state police of New Jersey is dropped on you; so it took us a month to fill it out, then it takes eight months for them to evaluate it, and then questions start. It's a very big process," Guerin says.

After the initial process, to maintain the permit requires continuous reports, paperwork, and quarterly spot inspections.

"It's difficult to get, and once you get it, then to keep it is not a picnic either," Guerin says. "So that was a challenge, as well as getting the processing facility permits from the Department of Environmental Protection. That took 2 1/2 to three years. They inspect your facility and you build based on the regulation, implementing it into your process and facilities."



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« Operator Cody Gray checks over a hose at the company shop.

» Vice President of Operations Jim Guerin II talks with with operator Cody Gray (right) outside the shop.



“I never thought it would be a father-son operation  
- never in my wildest days - I really didn't.”

Jim Guerin

Guerin says working with family can be challenging because both personal and business relationships are involved.

“I'm very fortunate — blessed — to be able to work with my son,” Guerin says. “I didn't set out for it to happen, didn't plan on it, but there's a trust factor with your own blood that you never can quite get if you hire somebody. It's really a pleasure for me to work with him.”

### GAINING STEAM

The company started off leveraging the elder Guerin's previous expertise in wastewater management, but eventually became a one-stop shop for any environmental waste needs, including bulk hauling and waste processing.

There were several large jobs that helped get the operational side of the company up and running. First was work in the Marcellus Shale, which became a hot spot in the early 2010s. There was an abundance of work cleaning everything from frac and vacuum tanks to drilling pads, in addition to bulk-hauling drilling spoils.

Next came Hurricane Sandy in 2012, providing JG Environmental with six months' steady work during the early recovery efforts. For at least four months, a large contractor in New Jersey essentially sublet one of JG Environmental's trucks.

“They needed our help, so we ended up sending one truck out there full time,” Guerin says. “At the time, we only owned three trucks, so sending one every day that we could bill for four months was a big shot in the arm.

“If you don't have these trucks out every single day, you won't be able to pay for them. Starting off, somebody would say, ‘Can you ...’ and I'd say yes, then I'd figure out how to do it. I mean honestly, that's true,”

Guerin says. “You do what you can to keep the truck moving, keep the truck running.”

The growth mentality is reflected in the evolution of the facilities. Today, the company is planning to expand the processing facility and will build new office and garage headquarters on an adjacent lot next spring.

“Business really took off when we purchased and moved onto the new property. Combining administration and operations really helped us with synergy and helped us get focused,” Guerin says.

At one time, they were renting a small office where Guerin worked back to back with an administrative assistant — Joyce Hanner, now the company's vice president of finance and administration — 3 miles away from the shop. Operators would fax information back and forth.

“Now that we're all under one roof, it's much more efficient, and we continue to grow,” Guerin says.

### TAKING RISKS

It might seem like luck has pushed the company on its rapid growth trajectory, but careful consideration and foresight are the real reasons for its success.





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There have been plenty of challenges, like dealing with last-minute job requests, but these jobs have provided opportunity.

"If there's a sinkhole or somebody lost power, we're small enough to tweak our schedule and jump at the opportunity," Guerin says. "There are a lot of companies out there that they called first that can't do it so quickly, so taking the chance and ordering the trucks before you actually need them, that's important — seeing that you're going to need it in six months — because these trucks take six to eight months from once you order them until you receive them."

That strategy has worked out well for JG Environmental, which has maintained steady growth of between 30 and 40 percent per year over the past seven years. Since the company bought its first truck in 2010, it has grown to 17 employees (including both Guerins) and 12 trucks.

"We're busy, and then all of a sudden somebody has this need, so we end up subbing it out, or we sub out the scheduled work because it's an easier job and we pull our truck off and we juggle another thing," Guerin says. "That's what drives the need to get another truck, so once that happens more and more often, that's when you say, 'We need another truck.'"

They recently added a brand-new 2019 GapVax to their existing fleet of two GapVax wet-dry units with Hotsy Cleaning Systems, a PresVac wet-vac unit, Galbreath roll-off truck, three Acro Trailer tank tractor-trailers, an ITI Trailers & Truck Bodies pump truck, as well as an additional PresVac pump truck and four support vehicles.

With the new unit, their plan is to begin keeping growth to a more controlled rate.

"We've been averaging two to three trucks added for the past four or five years. So we're just trying to manage the growth now," Guerin says. "As any business owner knows, it's the net that matters, not the gross sales. So as soon as the net starts not keeping up with the gross, that's when

we'll home it in a little bit. And we don't expect to continue 30 to 40 percent again for another six or seven years."

## A STRONG LEGACY

Looking back on the long road that got him to this point, Guerin's only regret is that he didn't start his company sooner.

"I was in the industry for over 11 years with one company," he says. "After eight or nine years, we started not agreeing. I was frustrated for two years. So it was very risky and not a good time personally to start a business, but the work was out there, becoming more available to people seeking work. Everybody was thinking that they could save money by reevaluating contracts and seeking bids from new contractors."

By taking a series of calculated risks, Guerin was one of the few who made the recession work for him, carving out a sizable cleaning kingdom that he can now pass on to his son. **C**

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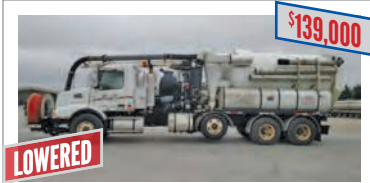
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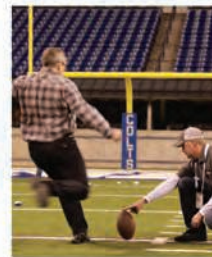
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# Power Surge

Versatile Schwalm USA robotic cutter brings power and productivity to Iowa contractor's job sites

By Ken Wysocky

**C**leaning sewer lines to prep them for pipe lining can be risky business, if for no other reason than the lines aren't usually in great condition to begin with. That makes them vulnerable to further damage that could require an expensive solution: open-trench replacement of the pipe — the very thing lining technology was designed to avoid.

Contractor Kyle Baxter doesn't worry much about that scenario, thanks to the Schwalm USA Talpa FSR 2060 robotic system that his company, AccuJet Sewer and Drain Cleaning, purchased in early 2018. In fact, the Schwalm technology is the primary reason he expects to more than double the company's gross revenue for sewer line prep work to more than \$800,000 this year compared to about \$300,000 last year. The company will probably prep about 125,000 feet of sewer lines this year for lining, he says.

The Schwalm unit helped drive that revenue jump with its power and reliability, which give Baxter the confidence to tackle jobs with pipes that are in less-than-perfect condition.

"We probably wouldn't have gone after some of those jobs as hard as we did because of the risk factors," says Baxter, 34, who established his company in 2006 in Perry, Iowa, a small town located about 40 miles northwest of Des Moines. "Plus, we get pipes a lot cleaner with less liability, as far as the pipes breaking apart."

Unlike some other cutters, the unit is very effective at scouring newly installed sewer pipe during required post-installation cleaning and inspections. "We used to use a drum-type cutter and it left about half of the taps protruding," Baxter says. "On the other hand, the Schwalm will take it all the way — make it flush with the pipe."

"We use everything from a diamond cutting wheel to wire brushes to chipping hammers. **Just about anything you can put on a 4-inch angle grinder you can put on the Schwalm.**"

Kyle Baxter

Moreover, Baxter says they can do a greater variety of jobs with the Schwalm and do them faster, too, which increases the company's productivity and profitability. The secret is the unit's powerful and efficient air-powered motor. "You don't get a lot of power loss when you're grinding something," he says. "When you hit something, it takes a lot to stop that motor."



⤴ Cutter operator Lorenzo Tapia (left) and camera operator Pedro Funes get set up to clear out a line with the Schwalm Talpa FSR 2060 robotic cutter system.

"We just did a job in Illinois where we had to cut out 56 taps in a sewer line. With a conventional tool, that might've taken a week. But we started on a Monday and finished on Wednesday. So we cut the job time almost in half. And we can charge more, too, because people are willing to pay more for a company that does a better job."

Baxter also praises the unit's hydraulic lift mechanism, which lifts, lowers, rotates, and swivels attachments. "Before we were burning out a lot of electric motors. But the Schwalm is a lot more rugged."

Baxter and his wife, Mindy, own the company, which employs 18 people and works in Iowa, as well as parts of Illinois, Kansas, Minnesota, Missouri, and Nebraska. It owns three Vacall AllJetVac AJ1215 combination sewer trucks on 2015 Freightliner MD 108 chassis with 12-cubic-yard debris

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tanks, 1,500-gallon water tanks, and water pumps made by General Pump and Myers.

In addition, the company has invested in three inspection trucks outfitted by EnviroSight, and a Chevrolet cube van dedicated to the Schwalm robotic system.

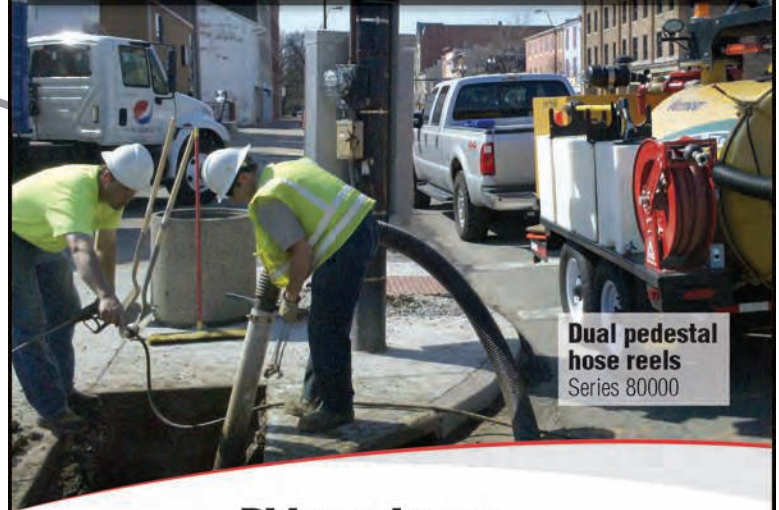
About 30 percent of the company's business comes from cleaning and inspecting newly installed sanitary sewer and stormwater lines for municipalities; another 30 comes from maintenance contracts to clean and inspect sewer lines for municipalities; and another 30 percent is generated by pre-lining prep work for pipe lining contractors. The rest comes from cleaning and inspecting commercial drainlines that are 8 inches in diameter or larger, Baxter says.

Thanks to its versatility, the Schwalm robotic system works in a wide variety of applications, from reinstating lateral lines and removing failed pipe liners to cleaning pipelines and installing lateral connection packers and compression plugs. Different heads can be attached to the unit, allowing it to grind, sand, cut, and chip away at mineral deposits, built-up grit, tuberculation, and even concrete. "We use everything from a diamond cutting wheel to wire brushes to chipping hammers," Baxter says. "Just about anything you can put on a 4-inch angle grinder you can put on the Schwalm."

As an example of the unit's power and durability, Baxter recalls one job where a foot-long section of an 8-inch-diameter sewer truss pipe was completely filled with concrete. Using a chipping-hammer attachment, the Schwalm worked through the concrete plug in about four or five hours.

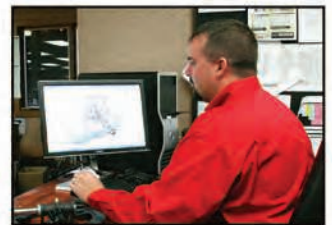
Baxter looked into buying a Schwalm unit about a year ago after a bad experience with a similar product. The difference was remarkable, he says. "We've had the Schwalm since January and it hasn't broken down yet, and those things take a lot of abuse with that air motor spinning around all day at 13,000 rpm. It's pretty much a bulletproof machine." **■**

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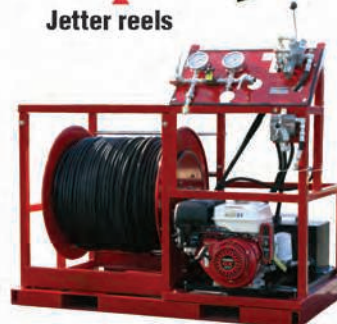
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# 2018 Cleaner

# SEWER NOZZLE




## COMPANY DIRECTORY

COMPANY	NAME OF NOZZLE	APPLICATION	PIPE DIAMETER	FLOW RATE (GPM)	MAX OPERATING PRESSURE (PSI)	WEIGHT	# OF AVAIL FRONT JETS	# OF AVAIL REAR JETS	HOSE SIZE/ CONNECTING THREAD
<b>All Jetting Technologies, Inc.</b> 2740 Martin Downs Blvd., Ste. 318, Palm City, FL 34990 772-286-1218 • (f) 772-286-0069 www.alljetting.com info@alljetting.com <b>SEE AD ON PAGE 92</b> 	1/4" - 28 UNF Sapphire Nozzles and Plugs	Ultra High Pressure waterjetting up to 55,000 PSI	NA	3 to 30	20,000 - 55,000		1		
	3/8" - 24 UNF Sapphire Nozzles and Plugs	Ultra High Pressure waterjetting up to 55,000 PSI	NA	3 to 30	20,000 - 55,000		1		
	7/16" - 20 UNF Sapphire Nozzles and Plugs	Ultra High Pressure waterjetting up to 55,000 PSI	NA	3 to 30	20,000 - 55,000		1		
	Long Stem Sapphire, 60° seating angle	Ultra High Pressure waterjetting up to 55,000 PSI	NA	3 to 30	20,000 - 55,000		1		
	M10 x 1.5 thread - 5MM Hex Key	Ultra High Pressure waterjetting up to 55,000 PSI	NA	3 to 30	20,000 - 55,000		1		
	5/16" Hex with 3/8" - 24 UNF	Ultra High Pressure waterjetting up to 55,000 PSI	NA	3 to 30	20,000 - 55,000		1		
<b>Aqua Mole Technologies Inc.</b> 11050 Industrial First Ave., North Royalton, OH 44133 877-457-2782 • 440-237-2984 (f) 440-237-2987 www.aquamole.com aquamole@sbcglobal.net <b>SEE AD ON PAGE 82</b> 	Custom Drilled Nozzles	Aqua Mole offers custom designs for specific applications: cleaning from downstream up, from structure out to the main, long distance pulling, specific types of debris removal, etc. We can work with ANY jetter, no matter the flow rate.							
	Monster Mole	Dual angle nozzle used to clean sand, gravel and grit	2" to 24"	1.7 to 80	200 - 10,000	.3 oz for 1/8" NPT up to 16 oz for 1" NPT	1	6	1/8", 1/4", 3/8", 1/2", 3/4", 1" NPT
	RH Super Thruster (15° or 20° rear angle)	Maximizes distance capability w/ penetrating power	2" - 24"	1.7 to 25	200 - 10,000	.5 oz for 1/8" NPT up to 3.0 oz for 1/2" NPT	1	3, 4, or 6	1/8", 1/4", 3/8", 1/2" NPT
	Degreaser & High Thrust Degreaser	Clearing grease blockages, pushing debris forward	2" - 24"	2.5 to 80	200 - 10,000	.3 oz for 1/8" NPT up to 16 oz for 1" NPT	3	6	1/8", 1/4", 3/8", 1/2", 3/4", 1" NPT
	Super Pusher	Optimized nozzle for pushing debris forward	2" - 24"	2.5 to 25	200 - 10,000	.5 oz for 1/8" NPT up to 3.0 oz for 1/2" NPT	3	6	1/8", 1/4", 3/8", 1/2" NPT
	Thruster 3R, Thruster 4R, Thruster 6R	Clear blockages going upstream	2" - 24"	1.7 to 80	200 - 10,000	.3 oz for 1/8" NPT up to 16 oz for 1" NPT	1	3, 4, or 6	1/8", 1/4", 3/8", 1/2", 3/4", 1" NPT
	Blind Thruster 3 Rear, 4 Rear, or 6 Rear (jets)	25° rear angle for pulling. More jets add additional coverage	2" - 24"	1.7 to 80	200 - 10,000	.3 oz for 1/8" NPT up to 16 oz for 1" NPT		3, 4, or 6	1/8", 1/4", 3/8", 1/2", 3/4", 1" NPT
	Flusher, Flusher 8R & Flusher 12R	45° rear angle for flushing line from either end	2" - 24"	1.7 to 100	200 - 10,000	.3 oz for 1/8" NPT up to 16 oz for 1" NPT		6, 8, or 12	1/8", 1/4", 3/8", 1/2", 3/4", 1" NPT
	Corner Mole (3 jets @ 45 degree, w/ one 90 degree side jet)	Helps operator to make tight turns	2" - 24"	1.7 to 25	200 - 10,000	.3 oz for 1/8" NPT up to 1.5 oz for 1/2" NPT	1	3 @ 45°, 1 @ 90°	1/8", 1/4", 3/8", 1/2" NPT
	Rotor Jet, 90 degree side jet, 45 degree rear	360° of coverage for polishing a line after cleaning	2" - 24"	2.5 to 50	500 - 10,000	.7 oz for 1/8" NPT up to 11 oz for 3/4" NPT		2 side / 2 rear @ 45°	1/8", 1/4", 3/8", 1/2", 3/4" NPT
<b>Arthur Products Co.</b> 1140 Industrial Pky., Medina, OH 44256 800-322-0510 • 330-725-4905 (f) 330-722-2698 www.arthurproducts.com apc@apclsq.com <b>SEE AD ON PAGE 50</b> 	Cnt-r-KUT™ Elite Kit	Roots and Other Blockages	2" - 12"	4 to 80	2,000 - 10,000	varies	Cust Spec	Cust Spec	3/8" - 1/2"
	Cnt-r-KUT™ Elite Mini Kit	Roots and Other Blockages in tight spaces	2" - 12"	4 to 80	2,000 - 10,000	varies	Cust Spec	Cust Spec	3/8" - 1/2"
	Cnt-r-KUT™ Basic Kit	Deicing/Degreasing, Penetration, Flushing	2" - 12"	2.5 to 80	2,000 - 10,000	varies	Cust Spec	Cust Spec	3/8" - 1/2"
	Cnt-r-KUT™ Basic Mini Kit	Roots and Other Blockages	2" - 12"	2.5 to 80	2,000 - 10,000	varies	Cust Spec	Cust Spec	3/8" - 1/2"
	Cnt-r-KUT™ Tow Hook	Pulling and towing Applications	2" - 12"	2.5 to 80	1,200 - 15,000	varies	Cust Spec	Cust Spec	3/8" - 1/2"
	Cnt-r-KUT™ Tow Hook Mini	Pulling and towing Applications	2" - 12"	2.5 to 80	1,200 - 15,000	varies	Cust Spec	Cust Spec	3/8" - 1/2"
	Mini-Mole	Special tapered thread for use in small tube cleaning on rigid lance	.200" - 1"	1.7 to 20	1,200 - 10,000	varies	Cust Spec	Cust Spec	Special tapered thread
	Rodder Jets	General tube cleaning for use on Rigid Lance	.250" - 1"	1.7 to 40	1,200 - 15,000	varies	Cust Spec	Cust Spec	Various male thread sizes
	Cnt-r-KUT™ Centering Device	Flexible elastomer for nozzle centering - for your existing nozzles	1" - 24"	1.7 to 80	1,200 - 10,000	varies			3/8" - 1/2"
	Mega-Thruster PX Revolver	Full 360° rotation for cleaning & polishing; designed for long runs	1" - 24"	1.7 to 80	1,200 - 10,000	varies	4	3	3/8" - 1/2"



# SEWER NOZZLE

COMPANY DIRECTORY

COMPANY	NAME OF NOZZLE	APPLICATION	PIPE DIAMETER	FLOW RATE (GPM)	MAX OPERATING PRESSURE (PSI)	WEIGHT	# OF WAIL FRONT JETS	# OF WAIL REAR JETS	HOSE SIZE / CONNECTIONS / FITTING
<b>Envirosight</b> 111 Canfield Ave., Unit B3, Randolph, NJ 07869 866-936-8476 • 973-252-6700 (f) 973-252-1176 www.envirosight.com office@envirosight.com <b>SEE BOOK PAGE 5</b> 	JetScan	HD video nozzle for jetter trucks and trailers	6" - 30"	40 to 80	2,000 - 3,000	16.3 lbs.		6	3/4" or 1"
<b>Enz USA Inc.</b> 1585 Beverly Ct., Unit 115, Aurora, IL 60502 877-369-8721 • 630-692-7880 (f) 630-692-7885 www.enzusainc.com sales@enzusainc.com <b>SEE BOOK PAGE 10</b> 	Bulldog Antiblast	Anti-Toilet Blowing in Residential	8" - 24"	55 to 80	1,500 - 1,800	17 lbs.	6		1" - 1 1/4"
	Bulldog	Cleaning grease, roots, deposits, etc.	8" - 24"	50 to 120	2,000 - 2,900	17 lbs.	7	6	1" - 1 1/4"
	Rotodrill	Cleaning blocked pipes, frozen pipes, heavy debris	2" - 14"	13 to 80	2,000 - 4,000	25 lbs. to 1.5 lbs.	1	6	1/2" - 1"
	Grenade	Flushing heavy debris	6" - 12"	40 to 80	2,000 - 3,600	11 lbs.		10	1"
	Chisel 60.100L	Penetrating clogs, root masses, frozen pipes	6" - 16"	50 to 80	2,000 - 3,600	6 lbs.	4	6	1"
	10.125TR Chain Scraper	Root removal, hard grease, hard deposits	5" - 12"	14 to 80	2,000 - 3,600	6 lbs.		6	1"
	10.200R Rotating Chain Scraper	Removal of root masses, clogs, hard deposits	8" - 16"	50 to 80	2,000 - 3,600	78 lbs.		6	1"
	10.400R Rotating Chain Scraper	Removal of root masses, clogs, hard deposits	16" - 32"	80 to 120	2,000 - 3,600	105 lbs.		6	1"
	14.200 Milling Cutter	Removal of concrete & mineral deposits	8"	80 to 120	2,000 - 2,200	178 lbs.		6	1" - 1 1/4"
	Bulldozer 50.100G	Flushing debris from larger pipe	16" - 40"	40 to 80	2,000 - 3,600	57 lbs.	1	8	1"
<b>General Pipe Cleaners</b> 1101 Thompson Ave., McKees Rocks, PA 15136 800-245-6200 • 412-771-6300 www.drainbrain.com info@drainbrain.com <b>SEE BOOK PAGE 2</b>	Chisel Point Nozzle	Penetrating, breaking up debris	4" - 10"	12	2,500	4 oz.	4	6	1/2"
	Traction Nozzle	Sand and mud removal	4" - 10"	12	2,500	8 oz.	1	6	1/2"
	Cleaning Nozzle	Maintenance Cleaning	4" - 10"	12	2,500	12 oz.		8	1/2"
	Spring Leader Nozzle	Guiding hose around tight bends	2" - 10"	1.5 to 8	1,500 - 3,000	4 oz.		3 to 4	1/8" - 1/4" - 3/8"
	Downhead Nozzle	Dropping down T's	2" - 4"	1.5 to 4	1,500 - 3,000	2 oz.		3	1/8"
	Chain Saw Nozzle	Cutting roots	4" - 10"	4 to 12	2,500 - 3,000	2 lbs.		2 to 4	3/8" and 1/2"
	Rotary Nozzle	Scour pipe walls clean	2" - 10"	1.5 to 12	1,500 - 3,000	2 oz. to 10 oz.		2 to 4	1/8" - 1/4" - 3/8" - 1/2"
<b>MyTana Mfg. Co. Inc.</b> 746 Selby Ave., St. Paul, MN 55104 866-948-7576 • 651-222-1738 (f) 651-222-1739 www.mytana.com mytana@mytana.com <b>SEE BOOK PAGE 11</b>	Cornering	Navigating Elbows	1 1/2" - 8"+	2 to 8	1,500 - 3,000	< 8 oz.	1	3	1/8" - 1/4" - 3/8" - 1/2"
	Penetrating Thrust	Paper Products	1 1/2" - 8"+	2 to 8	1,500 - 3,000	< 8 oz.	1	3	1/8" - 1/4" - 3/8" - 1/2"
	Blind Thrust	Pulling Power	1 1/2" - 8"+	2 to 8	1,500 - 3,000	< 8 oz.		4	1/8" - 1/4" - 3/8" - 1/2"
	Monster Flush	Pulling & Cleaning	1 1/2" - 8"+	2 to 8	1,500 - 3,000	< 8 oz.	1	6	1/8" - 1/4" - 3/8" - 1/2"
	General	Cleaning	1 1/2" - 8"+	2 to 8	1,500 - 3,000	< 8 oz.		6	1/8" - 1/4" - 3/8" - 1/2"
	Degreasing/Delcing	Grease & Frozen Lines	1 1/2" - 8"+	2 to 8	1,500 - 3,000	< 8 oz.	3	6	1/8" - 1/4" - 3/8" - 1/2"
	Rotating	Cleaning	1 1/2" - 8"+		1,200 - 4,000	< 8 oz.		2	1/4" - 3/8" - 1/2"
	Drop Head	Tough Corners, Commercial	1 1/2" - 4"	2 to 2	1,500	< 8 oz.		3	1/8" - 1/4"
	Jetter Leader	Navigating	3" - 8"	4 to 12	3,000	< 8 oz.		4	3/8"
<b>NozzTeq® Inc.</b> 1949 Calumet, FL 33765 866-620-5915 • 727-223-4979 (f) 603-413-6744 www.nozzteq.com info@nozzteq.com <b>SEE BOOK PAGE 85</b> 	BL Swiper® (Med)	Reduces blown toilets/services	4" - 36"	10 to 266	400 - 4,000	2 - 12 lbs.		4 to 6	1/2" - 3/4" - 1" - 1 1/4"
	JAWS® 100	High performance sewer cleaning or storm water cleaning	6" - 12"	5 to 80	400 - 4,000	4 lbs.		4	1/2" - 3/4" - 1"
	Multi-Global Nozzle™	Sewer and pipe cleaning for penetration	2" and Up	4 to 170	400 - 4,000	2 lbs.	4	1 to 6	1/2" - 3/4" - 1" - 1 1/4"
	JAWS™	High performance sewer and pipe cleaning heavy debris	6" - 30"	30 to 265	400 - 4,000	7 lbs.		5	1/2" - 3/4" - 1" - 1 1/4"
	IceBear Penetrating Nozzle™	Sewer and pipe cleaning penetrating nozzle	1" and Up	4 to 170	400 - 4,000	1 - 3 lbs.	3		1/4" - 1/2" - 3/4" - 1" - 1 1/4" - 1 1/2"
	C-RAY 200™	Bottom cleaning for sewer and pipe	12" - 36"	30 to 265	400 - 4,000	22 lbs.	1	6	1/2"
	C-RAY 400™	Bottom cleaning for sewer and pipe	15" and Up	40 to 350	400 - 4,000	42 lbs.	1	8	3/4" - 1" - 1 1/4" - 1 1/2"
	BL Swiper® (large)	Ventura effect type nozzle to clean with water in the line and sucks the water down	15" and Up	40 to 265	400 - 4,000	13 lbs.		39	
	Spinner Nozzles (No rebuilds)	Grease and other obstructions	4" and Up	14 to 350	400 - 4,000	3 - 15 lbs.	2		1/2" - 3/4" - 1" - 1 1/4" - 1 1/2"
	Goblin Grease Eater™	Grease nozzle sewer lines or storm lines	6" and Up	40 to 350	400 - 4,000	12 lbs.	1	10	3/4" - 1" - 1 1/4" - 1 1/2"
	MONRO-JET™	Hydro-Excavation	2" - 8"	3 to 20	2,000 - 36,000	2 lbs.	1		1/2"
	ORCA™	Two truck operation at either end of the pipe	15" - 60"	40 to 350	400 - 4,000	15 lbs.		8	3/4" - 1" - 1 1/4" - 1 1/2"
	MANTA™	Bottom cleaner for recycled water trucks	12" - 72"	60 to 528	900 - 3,000	45 - 60 lbs.	1	8 to 12	1/2" - 3/4" - 1" - 1 1/4" - 1 1/2"
	FIR™	All stainless type penetrators	2" - 12"	5 to 80	400 - 4,000	1 lb.	1	3 to 6	1/8" - 1/4" - 3/8" - 1/2" - 3/4" - 1"
	C-RAY 800™	Dual truck operation for double the flow for large pipes	36" - 96"	120 to 350	400 - 4,000	50 lbs.		8	3/4" - 1" - 1 1/4" - 1 1/2"



# SEWER NOZZLE

COMPANY DIRECTORY

COMPANY	NAME OF NOZZLE	APPLICATION	PIPE DIAMETER	FLOW RATE (GPM)	MAX OPERATING PRESSURE (PSI)	WEIGHT	# OF AVAIL FRONT JETS	# OF AVAIL REAR JETS	HOSE SIZE/ CONNECTING THREAD
<b>Root Rat</b> PO Box 740, Bolivar, OH 44612 800-288-7873 • 330-874-4300 (f) 330-874-4448 www.rootrat.net kelly@chempure.com <b>SEE AD ON PAGE 62</b>	Root Rat	Root & Enc	2" - 30"	4 to 150		0.5 lbs. - 5 lbs.			
<b>Sewer Equipment</b> 1590 Dutch Rd., Dixon, IL 61021 815-477-7611 www.sewershop.com sales@sewerequipment.com	Avanti	Sever obstruction removal nozzle for extreme blockages and long distance challenge	3" - 12"	14 to 80	3,000 - 4,000	1 lbs.		6	1/2" - 3/4" - 1"
	Tri-Star	Chisel designed, hardened steel, Removal and blockage penetration, including ice	1/2" - 1"	14 to 80	3,000 - 4,000	1 lbs.	4	6	1/2" - 3/4" - 1"
	Rondo	Use prior to video inspection yields a complete 360° complete clean, free of grease, dirt and debris	4" - 18"	30 to 80	3,000 - 4,000	2 lbs.		3	1/2 - 3/4" - 1" - 1 1/4"
	Dual Degree	Perfect for when general Cleaning and longer pulls or an incline might be involved	4" - 18"	18 to 80	3,000 - 4,000	4 lbs.	1	8	1/2" - 3/4" - 1"
	Wiesel	General Pipe Cleaning	4" - 18"	18 to 80	3,000 - 4,000	1 lbs.	1	8	1/2" - 3/4" - 1" - 1 1/4"
	Combi Chain Cutter	Aggressive root cutting and mineral deposit removal & general maintenance	1/2" - 1"	14 to 80	3,000 - 4,000	4 lbs.		6	1/2" - 3/4" - 1"
	Mega Series	Storm lines, culverts, large diameter pipes	4" - 48"	18 to 80	3,000 - 4,000	3 lbs.	1	11	1/2" - 3/4" - 1"
	Power Jet 500	Injector Nozzle for cleaning large diameter where it is difficult or impractical to plug or reroute lines, also older lines where pipe walls are delicate	20" - 60"	60 to 80	2,000 - 2,500	12 lbs.		12	1" - 1 1/4" - 1 1/2"
	Roto-Max	Controlled rotation, heavy grease removal and entire pipe cleaning along with room maintenance capabilities	4" - 20"	18 to 80	3,000 - 4,000	2 lbs.	1	6	1/2" - 3/4" - 1"
Wamax	Milling cutter, Ccutting concrete, major mineral	8" - 34"	80	2,500	60 lbs.		8	1" - 1 1/4"	
<b>Sewer Pro Shop</b> 1061 Triad Ct., Ste. 1, Marietta, GA 30062 877-864-9394 • 470-592-1715 (f) 770-984-2802 www.sewerproshop.com info@sewerproshop.com <b>SEE AD ON PAGE 42</b>	Emperor Nozzle	Flushing debris from large lines	12" - 32"	80 to 120	2,000 - 2,500	19.8 lbs.		12	1" - 1 1/4"
	Penetrator Nozzle	Flushing heavy debris in lines with off sets	6" - 16"	50 to 80	2,000 - 4,000	15.4 lbs.	1	8	3/4" - 1 1/4"
	Power Pull Nozzle	Mud, Sand, Silt	4" - 12"	18 to 80	2,000 - 4,000	1.5 - 9 lbs.		8	1/2" - 1 1/4"
	Spear Nozzle	Penetrating clogs/blockage, root mass	8" - 24"	50 to 80	200 - 4,000	6.2 lbs.	4	6	3/4" - 1"
	General Nozzle	All around sewer cleaning, prevent maint.	4" - 16"	18 to 80	2,000 - 4,000	1.5 - 9 lbs.	1	8	1/2" - 1"
	Arrow Nozzle	Penetrating clogs/blockages, frozen pipes	4" - 16"	18 to 80	2,000 - 4,000	1 - 2.5 lbs.	3 + 1	8	1/2" - 1"
	Stealth Nozzle	Flushing heavy debris	8" - 24"	60 to 80	2,000 - 4,000	17.6 lbs.		8	3/4" - 1 1/4"
	Raptor Nozzle	Penetrating clogs, roots/grease masses	4" - 24"	18 to 80	2,000 - 4,000	2.4 - 5.5 lbs.		3(1/2") 6(1")	1/2" - 1"
	Big Foot Nozzle	Flushing debris from floor of large pipes	16" - 48"	40 to 120	2,000 - 3,000	33 - 56 lbs.		6 to 14	1" - 1 1/4"
	Twister Nozzle	Cleaning grease, light roots, mineral deposits	8" - 24"	50 to 120	2,000 - 4,000	15.4 lbs.	5	4	1" - 1 1/4"
	Typhoon Nozzle	Grease, light crust, light roots	6" - 12"	18 to 80	2,000 - 4,000	11 lbs.	4	6	1/2" - 1"
	Antiblower	Shallow sewer line or close to home	6" - 16"	40 to 80	2,000 - 3,000	9 lbs.	1	8	3/4" - 1"
	<b>Spartan Tool</b> 1506 W Division St., Mendota, IL 61342 800-435-3866 • 815-537-7411 (f) 888-876-2371 www.spartantool.com sales@spartantool.com <b>SEE AD ON PAGE 96</b>	Warthog	Roots, Grease, General Cleaning	2" - 18"	12 to 35	2,000 - 4,000	1 - 5 lbs.	1	4
Sandshoe		Sand, dirt and rocks	4" - 18"	12 to 18	2,000 - 4,000	7 lbs.		4	3/8" - 1/2"
Rotating		Scrubbing pipe walls	2" - 12"	4 to 18	2,000 - 4,000	1 - 3 lbs.		3	1/4" - 3/16" - 3/8" - 1/2"
Q Nozzle		Downhill jetting	4" - 12"	12 to 18	2,000 - 4,000	1 - 2 lbs.	3	4	3/8" - 1/2"
Rocket Nozzle		Long distance jetting	4" - 12"	12 to 18	2,000 - 4,000	2 lbs.	1	4	3/8" - 1/2"
Closed Nozzle		Standard jetting	2" - 12"	4 to 18	2,000 - 4,000	1 lb.		4	3/8" - 1/2"
Open Nozzle		Standard jetting	2" - 12"	4 to 18	2,000 - 4,000	1 lb.	1	4	3/8" - 1/2"
Brass Ball		Stainless steel hose jetting	2" - 8"	4 to 18	2,000 - 4,000	1 lb.		4	3/16"
<b>StoneAge, Inc.</b> 466 Skylane Dr., Durango, CO 81303 866-795-1586 • 970-259-2869 www.sewernozzles.com bill.shires@stoneagetools.com <b>SEE AD ON PAGE 4</b>	Warthog WGR Magnum	Sewer jetting	8" - 36"	50 to 80	1,500 - 5,000	13 lbs.	1	4	1"
	Warthog WG-1	Sewer jetting	8" - 36"	50 to 80	1,500 - 5,000	10 lbs.	1	4	1"
	Warthog WGP-1	Sewer jetting	8" - 36"	50 to 80	1,500 - 5,000	10 lbs.	1	4	1"
	Warthog WHP	Sewer jetting	6" - 18"	15 to 50	1,500 - 4,000	4 lbs.	1	2	1/2" - 3/4"
	Warthog WH	Sewer jetting	6" - 18"	10 to 45	1,500 - 8,000	4 lbs.	1	2	1/2" - 3/4"
	Warthog WS - 1/2	Sewer jetting	4" - 8"	8 to 20	1,500 - 5,000	3 lbs.	1	2	1/2"
	Warthog WT - 1/2	Sewer jetting	3" to 6"	5 to 12	1,500 - 5,000	1.2 lbs.	1	2	1/2"
	Warthog WT - 3/8	Sewer jetting	3" - 6"	5 to 12	1,500 - 5,000	1 lb.	1	2	3/8"
	Warthog WV - 1/4	Sewer jetting	2" - 4"	3 to 8	2,000 - 5,000	1 lb.	1	2	1/4"
	Warthog WD 1-1/4	Sewer jetting	8" - 36"	80 to 120	1,500 - 5,000	11 lbs.	1	6	1-1/4"







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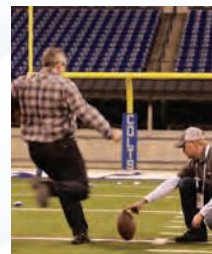


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# Stop Saying These Things to Employees

If you want happy and productive workers, avoid these trite, dismissive phrases and take a more direct approach to communication

By Jeff Haden

**W**e all overuse certain words and phrases. It's a natural pattern to fall into. But if you're a boss hoping to communicate effectively — and be taken seriously — it's also a real problem.

Platitudes aren't just annoying. Resorting to platitudes shows you don't want to listen, don't want to take action ... and in short, don't want to buckle down and do your job. Here are 10 phrases to watch out for and avoid in your conversations with employees:

## 1. "It just wasn't meant to be."

Whatever happened, fate had nothing to do with it. Something went wrong. Figure out what it was, and learn from it. Plus, "It just wasn't meant to be" places responsibility elsewhere, and when it's someone else's fault, it never gets fixed. On the other hand, "Let's figure out what we can do different next time" is empowering — and it places the responsibility where it should be: on you.

## 2. "That's probably not what you want to hear."

Bad news is not easy to give, or to receive. But when you say something isn't what I want to hear, you shift the issue over to my side of the table. Somehow the issue has become my problem. Don't shift. Explain why you made a decision. Explain the logic. Explain your reasoning. I still may not want to hear it, but that way, the focus remains on the issue and not on me.

## 3. "Work smarter, not harder."

What happens when you say that to me? One, you imply I'm stupid. Two, you imply that whatever I am doing should take a lot less time and effort than it does. And three, after you say it, I kind of hate you. If you know I could be more efficient, tell me how. If you know there's a better way, show me. If you think there's a better way but don't know what it is, say so. Admit you don't have the answer, and then ask me to help you figure it out. And most important, recognize that sometimes the only thing to do is to work harder. ... And when that's the case, get off your butt and help me.

## 4. "There is no 'I' in team."

Sure there is. There are as many I's as team members. Those individuals

— the more "individual" the better — serve to make the team stronger. The best teams are often a funky blend of the members' individual talents, perspectives and goals. If you want a team to work hard and achieve more, make sure each person feels they can not only achieve the team's goal, but also individual goals. Spend time figuring out how each individual on the team can do both, instead of taking the lazy way out by simply repressing individuality in the pursuit of the collective.

## 5. "Perception is reality."

Yeah, yeah, I know: How I perceive something is my version of reality, no matter how off my perception might be. But if other people perceive a reality different than yours, work to change that perception. Make your reality everyone's reality. Besides, perceptions are fleeting and constantly changing. Reality lasts forever, or at least until a new reality comes along to replace it.

## 6. "I'm always open to feedback."

You see and hear a similar line everywhere: websites, signs, meetings. If you truly want feedback or input, don't be passive. Don't just make it easy for people to provide. Go get it. Be active. People who really want feedback don't wait to receive it. They take responsibility for getting the information they need.

## 7. "We'll do it now and apologize later."

Say that and you're not a bold risk taker; you're lazy and self-indulgent. Good ideas are rarely stifled. People naturally like "better." People who don't like your idea usually aren't the problem. The problem is almost always you. So don't take the easy way out. Describe what you want to do. Prove it makes sense. Get people behind you. Then, whatever you do has a much better chance of succeeding.

## 8. "Failure is not an option."

This one is often used by the leader who gets frustrated and wants to shut down questions about a debatable decision or a seemingly impossible goal: "Listen, folks, failure is simply not an option," he says, striking the table with his fist. Failure is always a possibility. Just because you say it isn't doesn't make it so. Don't reach for a platitude to end debate. Justify your decision. Answer the hard questions. If you can't, maybe your decision isn't so wise after all.

## 9. "Let's not reinvent the wheel."

Because hey, some other wheel might turn out to be a better wheel, and that means my wheel isn't so great. And we can't have that.

## 10. "It is what it is."

No, it isn't. "It is what it is" really means "I'm too lazy to try to make it different, so stop talking about it." Don't like a situation? Work to fix it. That's what leaders do. **c**

### ABOUT THE AUTHOR

Jeff Haden is a contributing editor for [www.inc.com](http://www.inc.com) and a LinkedIn Influencer.



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# Danger at Any Depth

Lower the risk of trench cave-in injury and death by understanding proper excavation protocols and techniques

By David Dow

Unfortunately, we hear all too often about workers getting injured in accidents caused by trench cave-ins. Some workers are severely injured and are lucky to recover enough to walk again. Others are not so lucky and perish in these accidents.

Two things to know about these incidents:

- Most of the trenches and excavation in which workers are injured or killed are relatively shallow (5 to 15 feet deep).
- Many of the workers have not had excavation safety training.

Reducing the number of trench-related deaths and injuries begins with changing the cultural mindset of those who work belowground.

After doing this work for years, you may hear these stories about people dying in trenches and think, “That’s someone else. I’m pretty good. I’ve been doing this a long time. I can tell when it’s dangerous.” You may be “pretty good,” but unfortunately, these accidents can happen to anyone and the training is not something anyone — no matter how experienced — should ignore.

The General Requirements Section of OSHA’s Subpart P provides a number of commonsense steps to help ensure worker safety. As with any OSHA Standard or other safety procedure, it is important to always remember that these are the minimum requirements to ensure safe job sites.

## 1. SURFACE ENCUMBRANCES

To ensure stability and integrity, they need to be removed or supported while an excavation is open. Examples include rocks, trees, telephone and utility poles, fire hydrants, etc.

## 2. UNDERGROUND INSTALLATIONS

Examples include gas, electrical, water, sewer lines, etc. They must be:

- Located and marked before beginning work. Property owners and/or utility companies should be notified at least 24 hours prior to digging, unless a longer time is required by local law. Some states require 72 hours advance notice. Most other states require 48 hours notice.
- Protected, supported or removed while the trench is open.

Most states have so-called 811 One-Call laws. Simply dial 811 to contact the one-call center in your state.

## 3. ACCESS AND EGRESS

These are fancy words for entering and exiting a trench. The requirements are:

- In trenches that are 4 feet or more in depth, provide a means of access and egress.
- Spacing between ladders, stairs or ramps should not be more than 50 feet.
- No worker should have to travel more than 25 feet laterally to reach a means of egress (exit).
- Ladders must be secured and extend 36 inches above the landing.

In addition, it is important to use wood or fiberglass ladders where there is a possibility of electric shock. Many utility companies and contractors always use wood or fiberglass ladders to ensure there is never a problem.

A “competent person” must design all structural ramps used solely by employees. Further, a competent person qualified in structural design must design all structural ramps used for equipment. Usually this person will be a registered professional engineer.

Finally, the components used in structural ramps must be connected, be of uniform thickness, be constructed so that cleats and other connectors do not create a tripping hazard, and if ramps are used instead of steps, they must be provided with cleats or other surface treatments to prevent slipping.

CONTINUED >>



✔ No matter how many years of experience you have, it's still important to use proper shoring and keep spoils and heavy equipment at least 2 feet back from the edge of a trench.





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#### 4. EXPOSURE TO VEHICULAR TRAFFIC

Employees must be protected from being struck by motor vehicles. Also, employees must be provided with — and must wear — warning vests or other highly visible garments when exposed to traffic. Generally, employees are considered “exposed” when they are within the right-of-way. Signs, signals, barricades or flagmen may be required.

#### 5. EXPOSURE TO FALLING LOADS

The law is simple. The objective is to protect employees from being struck by falling objects:

- Employees are not permitted underneath raised loads.
- Employees are required to stand away from equipment that is being loaded or unloaded.
- Equipment operators or truck drivers may stay in equipment if it is properly equipped with a cab shield or adequate canopy.

#### 6. WARNING SYSTEM FOR MOBILE EQUIPMENT

Preventing vehicles from falling or backing into a trench can be accomplished by providing:

- Barricades.
- Hand or mechanical signals.
- Stop logs.
- Grading away from the excavation.

Equipment with an obstructed view is required to have working backup alarms or observers must be assigned when backing up. Suggestion: Caution your employees not to be complacent around backup alarms. On some projects, there are so many backup alarms that employees start to ignore them.

#### 7. HAZARDOUS ATMOSPHERES

One of the competent person’s responsibilities is to prevent employees from being exposed to hazardous atmospheres in the air or dangerous environments.

- Oxygen-deficient atmosphere — Normal air is 20.9 percent oxygen. An oxygen-deficient atmosphere has less than 19.5 percent oxygen.
- Oxygen-enriched atmosphere — It has 23.5 percent or more oxygen.
- Carbon monoxide causes oxygen starvation and can be fatal at a concentration of just 1 percent for one minute.
- Hydrogen sulfide is a very common toxic gas, and methane is a very common flammable gas. Both are regularly found in underground construction, particularly around sewers.

If there is a possibility that a hazardous atmosphere exists or could reasonably be expected to exist, the air should be tested before employees enter a trench or manhole. Provide respirators or ventilation when needed. And retest the air continuously to ensure that the trench remains safe.

#### 8. EMERGENCY RESCUE EQUIPMENT

Such equipment must be available when a hazardous atmosphere exists or could reasonably be expected to exist. Employees entering confined spaces must be properly trained. Harnesses and lifelines are required whenever employees enter bell-bottom pier holes and other deep confined spaces. Lifelines must be attended at all times.

#### 9. WATER ACCUMULATION

Water must be controlled to prevent cave-ins. Methods for controlling water vary with each situation. Employees are not permitted to work in trenches where accumulation exists unless:

- Special support systems or shields are used to protect employees from cave-ins.
- Water removal equipment is used and monitored by the competent person to prevent water accumulation.
- Safety harnesses and lifelines are used to protect employees.

Surface water must be diverted or controlled. The competent person must inspect the trench after each rainstorm.

#### 10. STABILITY OF ADJACENT STRUCTURES

The objective is to protect employees from cave-ins.

- A support system, such as shoring, bracing, or underpinning, must be used to support structures that may be unstable due to excavation operations.
- Excavating below the base or footing of a foundation or wall is not permitted unless:
  - A support system is provided to ensure the stability of the structure.
  - The excavation is in stable rock (this is very rare).
  - The operation is approved by a registered professional engineer.
- Support systems must be provided for sidewalks, pavements and other structures that may be affected by excavation operations.

#### 11. PROTECTION OF EMPLOYEES FROM LOOSE ROCK OR SOIL

Employees must be protected from being struck by soil or rocks that are falling or rolling from the edge and face of a trench. Spoils and equipment must be set back at least 2 feet from the edge of a trench.

#### 12. FALL PROTECTION

It is required that walkways and bridges be provided over trenches that are least 6 feet above lower levels and are greater than 30 inches wide. Bridges and walkways must be equipped with standard guardrails and toe boards. Additional fall protection may also be required.

#### 13. REMOTELY LOCATED EXCAVATIONS

Examples are wells, pits, shafts, trenches, other excavations, etc. They must be backfilled, covered or barricaded.

#### 14. INSPECTIONS

A competent person must make all inspections.

For more information, visit [www.naxsa.org](http://www.naxsa.org). **C**

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#### ABOUT THE AUTHOR

David Dow is chair of the training committee of the North American Excavation Shoring Association and co-founder and vice president of TrenchSafety and Supply.



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# Hydroexcavation and Industrial Jet/Vac Services, Sewer Nozzles

By Craig Mandli



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## CLEANING NOZZLES

### 1 / ENVIROSIGHT JETSCAN

Deployed on any 3/4- or 1 1/2-inch jetter hose, the **Jetscan** high-definition video nozzle from **Envirosight** is a quick, easy way for cleaning crews to determine what tools and setup to use, identify blockages during emergency callouts, and document the outcome of cleaning operations. It captures HD video footage from underground that can be viewed immediately afterward on a tablet. As it advances down pipe 8 to 24 inches in diameter, it records 720 pixel HD video in MPEG format to an onboard SD memory card that can be used to view the video on an iPad or other SD-compatible device. Twin high-output LED lamps ensure bright, vivid footage. It lasts four hours on rechargeable lithium-ion batteries and stores up to eight hours of video. **866-936-8476; www.envirosight.com.**

### 2 / ENZ USA BULLDOG ANTIBLAST

The **Bulldog Antiblast** nozzle from **Enz USA** was designed specifically to prevent blowing toilets while jetting in residential areas. Cleaning sewer lines near home installations brings the risk of pressure equalization through toilets and traps when negative pressure arises ahead of the nozzle, or when excess pressure follows the nozzle, if the installations were not correct or venting is not working properly. The nozzle prevents this unpleasant side effect and cleans in all directions. **877-362-8721; www.enzusainc.com.**

### 3 / HAMMELMANN RD MASTERJET

The **RD MASTERJET** nozzle from **Hammelmann** has HPS sealing technology and adjustable speed rotation. It is designed for use with shotguns,

robotic lance systems, or replacement of any rotating tool. It is lightweight at 2.2 pounds and has a compact ergonomic design that's 2.2 inches in diameter and 6.5 inches in length. It can be used at operating pressures up to 46,500 psi with its optimum internal flow allowing the pump's total performance to be used. It has a versatile universal nozzle hub for working with nozzles with two or four inserts. Nozzle inserts are countersunk in the nozzle carrier with blast-back shields. Speed is controlled by an infinitely variable magnetic brake. It can be used for cleaning and washing, expansion joint removal, coating and paint removal, blasting pipe externals, paint booth grid and skid cleanup, superstructure surface preparation, heavy machinery cleanup, and surface preparation. **800-783-4935; www.hammelmann.com.**

### 4 / NOZZTEQ BL SWIPER

The **BL Swiper** sewer nozzle from **NozzTeq** is available in 1/2-, 3/4-, and 1-inch sizes and is made of stainless steel inside with a poly body outside that makes it safe to use in lined, imperfect, and sensitive pipes. Its stainless steel tubes loop the water around a system along air channels that increase airflow and jet stream length in the pipe. The design reduces revolutions per minute and pressure at the truck and thus at the nozzle to reduce the amount of blown toilets. It can be used on 4- to 12-inch lines with all pull-behind jetting units. **866-620-5915; www.nozzteq.com.**

### 5 / SEWER PRO SHOP INTERSEWER UG BLUE STAR

**One-piece Intersewer UG Blue Star** sewer nozzles, distributed by **Sewer Pro Shop**, are neither bonded nor screwed together. Rather, their one-piece technology construction enhances strength and eliminates chances of failure under pressure for greater safety and performance. Optimized 3D Hydro Mechanics engineered into the lower part of the nozzle chamber





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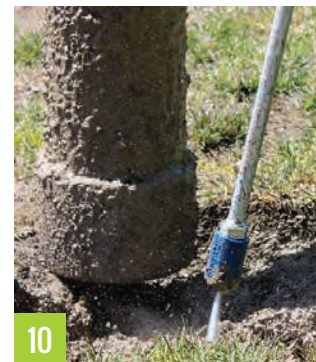
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prevent pressure in the upper part of the nozzle and eliminate the possibility of an explosion in a sewer line or manhole. The threaded nozzle inserts are replaceable and are made of stainless steel or ceramic. They can be used in conjunction with recycled water. **877-864-9394; www.sewerproshop.com.**

## 6 / STONEAGE WGR SWITCHER

The **WGR Switcher** sewer nozzle from **StoneAge** can run in pulling or cleaning mode without being removed from the pipe. By doing the job of two different nozzles, it uses less water and time compared to making multiple runs with different nozzles. When the pump is idled down and brought back to pressure, it will switch the water flow between two different patterns of jets. One jet pattern pulls and flushes debris down the pipe, and the other is a cleaning and descaling pattern for cleaning deposits and cutting roots. The two-in-one unit navigates pipes 8 to 36 inches in diameter and handles pressures up to 5,000 psi at up to 100 gpm, running more jobs with one tank of water. **970-259-2869; www.stoneagetools.com.**

## HYDROEXCAVATION EQUIPMENT

### 7 / DBO SOLUTIONS ME 4000

The **ME 4000** from **DBO Solutions** is a fully mobile waste recovery system designed for street and hydrovac waste processing. Ideal for multiday projects or as a portable facility-based unit, it quickly and efficiently processes hydrovac, storm, and street waste slurries, recovering clear filtrate water and stackable solids. It can easily handle multiple truckloads of different material per day, making it ideal for heavy civil construction projects. Designed for ease of transportation, setup, and operation, it has self-loading options, minimal short- and long-term maintenance requirements, severe-duty construction, and is ISO 9001 compliant and DOT approved. Advanced automation controls are standard, and remote operation interface options are also available. **844-432-6349; www.dbodecant.com.**

### 8 / DITCH WITCH HX30

The **Ditch Witch HX30** vacuum excavation trailer offers a 24.8 hp Kubota diesel engine designed for performance and productivity on mid-sized potholing, soft-excavation or cleanup tasks. The low-profile machine reduces unit height without compromising ground clearance. It is available with a 500- or 800-gallon debris tank and in a light or heavy version. Also available are advanced optional boom designs to improve ease of use. With advanced sound-reducing technology, it creates minimal disturbance in noise-sensitive areas. An optional reverse-flow feature allows quick and easy spoil off-loading for improved productivity. **800-654-6481; www.ditchwitch.com.**

### 9 / HURCO TECHNOLOGIES HYDROEXCAVATION VACUUMS

The 250- and 550-gallon hydroexcavation vacuums from **Hurco Technologies** use quality components to provide maximum performance in a compact trailer or skid. They are ideal for smaller jobs to avoid needing to pull large vacuum units from other projects and for accessing delicate terrains or tight areas, such as golf courses and parks. The fully opening hydraulically powered door allows for easy cleaning, and the fixed-angle tank eliminates numerous maintenance and wear issues that arise with hydraulic-lift tanks. **800-888-1436; www.hurcotech.com.**

### 10 / HYDRA-FLEX RIPSAW

The **Ripsaw** rotating turbo nozzle from **Hydra-Flex** blasts a zero-degree water stream at up to 3,200 psi while rotating at a high speed to provide an 18-degree cone of coverage. Its cone-shaped flow pattern is ideal for potholing applications. The heavy-duty, high-impact nozzles are constructed with stainless steel housings and tungsten carbide wear surfaces to withstand harsh environments and provide long life. Repair kits are available. Select from traditional coating (blue) or upgrade to the heavy-duty coating (green), a formulation designed for use in extreme environments. Greater impingement allows users to complete jobs faster or use a smaller nozzle size while getting the same impact as nozzles with higher flow rates. **952-808-3640; www.hydralflexinc.com.**





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#### 11 / RIVAL HYDROVAC T7

The **T7** from **Rival Hydrovac** is a road-legal unit engineered to work primarily in urban settings. It offers a 7-cubic-yard debris body, 800 gallons of freshwater storage, and hoist and “pressure off” off-loading capabilities, allowing it to transfer loads into other vessels, vehicles, or tanks in minutes. Its **RAPTORLOCK** dump door system allows the door to hold a seal under vacuum or pressure without the use of manual wing nuts. It includes a **Robuschi USA ROBOX** enclosed blower system with quiet operation and 2,650 cfm at full vacuum. It comes with a 12-volt boiler system, 14 gpm water system and winterization features. Its 6-inch boom offers full rotation and is extendable to 20 feet. An **Aarcomm Systems** remote system controls the boom, water, and vacuum, and it displays real-time truck weight. A full safety package includes a safety railing atop the truck, engineered D-ring tie-offs, and boom cradle sensors to prevent driving with the boom deployed. 403-550-7997; [www.rivalhydrovac.com](http://www.rivalhydrovac.com).

#### 12 / SOIL SURGEON HYDROEXCAVATING TOOL

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](http://www.soilsurgeoninc.com).

#### 13 / SUPER PRODUCTS MUD DOG 1200

The **Mud Dog 1200** 12-yard-debris-capacity hydroexcavator from **Super Products** has a rear-mounted boom capable of a 19- to 27-foot reach, 335-degree rotation, 45-degree upward and 25-degree downward pivot. This range of boom motion allows crews to achieve greater work area access and deeper digging without halting production to reposition the trunk. Easy-to-use ejector plate unloading technology provides fast, thorough, and safe debris removal, according to the maker. A tilt-unloading feature ensures liquids in the debris tank are cleared efficiently, even when unloading in

an up-slope/nose-down position. Options include the **Acculevel** load-sensor system for precise debris tank level measurement. 800-837-9711; [www.superproductsllc.com](http://www.superproductsllc.com).

#### 14 / SUTTNER AMERICA STATIC HYDROEXCAVATING NOZZLE

The static hydroexcavating nozzle from **Suttner America** is available with 1/4- and 1/2-inch inlets and pressure ratings from 3,600 up to 8,700 psi; it can be set up to handle up to 35 gpm at 4,000 psi. It is capable of digging to a depth of 12 feet. It is constructed of hardened stainless steel and M5 inserts. The nozzle can be used for areas with access issues or requiring precise digging. It is available without a protective cover, allowing customers to use their own protective cover if desired. 800-831-0660; [www.suttner.com](http://www.suttner.com).

#### 15 / TORNADO GLOBAL HYDROVACS F4 ECOLITE

The **F4 ECOLITE** from **Tornado Global Hydrovacs** has a 12-cubic-yard mud tank and holds 1,400 gallons of freshwater. This unit is over 7,000 pounds lighter than the company’s older models and offers more than double the payload. The boom has a 342-degree rotation and a 26-foot reach. The smaller **F3 ECOLITE** is a 10-cubic-yard, 1,200-gallon tandem-axle unit that also more than doubles older payload capacities. It features an 8-inch boom and a 3,800 cfm blower. 877-340-8141; [www.tornadotrucks.com](http://www.tornadotrucks.com).

#### 16 / VACALL ALLEXCAVATE COLD WEATHER PACKAGE

**Vacall** offers a step-in compartment on its **AllExcavate** hydroexcavators to provide operators with warmth and protection from inclement weather. The standard heated compartment has enough space for an operator to change out of wet and muddy boots and clothing. The compartment has floor drainage, racks to hang dry clothing, and another rack to store the high-pressure handgun and extensions. Larger compartments with extra room are available. Along with new LED lighting, the cold weather package includes extra insulation, heated cabinets for the hose reel and water pumps, and boilers that can heat water for more effective hydroexcavation in frozen ground. 330-339-2211; [www.vacall.com](http://www.vacall.com).

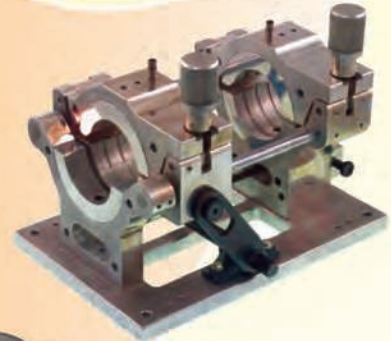
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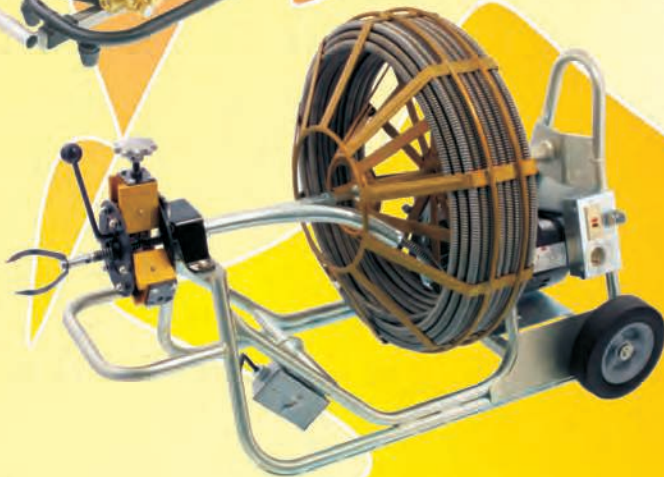


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### 17 / VACTOR HXX QX

The **Vactor HXX QX** vacuum excavator offers improvements in payload capacity, weight distribution, operation and performance. The truck maximizes legal payload for customers and improves operational efficiency. The placement of the debris body and water tank on the chassis ensures equal distribution of the payload on the axles, regardless of how much water is in the tanks. Each component is purposely placed to ensure the entire chassis gross vehicle weight rating is used. A PrecisionFlow water pump features a single-piston design. The truck comes with a QuietPak sound-damping system with a Robuschi USA positive displacement blower rated for 6,176 cfm and 28 inches Hg. The system delivers higher airflow and quieter operation, with a decibel rating of less than 90 dBA throughout the revolutions per minute range. It has a Park-N-Dig quick operation design, which reduces setup and tear-down time between jobs, and a 7-inch display with real-time operational and performance information feedback. **800-627-3171; www.vactor.com.**

### 18 / WESTECH VAC SYSTEMS WOLF

The **Wolf** noncode hydrovac truck from **Westech Vac Systems** is ideal for oil and gas customers working in extreme conditions. The debris body is positioned on the optimal spot of the chassis to ensure the payload is proportionately distributed across all axles simultaneously, maximizing legal payload for customers and improving operational efficiency. The side-mounted water tanks reduce the weight by more than 40 percent, lowering the overall cost of the truck. The 1,500-gallon capacity ensures ample water storage capacity for large or remote jobs. A top-mounted, no-touch water fill system is easily accessible from the passenger side of the vehicle. The debris body is lifted using a telescoping, dual-acting hydraulic cylinder capable of 36,000 pounds of force. When fully extended, the debris body exceeds a 45-degree dump angle for fast and efficient off-loading. To help the off-loading process, a heavy-duty, hydraulically powered tank vibrator is mounted to the belly of the debris body. **780-955-3030; www.westechvac.com.**

## JET/VAC COMBO UNITS

### 19 / CUSCO SEWER JETTER

The **Sewer Jetter** from **Cusco** can help perform major cleanups by excavating debris with a 26-foot boom reach and a 270-degree boom rotation. Outfitted with quality components and reverse engineered for optimal weight and payload with a superior operator control system, the unit is designed for simple regular maintenance and features durable and uncomplicated systems to reduce repairs and downtime. It can be paired with a Cusco SJX hydroexcavator to provide growing municipalities and contractors a powerful option for handling sewer and waterline maintenance and digging new lines with one piece of equipment. Options include various tank and chassis sizes and can be modified based on customer specifications. **800-490-3541; www.wastequip-cusco.com.**

### 20 / SEWER EQUIPMENT MODEL 900 ECO

The **Model 900 ECO** from **Sewer Equipment** is available in 6-, 9-, 12- or 15-yard debris capacities, equipped with Duraprolene water tanks carrying 900 to 2,000 gallons of onboard water. Its Hydro Drive powertrain system eliminates the need for a transfer case. Both single-piston and triplex pump options are available at 55 to 80 gpm at 2,000 to 3,000 psi with a 4,400 cfm blower and 18 inches Hg, built on an eco-friendly platform that provides greater fuel efficiency and offers noise reduction. **888-477-7611; www.sewerequipment.com.**

## ROOT CONTROL EQUIPMENT

### 21 / ELECTRIC EEL MODEL C

The **Model C** dual-cable sectional drain cleaner from **Electric Eel** runs up to 200 feet of 1 1/4-inch, self-feeding dual cable in 8- or 10-foot sections that require no handling when rotating. It spins cable at twice the revolutions per minute of a continuous cable machine for cleaning 3- to 10-inch lines for distances up to 200 feet. One-man operation means less time and labor

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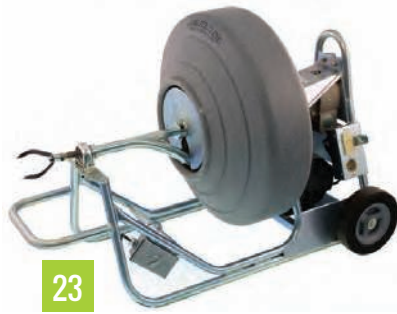
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#### 22 / GI INDUSTRIES TCM 5000

The high-speed TCM 5000 pipe cleaning machine from **GI Industries** combines high-flow air/water flushing with brushing at variable speeds to provide the operator more control in various applications, creating a jetter and cable machine in one package. The variable-speed (0 to 1,750 rpm) control allows customers to use cleaning/drill heads or devices from other manufacturers. It provides contractors greater flexibility in deciding which tools are correct for their application. These systems can clean 1/2- to 24-inch lines at over 150 feet on a single unit. 800-724-1944; [www.giind.com](http://www.giind.com).

#### 23 / GORLITZ SEWER & DRAIN MODEL GO 68HD

The **Gorlitz Sewer & Drain Model GO 68HD** heavy-duty electric drain cleaning machine is available in two different versions — with an open steel reel or enclosed polyethylene drum — and can be outfitted with an optional power feeder. It comes with a standard configuration of 150 feet of 11/16-inch hollow-core cable, which should reach most blockages with a single reel. It weighs 185 pounds, and adding a loading ramp and electric winch to any vehicle makes transportation quick and simple. It is designed to clean pipes from 3 to 8 inches in diameter. 877-446-7548; [www.gorlitz.com](http://www.gorlitz.com).

#### 24 / PICOTE SOLUTIONS MINI SWEEPER

The **Mini Sweeper** from **Picote Solutions** is designed to clean and descale pipes, including removing tree roots. It grinds away debris from the inside of the pipe at 1,000 to 1,500 rpm. The aggressive tool is effective in situations where there is thick scale, rust or other waste materials that are difficult to remove. It can also be used to remove wrinkles in liners or to

remove excess lining material from the pipe wall after a failed liner has been removed. It is rebuildable after the legs become dull. It is available for 2-, 3-, and 4-inch pipe sizes and is powered by the Picote Mini or Maxi Miller. 708-267-6366; [www.picotesolutions.com](http://www.picotesolutions.com).

#### 25 / PIPE LINING SUPPLY RENSSI HIGH-SPEED CABLING AND TOOLING

**Renssi High-Speed Cabling and Tooling** from **Pipe Lining Supply** is used to attack roots, scale and lateral reinstatements. The cabling can be used with a hand drill or many cable caddy sizes with a clutch for easy control by the operator. A minimal amount of training is needed to perform drain clearing and cleaning at a high rate of speed up to 10 times faster than alternative methods. The secret is in the ability to attach a camera system to the cable, allowing the operator to see what he or she is doing and not spend time cleaning areas that don't need it. 888-354-6464; [www.pipeliningupply.com](http://www.pipeliningupply.com).

#### 26 / SOUTHLAND TOOL S906M-1-AK

The **S906M-1-AK** root cutter motor from **Southland Tool** is built from the same platform as the S906M-1 motor but has an upgraded process for the internal parts that makes it smooth to turn, improving hydraulic performance and nearly eliminating internal corrosion. This process, known as "advanced kinetics," uses a finish that improves the friction coefficient, allowing parts to run smoother, which reduces drag, saves water, and increases productivity. The metal becomes denser to ward off corrosion and wear. The cutter is designed for lines from 6 to 30 inches. The motor can accommodate hose sizes of 3/4, 1, 1 1/4, and 1 1/2 inches and handles flows from 40 to 170 gpm and pressures from 1,500 to 3,000 psi. It is rated up to maximum 288 pounds of torque and 220 pounds of continuous torque, which is ideal for cutting taps in larger sizes. 714-632-8198; [www.southlandtool.com](http://www.southlandtool.com).

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### 27 / USB-USA TURBO S600

The **Turbo S600** chain cutter from **USB-USA** is made of high-quality stainless steel and has a continuously adjustable guide skid. Turbine technology powers the durable chain retainer on a durable body to remove concrete, calcium deposits, hardened grease and tuberculation from 12- to 24-inch sewer lines. The unit's 3D fluid mechanics in conjunction with one-piece ceramic nozzle inserts allow the cutter to be used with recycled or clean water. Adjusting the cutter to different pipe dimensions is as easy as turning the rear spindle, which makes the cutter open or close. This type of adjustment allows the cutter to be adjustable within 1/16 inch. Different cutting attachments are also available for the end of the chain. **844-285-5770; www.usb-usa.com.**

## SAFETY EQUIPMENT

### 28 / SONETICS APEX GEN 3.2

**Apex Gen 3.2** wireless headsets from **Sonetics** include an increased Noise Reduction Rating of 24 dB that covers the entire product line, including the APX377 and APX379 wireless headsets with DECT7 wireless technology. Also included is a "headset to multibase station" feature that enables a single headset to pair simultaneously with up to four SON150 wireless base stations. Users can move between separate work teams and automatically pair to each connected base station. A split push-to-talk feature lets users transmit over either an SCH305/310 ComHub-connected portable radio and/or one direct-wired to an Apex 3-Series wireless headset. The package includes several durability enhancements that boost the headsets' overall ruggedness and flexibility. **800-833-4558; www.soneticscorp.com.**

### 29 / TST SWEDEN AB HEAD PROTECTION

**TST Sweden AB** head protection with visor and hearing protection are tested and certified to protect the user against objects and sweeping high-pressure water jets with pressures up to 43,511 psi. The head protection fulfills the requirements for industrial helmets, and the interior can be adjusted for a good fit. The visor fulfills the requirements for eye protection and protects

the user against external impact on eyes and the front and side of the face. It is replaceable and can be set in an upfolded position. The hearing protection is certified for reduction of dangerous noise levels. It can be adjusted in height for best protection and fit. **www.tst-sweden.com.**

## TRUCK/TRAILER/PORTABLE JETTERS

### 30 / AMAZING MACHINERY BOSSJET PRO BOX JETTER

The **BossJet Pro Box Jetter** from **Amazing Machinery** can be mounted in many configurations. It comes with a Honda or Kohler engine, a triplex plunger pump and a Hannay Reels electric hose reel. All units are encased in a high-density aluminum box frame with an access panel on the side for exhaust release and ease of service. It comes with 200 feet of 1/4-inch I.D. jetter hose and laser and spin jet nozzles. It is designed to clean and clear 2- to 6-inch pipes. Options include a foot pedal, trap kit, remote reel and port-a-potty head attachment for the smaller lines. All units include a washdown gun and wand, four pressure washer tips, and a chemical injector for easy cleanup. **800-504-7435; www.amazingmachinery.com.**

### 31 / AMERICAN JETTER 51 SERIES HOT JETTER

The **51 Series Hot Jetter** from **American Jetter** offers increased cleaning power for grease cutting and de-icing by heating the water up to 190 degrees F. Consistent power is provided by Kohler gasoline engines up to 74 hp, with flows of 8.5 to more than 20 gpm and pressure to 4,000 psi. The rear reel provides precise cleaning speeds and easy access to the jet hose with the included hose guide. Low-water shut-off prevents pump damage if the 330- to 600-gallon tank runs low. The optional 1-mile open-range wireless remote option allows for water on/off, engine shutdown and hose reel control. The heavy-duty square tubing trailer offers a 2 5/16-inch ball coupler and standard electric brakes. **866-944-3569; www.americanjetter.com.**

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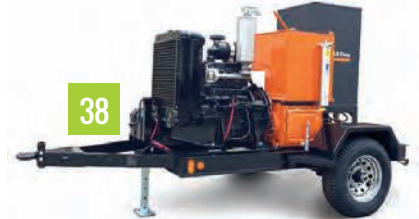
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### 32 / CAM SPRAY TT4025HZ-350

The model **TT4025HZ-350** trailer jetter from **Cam Spray** produces 25 gpm at 4,000 psi using an EPA Tier 4 Final Hatz Diesel 74 hp turbo intercooled, liquid-cooled engine. It comes with an over-center clutch, control panel with hour meter, low-fuel gauge, low-fuel shutdown, over-pressure shutdown and digital pressure readout. The reel is hydraulic powered with variable speed and comes mounted on a slide-out with angle adjustment fitted with 500 feet of 5/8-inch hose, manual shut-off valve, and analog pressure gauge. RCM wireless remote control modes include valve open, valve close, engine idle down with a 15-second time-delay shutdown, emergency shut-off, two-speed engine revolutions per minute control, and auxiliary 10-amp circuit with on/off control. **800-648-5011; www.camspray.com.**

### 33 / EASY-KLEEN PRESSURE SYSTEMS GROUNDHOG JETTER

The **Groundhog Jetter** from **Easy-Kleen Pressure Systems** is designed to blast through clogged pipes with its 35 hp Vanguard engine that provides 12 gpm at 3,500 psi. It is compact and easily transported in a pickup truck or van, with trailer options available. It includes a fully welded, powder-coated 2-inch steel tube frame, drilled and tapped, which houses the 200-gallon water tank. It comes with an accessible breather and 10-gallon fuel tank, General Pump with gearbox drive, 12-volt powered hose reel with 300 feet of 3/8-inch jetter hose, hose guides, super swivel and foot-pedal control, emergency shut-off valve, and an hour meter. Optional remote features include hose reel-in, motor off/speed control and pressure on/off. **800-315-5533; www.easykleen.com.**

### 34 / GAPVAX GJET

The **GJet** truck jetter from **GapVax** offers 500- to 3,000-gallon stainless steel water tank options and 40 to 100 gpm water pump options along with a front-mounted hose reel, various toolbox options, room for a vice or crane, and 10-foot tube trays. **888-442-7829; www.gapvax.com.**

### 35 / GENERAL PIPE CLEANERS/ GENERAL WIRE SPRING TYPHOON

The **Typhoon** trailer jet from **General Pipe Cleaners/General Wire Spring** blows away blockages in big lines and long runs, delivering 12 gpm at 2,500 psi to blast lines clean of grease, sediment, and debris. A 200-gallon holding

tank carries enough water to handle remote applications where access to water is limited. A 690 cc Honda engine powers the pump with Vibra-pulse to help slide the nozzle around tight bends and propel the hose down long lines. Its high-performance nozzles incorporate fluid mechanics that increase thrust, pulling power and cleaning power without needing to increase water flow or pressure. Two hose reels — a jet hose reel with 400 feet of 1/2-inch hose with variable-speed electric rewind, and a water supply hose reel carrying 150 feet of 3/4-inch hose — are mounted at the rear of the unit. Engine controls, including an hour meter, are mounted within easy reach in the lockable toolbox with slide-action doors just below the reels. **800-245-6200; www.drainbrain.com.**

### 36 / HOT JET USA HOTJET II

The **HotJet II** sewer and drainline jetter from **Hot Jet USA** is a dual-purpose machine that cleans drains and serves as a high-powered, hot-water pressure washer. It can be used to clean drains up to 300 feet long and 12 inches in diameter. It has a 35 hp Vanguard engine by Toyota, delivering 10 gpm at 4,000 psi using hot or cold water, mounted on a diamond plate tandem-axle trailer, and powder-coated for durability. **800-624-8186; www.hotjetusa.com.**

### 37 / JETTERS NORTHWEST EAGLE 200

The **Eagle 200** midsize trailer jetter series from **Jettters Northwest** is available in 12 gpm/3,000 psi (model Eagle-200/3012) with 1/2-inch I.D. jet hose or the 9 gpm/4,000 psi (model Eagle-200/4009) with 3/8-inch I.D. jet hose. It comes with either a Kawasaki (liquid-cooled) or Kohler (air-cooled) fuel-injected engine, an industrial-duty trailer with brakes for safety, and an A-frame tongue that allows it to be towed when full of water. Flat-top fenders allow for additional mounting surface. Chrome wheels give it a sharp appearance. It comes with a super-duty triplex UDOR U.S.A. pump, 12-volt power-wind hose reel with wind-speed controller, 200-gallon water tank, large 60-inch lockable tool storage bin, 300 feet of jetting hose on the main 12-volt reel, 100 feet of 3/4-inch water-supply hose on a second reel, adjustable pulsation control, and four jetting nozzles. **877-901-1936; www.jetttersnorthwest.com.**

### 38 / NLB 335 DHW

The **335 DHW** hot-water jetting unit from **NLB** has a dependable triplex pump capable of 15 gpm at 3,500 psi. A Kubota v3600 66 hp engine provides

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### 39 / RIDGID KJ-2200

The **RIDGID KJ-2200** water jetter propels a highly flexible hose through 1 1/4- to 6-inch lines to remove sludge, soap, and grease blockages, according to the maker. As users pull the hose back, it power scrubs the line, flushing debris away and restoring drainlines to full, free-flowing capacity. A working pressure of 2,200 psi and flow of 2.4 gpm provides fast, effective cleaning of lines. It comes standard with a 6.5 hp recoil-start gasoline engine for quick start and a FV-1 foot valve to make remote or indoor operation simple and convenient. The user controls the jetting action at the drain while leaving the jetter outdoors. Guide the hose into the drain while the thrust propels the hose down the line. Activate the pulse action to easily navigate difficult bends and traps. The optional H-30 cart makes for easy transport. **800-769-7743; www.ridgid.com.**

### 40 / SPARTAN TOOL WARRIOR

The **Warrior** trailer jetter from **Spartan Tool** offers a fiberglass casing to protect and silence the entire machine and provides 4,000 psi at 18 gpm for the strength to clear almost any line. A redesigned remote system includes full remote hose reel control for easier operation. A gasoline engine option saves money without sacrificing power, while a clutchless engine and pump configuration allows for easier operation and less maintenance. An adjustable pressure unloader allows easy adjustment of pressure while maximizing flow. A redesigned work area with work lights enables safer operation in low-light conditions and additional room in the rear of the jetter for storage and accessories. A push-button antifreeze system provides quick and efficient winterization and recapturing of antifreeze to save time and money. **800-435-3866; www.spartantool.com.**

### 41 / TROJAN WORLDWIDE TWWS3500

The **TWWS3500** skid-mount jetter from **Trojan Worldwide** can turn any full-sized pickup into a jetting machine. It has a 26 hp Honda GX690 engine with electric start and a triplex ceramic plunger pump putting out 8 gpm at 3,000 psi. Hot-water blasting is made easy with a Beckett burner, stainless coil wrap, hood, control panel and adjustable thermostat. It comes equipped with a 150-gallon water tank with transfer pump, 100-foot fill hose on manual reel, 300 feet of 3/8-inch and 1/2-inch jetter hose with automatic reel, 100-feet of pressure washer hose on a manual reel, three 3/8-inch jetter nozzles, three 1/2-inch jetter nozzles, and a pressure washer wand with quick release. **800-392-4902; www.trojanworldwide.com.**

### 42 / VAC-CON HOT SHOT

The **Hot Shot** high-pressure water jet machine from **Vac-Con** is designed for removing stones, bottles, cans, grease, sludge, and other debris from sanitary sewer and/or storm drainlines. Engineered for one-person operation, all high-pressure water and hose reel controls are located at the front of the machine for ease of operation and increased safety. Models are available with 1,000- and 1,600-gallon water tanks. Options include variable flow, articulating hose reel, polyethylene water tanks, 30 gpm at 3,000 psi water pump system, auxiliary engine or hydrostatic drive, cold-weather recirculation system, side-mounted toolboxes, air purge system, hose footage counter, arrow board, strobe lights, inspector cam, high-pressure spray bar, hose rewind guide, 600 psi handgun system with 25 feet of hose, and a selection of nozzles. **855-336-2962; www.vac-con.com.**

### 43 / VECTOR TECHNOLOGIES VECJET

The **VecJet** line of powerful, compact trailer-mounted jetter machines from **Vac-Con**, in cooperation with **Vector Technologies**, features a high-pressure water jet system with a Vac-Con hose reel. They come standard with a 99 hp Kubota diesel engine, a 500- or 700-gallon water tank, 500 feet of 1/2- or 3/4-inch jetter hose, and water flow of 25 gpm at 4,000 psi or 40 gpm at 3,000 psi. **800-832-4010; www.vector-vacuums.com. C**





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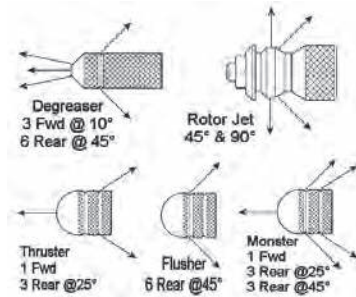


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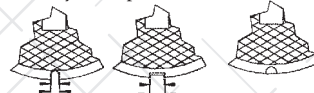
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## SPOTLIGHT

### Pump increases industrial cleaning applications

By Craig Mandli

Many industrial cleaning jobs require pumps that provide a little more power. The HDP 500 Vario from Hammelmann utilizes a three-speed gear drive to effectively extend application areas in those industrial services.

The high-pressure pump unit offers an electro-pneumatically switchable three-speed gearbox between the drive motor and the pump that allows the flow rate to be influenced in



a much wider range than previous models. The improved flow rate control extends the unit's field of application and opens up new applications in industrial cleaning.

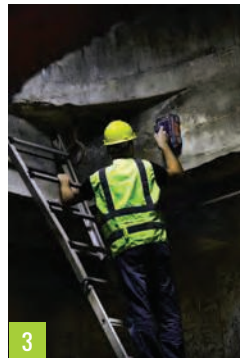
"Conventional high-pressure units offer limited control of the flow rate via the engine speed, in which the engine speed influences the delivery rate in a nearly linear manner," explains Denny Mesarvey, sales manager for Hammelmann. "Excess volume is discharged — unused as hot water — via an additional splitting nozzle or recycled into the buffer tank."

The control of the flow rate becomes more precise and variable with the unit's gear drive. The highest gear uses the full power the unit is designed for. An HDP 502 Vario with a 2-inch-diameter piston and an engine speed of 1,800 rpm, for example, will deliver 15,000 psi at 70 gpm. The available power is suitable for the use of tank cleaning devices and other demanding tasks that require high operating pressure and high delivery volumes. In the middle, second gear, the speed of the pump is halved and thus reduces the flow rate to a maximum of 50 percent. In this mode, the unit runs with parameters suitable for pipe and tube cleaning.

"For working with manually operated spray guns, the pump capacity can be reduced to a flow rate of 7 to 11 gpm at 15,000 psi in first gear," Mesarvey says. "This corresponds to approximately one-sixth of the maximum pump capacity. The user gets the amount of water and pressure that is needed for the job, and it is not necessary to reduce or return excess volumes."

According to Mesarvey, the optimized design reduces the wear of the components of the motor and pump. Maintenance intervals are extended, and downtimes and operating costs are reduced.

Fuel and water consumption are also significantly reduced. While it uses 30 gallons of diesel per hour at full power, that is lowered to 6 or even 4 gallons per hour with reduced engine speed capabilities. 800-783-4935; [www.hammelmann.com](http://www.hammelmann.com).



#### 1 VAC-TRON EQUIPMENT SIX-WAY HYDRAULIC BOOM

Vac-Tron Equipment's new six-way hydraulic boom design for its trailer vacuum excavation equipment and industrial vacuum equipment maximizes job performance by supporting the weight of the vacuum hose. The design features increased boom length, full six-way hydraulic function, 5-inch hose, curved end with oversized rollers, wireless remote control, vacuum valve function operated from remote, wired harness, remote storage location, forward stored boom in front of the engine compartment, 330-degree swing, quick-connect 4-inch tooling, easily connected additional section hose, water jet clean-out in boom, and easily accessible clean-out port. 352-728-2222; [www.vactron.com](http://www.vactron.com).

#### 2 INFOSENSE SEWER LINE DATA ORGANIZER IOS AND ANDROID APP

InfoSense's SL-DOG iOS and Android app helps field operators manage acoustic inspection data collected by the Sewer Line Rapid Assessment Tool. The SL-DOG app allows field operators to add asset IDs and field notes in real time while conducting acoustic inspections, then automatically syncs with the SL-DOG cloud-based portal to ensure easy integration with back-office data management. 877-747-3245; [www.infosense.com](http://www.infosense.com).

#### 3 GSSI DRILL HOLE FEATURE FOR STRUCTURESCAN MINI XT

Geophysical Survey Systems Inc. (GSSI) added a new drill hole feature to the StructureScan Mini XT — the all-in-one concrete inspection ground-penetrating radar system. The drill hole feature is a 3D data processing detection algorithm. The algorithm evaluates a user-chosen cylindrical area that represents a potential or planned coring location. It scans and looks for targets that may interfere with a proposed coring location. The drill hole indicator is designed for concrete coring applications, and in slab situations, the drill hole feature can help determine the safest location for coring concrete. 800-524-3011; [www.geophysical.com](http://www.geophysical.com).

#### 4 RANGER DESIGN STEEL SHELVING FOR VANS

The durable, rattle-free steel shelves from Ranger Design feature aluminum extrusions to increase a vehicle's payload. The shelf trays are built from marine-grade plywood with a dynamic load capacity of over 200 pounds. Every pre-designed package can be upgraded with accessories to ensure the best fit for the trade. 800-565-5321; [www.rangerdesign.com](http://www.rangerdesign.com).



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5

## 5 DITCH WITCH HT275 HEAVY-DUTY TRENCHER

The HT275 heavy-duty trencher from Ditch Witch has a Cummins 275 hp T4 engine and a hydrostatic trencher-chain drive with a variable displacement motor, allowing operators to match chain speeds to soil conditions. The trencher can do installations up to 10 feet deep and 26 inches wide, and it has four hydraulic quick-disconnect blocks that reduce the time it takes to change attachments. The suspension mounts to the center of each track frame, providing the ability to float each track independently, taking stress off the main frame. 800-654-6481; [www.ditchwitch.com](http://www.ditchwitch.com). c

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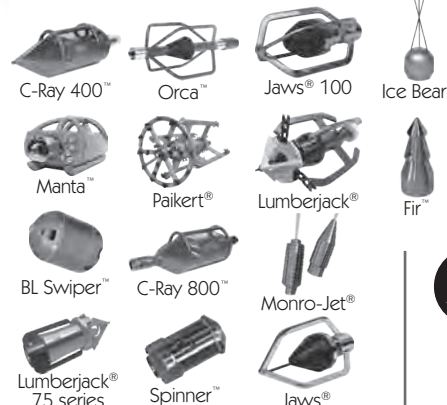
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### GSSI announces new technical applications specialist

Geophysical Survey Systems Inc. (GSSI) announced Brett Caldwell has joined the team in the position of technical applications specialist supporting the geophysical, geotechnical, environmental and academic markets. After serving in the U.S. Army's 10th Mountain Division Core Air Defense Element as an assistant operations sergeant, Caldwell worked in a variety of customer-facing positions, including sales, coaching, and management positions in the automotive and athletic apparel industries. Caldwell then studied geology at Towson University before beginning his work for Penhall Technologies, first as a ground-penetrating radar analyst and then as a field supervisor, in which he managed all aspects of GPR activities for Penhall Technologies in the central U.S. region.

### Wastequip chief financial officer honored as CFO of the Year

Wastequip announced that Steve Klueg was awarded the 2018 CFO of the Year in the mid-sized private company category by the *Charlotte Business Journal*. The award highlights Klueg's role in significantly improving the company's financial position, culminating in its recent successful acquisition by H.I.G. Capital. Nominations were evaluated by an independent panel of judges, facilitated by researchers from Wake Forest University, who selected the finalists and winners of each category based on a variety of factors, including accomplishments, civic involvement, leadership, and contributions to corporate success.



Steve Klueg

### RIDGID announces new marketing director of underground technologies

Tim Dunphy was named marketing director of underground technologies for RIDGID. In this role, Dunphy will manage new product development, partner relations, and new business opportunities for the RIDGID line of diagnostics, inspection, locating, and drain cleaning products. He has over 20 years' experience in consumer-packaged goods and durables marketing, and he holds a Bachelor of Science degree in marketing from the University of Florida.



Tim Dunphy

### EPIPE names Jason Houck as national sales director

EPIPE announced Jason Houck as its new national sales director. He will oversee all sales facets of the organization, working closely with the residential and commercial business development teams, ACE DuraFlo licensing and LeadSmart sales departments. A graduate of Northern Illinois University, he started in business development in Arizona and gained valuable experience on the operational side before moving into sales management positions in Florida and Southern California. **c**



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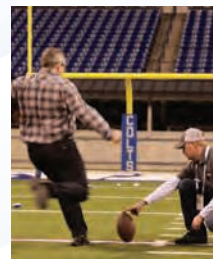




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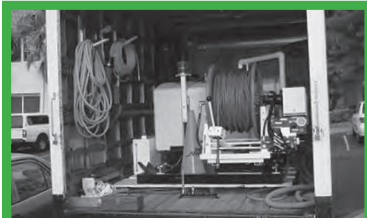
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**Contact Rick 920-323-9835, WI** C11

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**2006 Sterling Super Products Camel 200** dump body, Myers DP80 water pump, Roots 624 blower, extendable boom. Excellent condition. 41,500 miles. \$65,000

**559-284-0401** C12



**2016 Sewer Equipment 900-ECO** truck-mounted combination sewer cleaner. Freightliner 114SD. 4,400cfm PD blower, 1,600-gallon water tank, 12-yard debris. 80gpm @ 2,000psi Myers pump, 600 ft. of 1" hose. Hydro-ex kit. Low miles and hours. C11

**Contact Matt 618-566-3003, IL matt@midwestvacproducts.com**

1995 Vactor 2100, 2-stage fan, Cummins chassis, auto. transmission. 5x5 boom assembly, pump-off system, recirculator system, fresh rebuilt rodger pump. Needs work. \$15,000. Call 815-992-1155 (C11)

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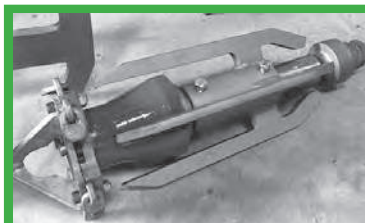
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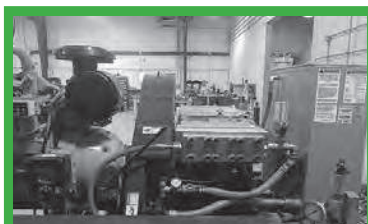
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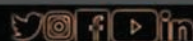
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