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TREKK Design Group managing member Kimberly Robinett stands in front of a Vactor jet/vac truck outside the company office in Kansas City, Missouri. The company's move into more municipal services has fueled its steady growth. (Photography by Denny Medley)





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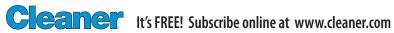
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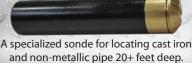


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Luke Laggis editor@eleaner.com

The Evolution of the Industry

Embrace technology and let it guide you to new opportunity

By Luke Laggis

he drain cleaning industry has matured a great deal in the past couple decades. That evolution continues, and like most aspects of modern society, it's driven by technology.

I remember when my grade school got its first computers. I don't remember what we learned in the early days of those novel new machines. I mostly just remember classmates making banners, transferring boldly creative sayings like "Happy Birthday" from mind to monochrome monitor, to equally monochrome dots on perforated computer paper that unfolded from a box and rolled through the printer's spool. The end product seemed like a low-tech version of the scrolling messages on bank marquees.

I wasn't that interested at the time. My 10-year-old mind — more fixated on bikes, the Van Halen 1984 album and the fort I'd built in the

swamp across the street from my house — couldn't directly link this "computer training" to the future of, well, everything.

Just as it has with most everything else, technology has taken over this industry. Some drain cleaners still survive with not much more than a business card and a cable machine, and while that old-school simplicity holds a certain appeal, it's certainly not the way of the future.

The TREKK Design Group, featured in this month's issue of *Cleaner*, is a shining example of how technology is leading the industry forward. The Missouri-based company was formed in 2002 with a focus on primarily transportation-related projects and engineering services.

By 2005, new opportunities were emerging and the company began shifting attention to the inspection and cleaning side of the municipal wastewater market, initially with manhole inspection, smoke testing and flow monitoring.

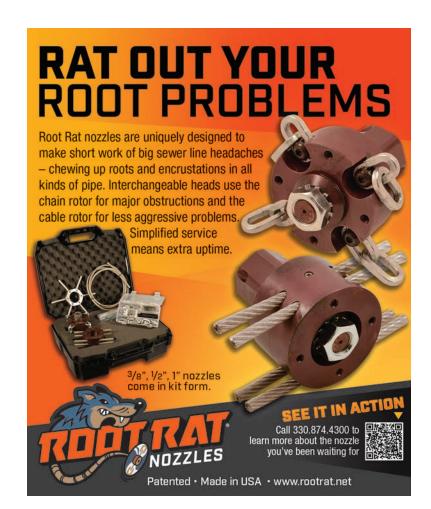
Then Hurricane Katrina hit New Orleans. TREKK purchased a 2001 Vac-Con to help with the cleanup effort, and a year later added its first CCTV truck, which enabled the company to support the professional services and engineering studies it was already providing. That's the future as far as municipal services are concerned. It's not about being able to dig and replace a pipe when a utility needs it; it's about being able to diagnose the problem, engineer a solution and carry out the work.

TREKK, which started small without major growth aspirations, now employs 96 people — including 32 NASSCO-trained service technicians — and has eight regional offices scattered across Missouri and nearby states. And it's all because they took advantage of opportunities as they presented themselves. They weren't afraid to branch out and invest in new technology that would bring even more opportunities.

I've certainly seen the light since I transferred those first thoughts into thousands of dots on continuous-form paper. I'm more enthusiastic about technology, and I think the words I put to paper have gained some depth as well. One thing is for sure, I wouldn't be where I am or doing what I do if I resisted technology.

I still like to put pen to paper, but it's pretty amazing what I can do with my MacBook and a Wi-Fi signal. I'll always appreciate a good pen that rolls smoothly across a crisp sheet of clean paper, but I know my keyboard is more efficient. I also appreciate an old-school tradesman who grew up in the trenches and can fix anything because he's seen everything, but technology is an important piece of the trade now. Embrace it, or your future may not be so bright.

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





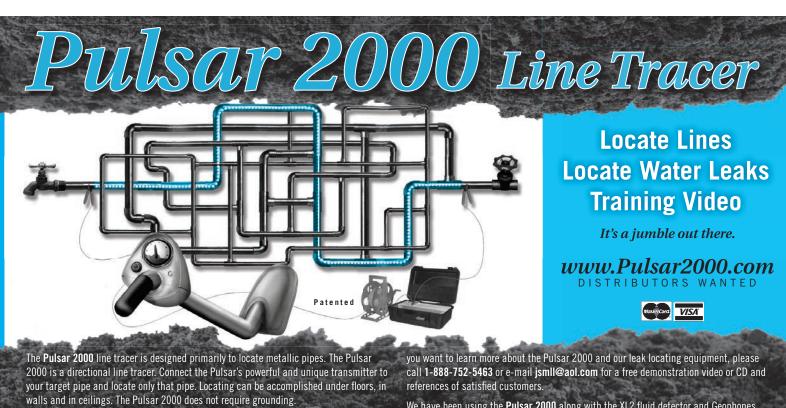


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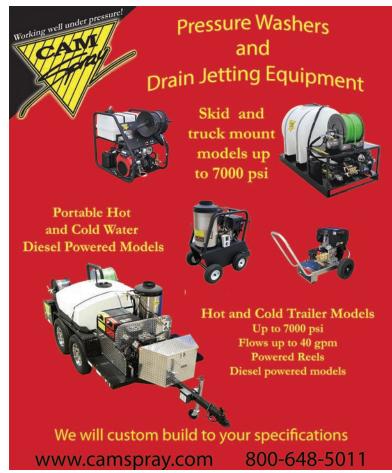


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Eight employees from Specialized Plumbing Technologies embarked on a special four-week mission trip last spring. The workers built five homes, two outhouses and an outdoor kitchen area and installed a water filtration system for a small, impoverished

community in Nicaragua. In addition to learning some valuable life lessons, the crew at SPT made some memories that will last a lifetime.

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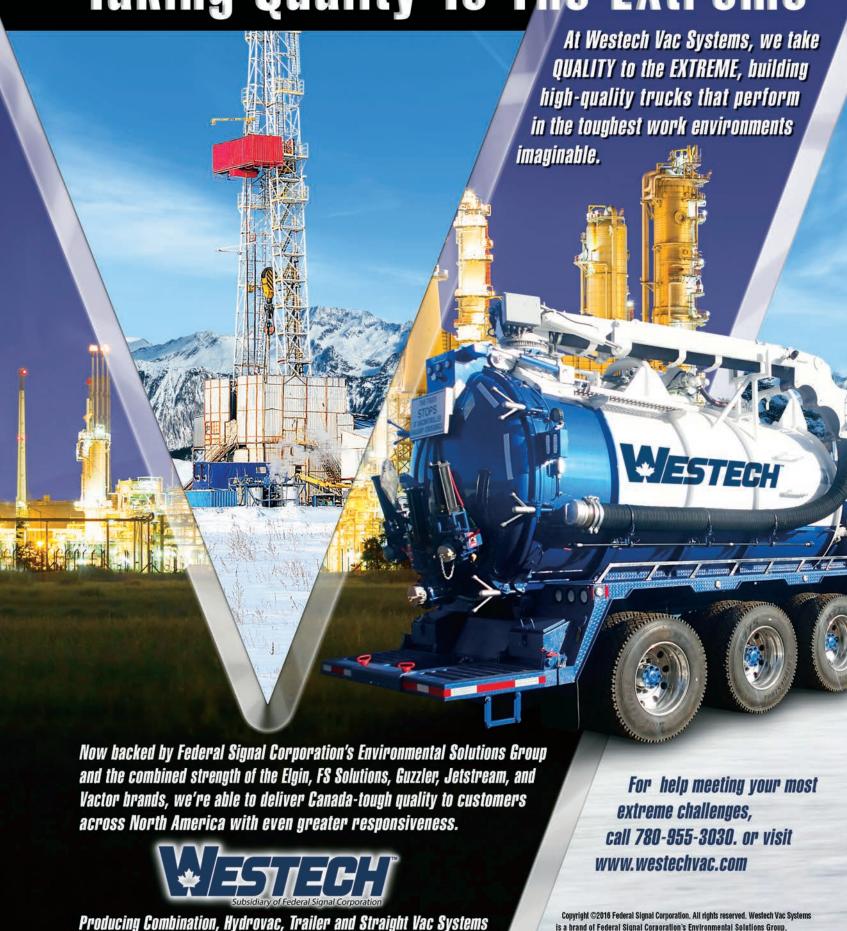


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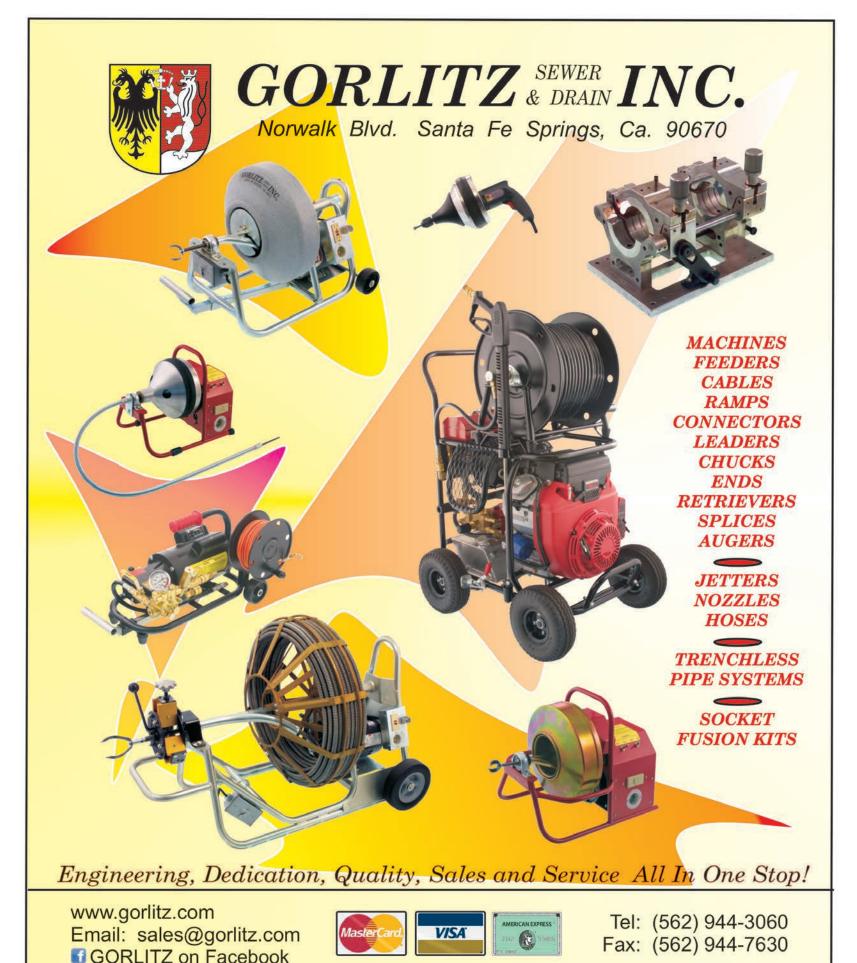
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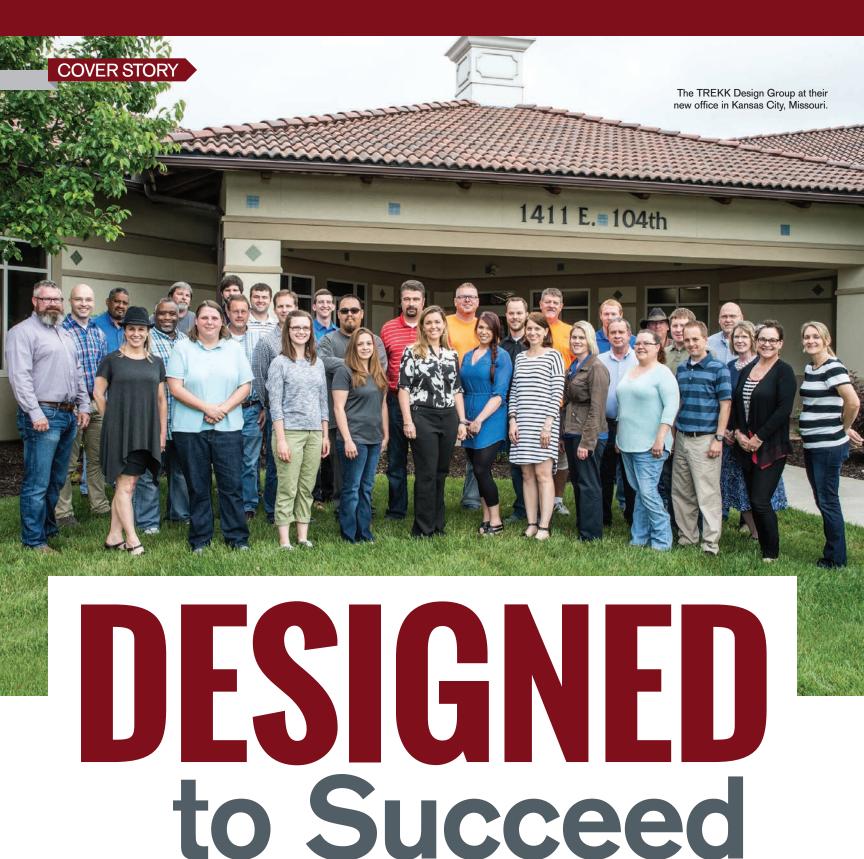


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ENGINEERING FIRM FINDS FIT IN MUNICIPAL SEWER AND WATER MARKET AND EXPANDS THROUGHOUT THE MIDWEST

imberly and Trent Robinett opened TREKK Design Group anticipating the staff might eventually grow to a couple dozen people, serving a largely municipal customer base, with primarily transportation-related projects and engineering services.

After 14 years, the customer base remains, but the firm's water, wastewater and stormwater services have burgeoned to account for 60 percent of the company's business. Today, the Kansas City firm has 96 employees — including 32 NASSCOtrained service technicians — and eight

regional offices scattered across Missouri and nearby states.

Kimberly Robinett, an electrical engineer with a background in telecommunications, is the managing member of this Disadvantaged Business Enterprise. Her husband, Trent, has a background in transportation, civil design and survey. Their third partner, Kim Pemberton, who came on board in 2004, offers experience in transportation and construction inspection services.

"We wanted a small firm, with a niche that can be broken out to design a small piece of someone else's overall road design," Robinett says. "We wanted to provide things like survey, traffic signals, lighting design, some smaller pieces of a much bigger project. These were some of the goals we wanted to achieve."

As a DBE firm, TREKK was able to get pieces of projects they otherwise might not have been able to land as a small firm. They did a lot of transportation work for the smaller municipalities and private developers as well as for the Missouri Department of Transportation.

Along the way, they began seeing more opportunity and gradually moved more seriously into the inspection and cleaning side of the municipal wastewater market.

By 2005, with eight employees at the time, they hired David Hamberlin in hopes that his experience as a field technician could help TREKK recognize what processes could be added or improved upon. Initially, TREKK was inspecting manholes, smoke testing and flow monitoring.

OPEN TO PROCEED

"When I came in 2005, Hurricane Katrina had hit New Orleans, and TREKK purchased a 2001 Vac-Con so we could go down and







help clean up New Orleans," Hamberlin says. "In 2006, we purchased our first CCTV truck and were thus able to support the professional services and engineering studies that we were already conducting."

According to Hamberlin, the municipalities they now serve each have their own unique set of problems and challenges, but at the end of the day they share a lot in common. Municipalities are dealing with overflow control programs, and trying to separate sanitary lines from the storm sewers to handle excess storm flow and avoid overtaxing the treatment

They have easement machines from Sewer Equipment to extend the reach of the sewer jetting trucks and help reduce overflows in many situations. TREKK also inspects lines to identify any issues that could adversely impact sewer systems.

"WHAT REALLY MAKES TREKK DIFFERENT

is our ability to take the information we gather through our cleaning and televising work and deliver it in a meaningful format for our clients' use." David Hamberlin

"More and more municipalities are beginning to understand that half of the laterals in the systems in the ground today are in worse condition than the mains," he says. "We now have four CCTV vans with lateral launch cameras to support those condition assessment efforts.

"We also do cross-bore investigations in areas where gas lines are being installed around service laterals. We use a RIDGID locator to find the location and depth of the sonde in our lateral launch camera. This helps set the depth of the boring machine to ensure that no service laterals are damaged. It also helps locate any service laterals that were hit prior to our investigation work. This type of proactive or retroactive work can help avoid having a catastrophic situation unfold."

As a professional services

provider, rather than a contractor, TREKK approaches data management and deliverables from an engineering perspective. The firm leverages its team of GIS technicians to manage data and deliver it to the client.

"What really makes TREKK different is our ability to take the information we gather through our cleaning and televising work and deliver it in a meaningful format for our clients' use," Hamberlin says.

DOMINATE THE TERRITORY

TREKK's move beyond Kansas City began in 2007 when they opened an office in Omaha, Nebraska, to better serve that city's CSO program. Today, TREKK has offices in Columbia, St. Louis, Springfield, and Joplin, Missouri; Memphis, Tennessee; and Lawrence and Kansas City, Kansas. The firm supports combined sewer overflow programs across the Midwest and has national experience with projects in San Antonio, Texas; Rapid City, South Dakota; Denver, Colorado; and New Orleans.

Each office is overseen by their three field managers, based in Kansas City, Omaha and St. Louis.

The CCTV van and jet/vac truck are positioned at separate manholes at the beginning and end of a sewer line segment.

PURSUIT OF EXCELLENCE

As managing member of TREKK Design Group, Kimberly Robinett has the challenge of managing a staff of 96, along with her two co-owners, but also leading a normal life as a wife and mother of young daughters while still having an opportunity to pursue her personal interests and goals.

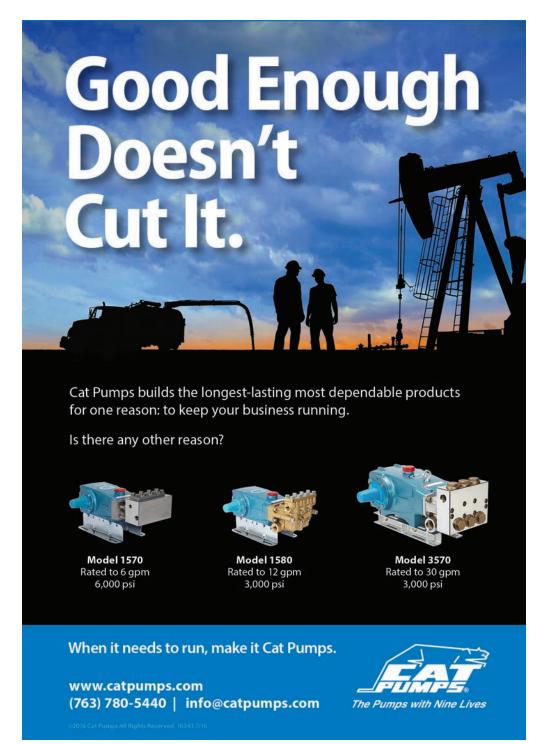
"These are challenges many face in the business world," she says. "When you are an engineer, you are an engineer at heart and design is in your blood, and at certain times I miss that. But I also realize that I actually get more fulfillment out of being a mentor and guide in teaching young engineers how to do design, in answering problems when they have a challenge.

"I'm here as a resource and my door is always open," she says. "My most productive time is after hours some evenings when no one else is in the office and I can hunker down and do the nuts and bolts of what I need to focus on. I try to empower our employees to make decisions in their area of expertise.

"David Hamberlin has been a huge asset for TREKK in an area that has been so important in our growth and development in the infrastructure investigative department. He is one of a group of very driven individuals who we depend on as we move forward."

Robinett is often asked about operating a woman-owned business.

"Engineering is a male-dominated business, as is construction and our field services," she says. "The programs put in place to help minorities or women in business, for us, have been a huge success in helping to break down the initial barriers. From there it is up to the female or minority to bridge that gap by showing the quality of work, and the asset they can be on the team."





"A lot of our trust goes back to the type of individual we hire to work for TREKK. Our technicians are not just working in a sewer they are improving lives in the community.

WE WANT EACH EMPLOYEE TO TAKE THAT TO HEART."

David Hamberlin

Each office actively markets the company locally and has several technicians.

Their impressive equipment list includes three Camel (Super Products LLC) jet/vac trucks, all with Myers pumps, along with two Vactor 2100 jet/vacs and two jetter trucks.

On the inspection side, TREKK has five trucks outfitted with CUES cameras and equipment, including four with lateral launch capability for the growing lateral inspection market.

Every TREKK technician is NASSCOcertified, and Hamberlin is a certified trainer for pipeline, manhole and lateral assessment and certification programs. He routinely provides training for cities across the Midwest. Hamberlin says TREKK's technicians are given a fair amount of authority to make decisions in order to do the best job possible.

"A lot of our trust goes back to the type of individual we hire to work for TREKK," he says. "Our technicians are not just working in a sewer — they are improving lives in the community. We want each employee to take that to heart.

"We improve lives by keeping the sewer from backing up into the basement, and keeping sewer from overflowing into waterways," he continues. "Our employees firmly believe what they do is making a difference. We are getting the dirty water out of the house and getting clean water into the home. And we help provide safe roads for people to drive on. Those are things we stress at TREKK."

DARE TO ENDEAVOR

TREKK is excited about their research and development team, which looks at innovative solutions to help municipalities manage their systems cost-effectively, according to Robinett.

She says they started this new process about 18 months ago to offer information that CONTINUED>>

ABOVE: TREKK technician Gabe Gonzalez runs a sewer inspection from the control room of a CUES inspection van. BELOW: Gonzalez uses a winch to get the CUES Mudmaster transporter and camera out of the CCTV van at the start of an inspection job.







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"We have taken risks, both in opening new offices, in our hiring of personnel, but also in buying these massive trucks. WE HAVE OPENED THE REGIONAL OFFICES AND BEEN ABLE TO IDENTIFY KEY PERSONNEL IN THE NEW LOCATIONS."

Kimberly Robinett

would help visualize underground problems, particularly in situations where the city has challenges in spending money on things they cannot see.

They are finding the cities, particularly smaller communities with limited resources, to be very receptive to this new information TREKK can

Those involved in the project include GIS technicians, IT people and the partners.

Robinett says they have been pragmatic in their pursuit of expansion and growth.

"We have taken risks, both in opening new offices, in our hiring of personnel, but also in buying these massive trucks," she says. "We have opened the regional offices and been able to identify key personnel in the new locations."

Robinett believes there are opportunities for further expansion and growth in the firm's wastewater division, particularly so with cleaning and CCTV, and especially so because of their equipment and various capabilities.

"With our unique backgrounds, we have been in a position to provide solutions, and to impact the lives of those around us as we have realized and capitalized on the opportunities waiting for us in the wastewater industry." c

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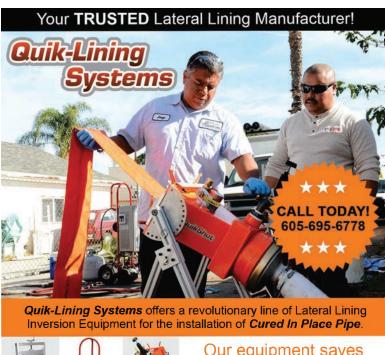






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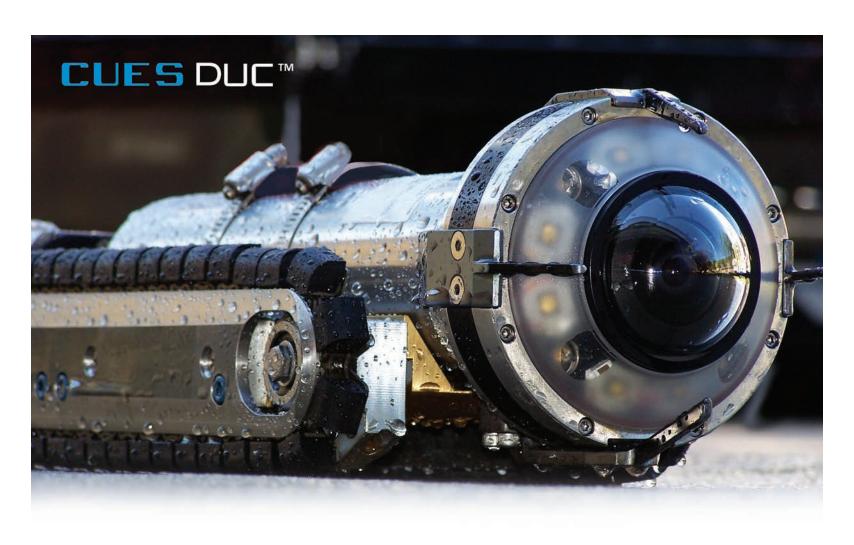
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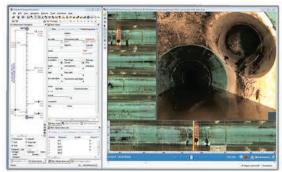


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Supporting a Healthy Workforce



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

Maybe a health plan just won't work for your business, but that doesn't mean you can't help employees with their costs

By Erik Gunn

ou've followed the news. You've looked at all your options. You know your employees would love it if you could include a health insurance plan in their benefits package.

If you employ 50 or more full-time workers, it isn't just a nice thing to do — it's the law. Companies that size or larger are required to provide employees with health insurance under the Affordable Care Act. And despite continued wrangling over it in Congress and in the courts, the ACA now looks to be solidly established as the law of the land.

But chances are — like most cleaning companies — you're smaller than that, so you don't have to offer health care benefits.

While there are ways small enterprises like yours can provide health insurance for workers, we know that even where there is a way, there isn't always a will. Tight cash flow or the overwhelming tasks and headaches of implementing a plan can easily be roadblocks too difficult to navigate amid all your other responsibilities, running your business and helping it to gain solid footing. Since the ACA doesn't require you to act, why not just shrug and move on?

After all, the law puts the responsibility for getting insurance on your

employees as individuals — not you and your business. And it even has the mechanisms to help them — the health insurance exchanges operating in every state. So, end of story, right?

Well, maybe not. Doing something for employees when it comes to health care can serve your best interest and even boost your bottom line. A healthier workforce is more productive, and satisfied workers reduce the expenses of turnover. In one survey of employers, the Society for Human Resource Management found that in 2014 it cost on average \$3,337 to hire a new employee.

So what qualifies as "doing something?"

PROCEED WITH CAUTION

Some employers, knowing their employees now have to buy their own health insurance, might decide to help by reimbursing them for that monthly premium cost.

Warning: That can be a minefield. But it's not a dead end.

Many experts will tell you that you flatly cannot reimburse employees

for health insurance they're required to buy under the federal law. They point out accurately that one wrong step could expose you to tens of thousands of dollars in penalties for every employee.

But the real answer is more complicated. If you follow some strict rules, you can help out in certain limited ways:

• Raise everyone's pay. You could, for example, simply give a salary bump to everyone that could help them offset those premium costs.

But ... the added money cannot be earmarked or restricted in any way. It's just a pay raise, and you cannot classify it as a health premium reimbursement, nor require that employees spend it only for that purpose.

If workers decide it's better to put the extra cash in a child's college fund, spend it on a fishing boat, give it to the church, go to the casino once a month, or simply sock it away in the bank — well, that's entirely their right and outside your control.

Looking for a more targeted approach?

• Set up a Section 105 Health Reimbursement Plan. Section 105 plans are accounts under the federal tax code that enable employers to fund individual health insurance for employees. Strict rules govern how to set up and operate them; you must follow them to the letter.

If they do it right, however, employers under the



50-employee floor of the ACA can use a Section 105 plan to fund some or all of the premiums employees pay for their individual, ACA-mandated health plans.

ADDITIONAL ALTERNATIVES

Short of a full-blown benefits plan or the admittedly complex Section 105, what can you do? More than you might think, says Julie Stich, research director for the International Foundation of Employee Benefit Plans based in Brookfield, Wisconsin.

Group coverage. One option is to give employees access to group rates for various kinds of voluntary benefits. Employees still pay, she explains, but "this arrangement means employees pay a lower premium rate than they would typically get on their own."

Health, dental and vision insurance plans may all be accessible through these kinds of mechanisms. (So can other benefits: life insurance, disability insurance, long-term care insurance and more.)

Employee assistance plans. EAPs were originally created to help workers with alcohol or drug problems. Now they do much more.

"EAPs no longer focus only on substance abuse," says Stich. "They will help with mental health issues, financial distress, stress, legal issues, domestic violence, divorce, issues with children or elders including caregiving. EAPs will also send speakers to the workplace for education sessions."

MORE OPTIONS

- · Access to a nurse help line is yet another potential, and lower-cost, benefit. This is a perk many full insurance plans provide, Stich notes; you might be able to arrange it as a stand-alone service under a contract with a health care company that provides it.
- Prescription drug, dental care and vision service discount cards are available from some providers; check with the provider to confirm specific discounts and other rules of usage.
- Flu shots are another low-cost benefit with a high potential return. Some employers reimburse employees for shots obtained at the doctor's office or through a designated provider, and others may bring health professionals in to give the shots right there in the office or shop.
- Similarly, Stich says, employers can reimburse certain health screening procedures, or once again bring the provider of the screening service into the workplace.
- Finally, various fitness options also provide at least limited-benefit opportunities — payment, subsidies or discounts for gym memberships; on-site exercise and fitness classes; other onsite services such as massage; and providing

free, reimbursed or subsidized devices — like the Fitbit — that allow workers to track their own health behaviors.

So if you want to help your employees' health, but just don't see a way to provide a full health benefit plan, take a look at some of these other approaches. One or more just might be the ticket to meeting your workers' needs while keeping your own budget under control. **c**









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

Tame Your Waterblasting **Machine**

Safety and efficiency are the result of smart operation and religious maintenance

By Doug Day

ike a hungry lion, waterblasting machines are big, bad and dangerous. Treat them right, though, and you can make them purr like a kitten. A lot of people don't, according to Gary Toothe, training manager for Federal Signal Environmental Solutions Group.

"They don't do the things that are necessary to keep it safe," he says. "Those things also keep the machine efficient. Safety and efficiency are closely related."

Proper maintenance starts with some simple daily checks that every operator should be doing before they hit the road. It doesn't take long, less than five minutes, and it helps ensure the machine will operate safely. Following manufacturer recommendations will help you get the most out of your machine and keep workers safe.

Toothe recalls a training session in which he found all the belts on a machine were loose, so the customer tightened belts on all of its machines. "The next month, they told me they saved enough money to pay for my training and then some."

As easy as it is, Toothe says checking belt tension is probably the routine maintenance item that is done the least. "You lose all the efficiency at the top end of the power curve, so you have to run your pump harder and longer just to get the kind of pressures you need."

KEEP IT SIMPLE

Mechanics have specialized tools for tensioning, but there is a simple way to do a daily check. "Hit the belt with a wrench," Toothe says. "It should bounce back and you should hear a ring rather than a thud."

A quick check of the filter bag will ensure that it is not clogged. "Dirt is the No. 1 enemy of a waterblast pump," Toothe says. "Bags cost less than \$50 and pumps cost \$75,000 and up. Pressurizing a piece of dirt up to 20,000 psi is going to do damage, and it's the places you can't see that you have to worry about."

Lubrication lines are also easy to check to make sure they aren't plugged. "Just make sure water is coming out of the lines so you know you're getting proper lubrication of the plungers and packing sets."

Rupture disks are important safety items that are often ignored or even disabled. They activate at 40 percent above the rated pressure in order to prevent over-pressurization that can cause equipment failures and injury. Some



ABOVE: A technician cleans the inside of a steel tank with a high-pressure waterblasting

BELOW: Keeping a waterblasting unit safe and efficient requires daily checks and regular maintenance.

units have another disk that ruptures at 20 percent over rated pressure. Toothe prefers to use a pressure relief device rather than a second disk because it can be easily reset, rather than replaced, if it is activated.

There are a few things that should be done more than once a day. Most manufacturers recommend that bearings be greased every shift. The same is true



with clutches unless they are self-lubricating. Toothe stresses that grease fittings should be cleaned before and after every greasing. "If they're dirty, you're actually pushing dirt into the bearings," he says.

RIGHT >> A qualified operator knows what to do when things start to go wrong, but more importantly knows how to minimize the chance of something going wrong.







The power end oil reservoir needs to be checked every time the pump is started and about every 30 minutes. If the oil is discolored, it indicates water has gotten into the oil and it needs to be replaced right away to prevent equipment damage.

While most people don't consider the bypass valve to be a safety device, Toothe believes it is and suggests it be checked monthly because it wears over time. If the valve is plumbed to send water back to the tank, the water picks up about 30 degrees of heat every time. Using it right ensures the equipment isn't overheating and the water is the proper temperature so people don't get scalded. Of course, every pump has a pressure gauge, but Toothe has seen many that have never been recalibrated.

When it comes to both safety and efficiency, Toothe says the most important thing to have is a qualified operator. "The difference is that a truck runner turns the pump on and off. If something goes wrong, he has to go get somebody. A qualified operator knows what to do when things start to go wrong." c



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BURSTING INTO BILLINGS

MONTANA CONTRACTOR MOVES INTO MUNICIPAL SERVICES AND SHIFTS FOCUS AWAY FROM TRADITIONAL EXCAVATION

BY MARIAN BOND | PHOTOGRAPHY BY DENNIS DAVIS



astlerock Excavating's evolution from a tiny excavation company developing water sources on local ranches into a large firm repairing and replacing municipal water and sewer lines has been gradual.

Duffy Duffield and his wife, Sheri, were living on a ranch 40 miles outside Billings, Montana, when they started developing water sources for cattle in 1996.

When their two sons were ready for high school in 2001, they realized it was time to move and find other ways to grow the business. In Billings, the company moved into new construction.

"We did all the excavation for houses — digging foundations, backfill, water and sewer hookup, and the actual sewer system if it was not on city services," says Duffield, who leads the team in the field while company president Sheri Duffield runs the office.

In 2006, they expanded into more municipal work and mainline sewer repair and replacement. They also began adding equipment and building a more substantial crew. They currently have 28 employees, and serve the City of Billings as well as nearby Laurel, with a population of around 7,000.

In 2011, they added HammerHead pipe bursting equipment for waterline replacement, while continuing to work in new construction and excavation.

OLD EQUALS OPPORTUNITY

Duffield points out that much of the infrastructure in their local communities is reaching the end of its service life.



"That means work for us," he says. "In some parts of town we have old asbestos pipe, and that is slowly being replaced. We have old clay tile sewers being replaced. It all depends on the funding.

"We are generally a subcontractor on these projects. When there is an emergency situation in Billings, we are sometimes called in to deal with a problem, but we are primarily a subcontractor.

"If the city has a bad sewer line somewhere and they do not have the manpower to take care of the problem, they will call us. They also call other contractors as well. Whoever is available that can throw a crew at it real fast will do the job."

Infiltration is an ongoing battle in their service area, Duffield says, and root growth is a major culprit.



Cooper Kouwenhoven works in the trench with excavator operator Devan Krause while Castlerock owner Duffy Duffield (top left) discusses the project with Jeremy Duncan.

ABOVE: Sheri Duffield, president, and Duffy Duffield, secretary-treasurer of Castlerock Excavating, stand with their company's newest piece of equipment, a John Deere 350B excavator.

CASTLEROCK EXCAVATING

BILLINGS, MONTANA

OWNERS: Sheri Duffield.

Sec. Treasurer Duffy Duffield

SERVICES: Excavation, waterline installation,

sewer and storm drains, pipe bursting

EMPLOYEES: 28

CUSTOMER BASE: Contractors, municipalities, health care

The City of Billings just completed a 1-mile reconstruction project that included installation of new water, sewer and stormwater lines. Castlerock was a subcontractor on the \$3.8 million project, installing 42-inch concrete and PVC pipe.

Duffield says they don't travel outside Billings with the excavating crew because it amounts to a huge mobilization with the heavy equipment. That's why expanding pipe bursting services is a primary goal.

In spring 2016, the firm secured a contract with the Sheridan VA Medical Center in Sheridan, Wyoming, replacing 10,000 feet of waterline using



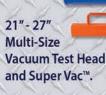


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"PIPE BURSTING IS A GOOD BUSINESS FOR US.

and it's the same price as open cut as far as putting pipe in the ground, but less invasive."

Duffy Duffield

their HammerHead MB80 pipe bursting system. This was their first venture into an adjoining state, and it was a multimillion-dollar project that Duffield saw as a good opportunity to promote their pipe bursting services outside their immediate service area. This job was for upsizing a 10,000-foot-long, 8-inch waterline with 10-inch pipe.

"Pipe bursting is a good business for us, and it's the same price as open cut as far as putting pipe in the ground, but less invasive. There's just the open hole at each end.

"For our pipe bursting we have a crew of up to four, and we carry that equipment on a 1999 single-axle International," Duffield says. "We replace waterlines with C900 PVC pipe. We are equipped to deal with 4-inch up to 24-inch lines."

Excavation jobs typically call for a five-man crew, with two excavators, a loader and various service vehicles. The company has six excavators ranging from 200- to 350-class machines. They have four loaders from 3.5- to 5-yard, three compact track loaders, two side-dump trailers with trucks, and numerous pickups, fuel trucks, trench boxes and other miscellaneous items.

They operate out of a 3-acre site, with a 12,000-square-foot shop where two mechanics take care of the entire fleet.

HIRING SMART

"In hiring we try to pick carefully," Duffield says. "We want the best because we spend so much time and money on training the way we do things. Since we began hiring in 2006, we have had little turnover. Before that we tried to do it alone. We've enjoyed our growth."

For pipe bursting, Duffield's lead man received extensive training and instructs the others on the process. All workers are cross-trained, which provides benefits across all services, he says.

When hiring a technician for this type of work, Duffield says ideally he wants

KEEPING THE COMPANY IN LINE

Duffy Duffield leads the Castlerock Excavating team in the field. His wife and company president, Sheri Duffield, runs the show from the office.

Duffy is the face of the company when it comes to meeting clients to secure work and to address any other issues.

"Most of our work is negotiated," he says. "For the actual day-to-day running of the company, we have a production meeting every Friday morning with our team, planning for our next week. Everyone can be involved in the planning and I can get my ideas in. We work to make sure each crew has an assignment."

Duffield enjoys seeing the company grow in new directions, and he's most pleased when he sees employees take pride in their decisions and accomplishments.

"I know what my employees are capable of," he says. "I believe I give them the leeway to enjoy their job and to be successful.

"As for me, the busier I am in my work, the more I produce. When I get to the office each morning, I don't know what is going to happen and I don't necessarily have the days planned. I just take each thing as it comes."



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"We want the best because we spend so much time and money on training the way we do things. SINCE WE BEGAN HIRING IN 2006, WE HAVE HAD LITTLE TURNOVER."

Duffy Duffield

someone with experience in underground pipe — fusible pipe — but it's not easy to find that kind of experience in their area. The slowdown of the oil industry in North Dakota has made it easier to find the experienced machinery operators he wants on his crew, however.

"We have to have good people," he says. "I can interview four or five different individuals before I actually find the talent I want.

"Just because you can start a loader or excavator does not mean you are an operator, or mechanically inclined. Those people who were in the oilfields are coming back our way. We lost a lot of good talent because wages were so good over there."

Cooper Kouwenhoven preps the end of a waterline for a connection in a new subdivision while Devan Krause excavates the trench.

BELOW: Kouwenhoven helps direct Krause as he moves equipment into a trench where they're installing a new waterline.



Duffield points out that they pay a good wage — up to \$25 an hour — and an employee can eventually move to a salaried position that can generate a very substantial income.

AT THE END OF THE DAY

Duffield enjoys great satisfaction in seeing the company grow in so many directions, and he is most pleased when he sees the employees take pride in what they accomplish, and how they are able to make decisions.

"We work as a group," he says. "When we bid a job, we involve the guys. We have our estimator, Colter Wiggs; and Joel Hoagland, who is second in command; and Jereme Hehn, who is our superintendent; and the others as well. I want their input.

"We ask 'How do you want to do this?' If I agree with their ideas we run with it. If we have a wreck, we will get it fixed but we don't point fingers."

Duffield notes that Montana is very much a rural state, and has a total population of approximately 1.025 million. There are a lot of wide open spaces, as opposed to the major population centers around the country, which in many ways dictates the inclusion of certain technologies. However, Castlerock Excavating is open to exploring and expanding as the opportunities arise.

In 2013, Duffield and a partner opened a sister company, Tru Pipe, offering CCTV, sewer cleaning and hydroexcavation.

"We had been putting in new piping around the city, and it is required all new sewer systems and storm drains be cleaned and inspected," Duffield says. "We had been hiring a company to do this for us, but we decided we could make a payment on a truck for what we had been spending on this outside help. I had a partner, and we bought a 2003 Vactor 2100. We have two employees with Tru Pipe, a truck operator and a camera operator. We thought it more a financial benefit to have a sister company. It has been a huge positive for us." **C**

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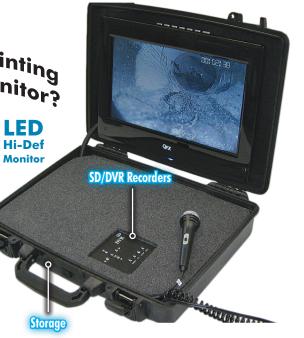




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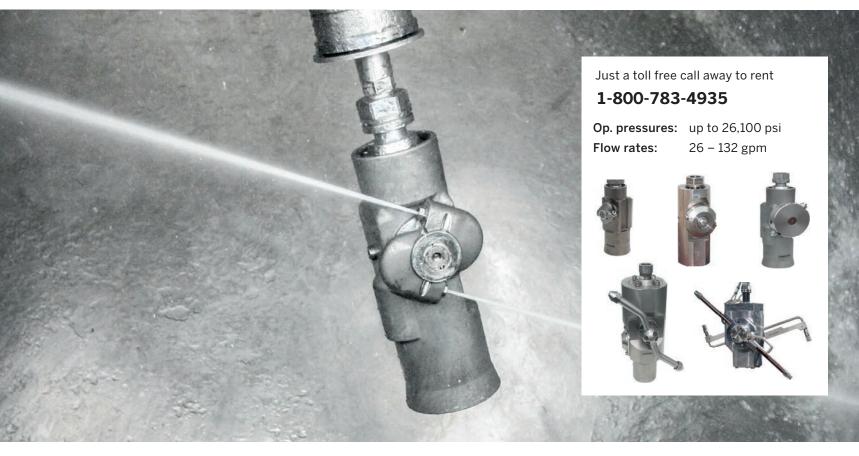
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Reliable as a Sunrise

Sewer inspection system improves New York contractor's profitability and productivity

By Ken Wysocky

n the municipal sewer cleaning industry, where profitability — and repeat business - often depends on meeting daily linearfoot goals for cleaning and inspecting lines, uptime and efficiency are highly prized commodities. That explains exactly why Kenyon Pipeline Inspection invested more than \$250,000 in a pipeline inspection truck outfitted by RapidView IBAK.

Based in Queensbury, New York, KPI offers a wide range of services throughout New England, ranging from pipeline inspections to cured-in-place pipe lining, to cleaning sewer lines with its Vactor and Vac-Con combination vacuum trucks. And more often than not, the IBAK camera system is instrumental in making things happen — a go-to tool that's almost as reliable as a sunrise, says Jake Kenyon, who owns the company with his brother, Josh.

"It's a very durable camera," Kenyon says. "The fact that it almost never breaks down is critical to keeping jobs profitable. We once went several years without any repairs. That's key, because repairs can take at least a week, and if you're not working, you're losing money — zero revenue, only overhead. The cost of downtime and repairs can accumulate very quickly."

A four-year contract to inspect and clean roughly 200,000 feet — about 35 miles — of

sanitary and stormwater sewers in the city of West Springfield, Massachusetts, underscored the value of the IBAK system. For starters, the contract was renewable every year, based on KPI's performance, so getting the work finished on time was critical to getting approval for the next year of work, Kenyon says.

"We didn't have any breakdowns or loss of time," he notes. "We went to work each day and the IBAK worked every day. And the city renewed our contract every year."

Moreover, the project included cleaning and inspecting pipes of various diameters. "Every line section was a different size. We'd go from, say, 8-inch to 12-inch, to 24-inch and back to 8-inch again," he explains. "Then there were crosslines going from catch basin to catch basin."



Kenyon Pipeline Inspection CCTV operator Todd Kuklinski launches a RapidView IBAK inspection camera into a municipal

OWNER: Kenyon Pipeline Inspections, Queensbury, New York MACHINE: RapidView IBAK pipeline inspection camera system FUNCTION: Inspecting sewer lines ranging from 6 to 24 inches in diameter FEATURES: Ford E-350 chassis with a 12-foot box body made by

Bay Bridge Manufacturing; Orion pan-and-tilt, adjustablefocus camera head: T76 wheeled crawler: remote-controlled camera elevator; zero-radius steering; automatic tilt

compensation: built-in winch COST: More than \$250,000 (includes truck, camera, crawler, reel, controller, computer and software)

WEBSITE: www.kpisewer.com

With some camera systems, different pipe diameters require technicians to constantly haul the camera out of a line and change to larger or smaller crawler wheels to keep it in the center of the different-size lines. But the T76 features an optional remote-controlled elevator that raises and lowers the camera head as

needed to remain centered in pipes and, in some cases, keep it above the water line. "That's a big time-saver," Kenyon points out. "It really helps our productivity if we don't have to keep changing out wheels."

The elevator feature saves even more time because it can lower the camera far enough for it to clear obstructions, such as a protruding service or tree roots, for example. "We can collapse the elevator tight to the crawler and sneak underneath," Kenyon explains. If not for that feature, an obstruction would force crews to reel the unit back to the truck, then go to the next downstream manhole, set up and perform the inspection in reverse (upstream). That would typically take about 15 minutes, possibly more under certain circumstances, he says.

The system, built out on a Ford E-350 chassis with a 12-foot box body made by Bay Bridge Manufacturing, features an Orion camera head and a T76 wheeled crawler. It's designed for pipelines ranging from 6 to 24 inches in diameter, but Kenyon says he's pushed it "well beyond" even 48-inch-diameter pipes. "It may not quite center itself, but it still provides enough light to provide good picture quality," he notes.

Other T76 features include zero-radius steering, automatic tilt compensation and a folding, two-axis rear connector. "The automatic tilt compensation is great because it helps prevent the crawler from tipping over," Kenyon says. "Tip-overs can damage the camera because we have to pull it back out of the pipe. It can also get lodged in the line, which sometimes requires us to dig it out in order to remove it."

Kenyon also likes the smart cable reel system, which automatically synchronizes the crawler speed with the speed at which the cable is getting reeled in. That keeps constant tension on the cable, which prevents the crawler from running over the cable and possibly creating a kink. He also likes the winch that's built into the reel, because it allows technicians to raise and lower the tractor and camera without setting up a tripod, he says.

A fully outfitted IBAK truck and camera system represents a considerable investment, especially for KPI, which is still a relative newcomer to the industry, founded in 2011. But Kenyon points out that the company has purchased less-expensive camera systems, but typically within the first year, the cost of ownership — things such repairs, maintenance and

downtime — has exceeded the cost of an IBAK system.

"We spend a lot of time trying to figure out what the best equipment is — it's a lot of trial and error," Kenyon says. "But you really do get what you pay for." c





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Inflatable Safety

Lightweight, portable shoring system makes trench safety a simple proposition

By Doug Day

horing systems can be heavy, awkward and inconvenient. If you choose not to use it, there's a good chance you or one of your co-workers will end up dead at some point. Luckily, there is a better alternative.

Used in Europe for more than six years, an inflatable trench shoring system from Pronal-USA has caught on in the United States over the last three years.

"It's very compact; you can roll it up and carry it under your arm," says Pronal-USA Sales Manager Tony Simunac. Each section weighs in at only 29 pounds. "You can throw it in the back of your pickup truck or the trunk of your car as opposed to having plywood boards or aluminum boxes."

Stemmle Plumbing Repair has been using the Smartshore system for a couple years now. It has purchased nine of the portable shoring devices for its plumbing, electrical, utility and septic system installation company serving the Richmond, Virginia, area.

Bill Schooley, operations manager at Stemmle, started with three Smartshore sets and recently bought six more. He now has three of the small size, for trenches up to 6.5 feet deep, and six of the larger model for 8-foot trenches. Each set includes two inflatable panels that are 4.5 feet wide and can be used together to protect trenches up to 20 feet in length.

According to Pronal-USA, the double-wall, rubber-coated NPVC fabric is resistant to punctures and provides up to 300 pounds per square foot of soil pressure resistance with inflation of just 10 psi and the struts in place. Smartshore is certified to comply with OSHA

standard 29 CFR, part 1926, subpart P for soil types A, B or C-60. Simunac says typical custom-

ers include municipal public works departments, sanitary and water districts, contractors, private water companies, and gas, sewer and water utilities. The kit includes four or six adjustable struts available in four sizes (24 to 36 inches, 32 to 43 inches, 43 to 55 inches and 36 to 60 inches) and a 13-foot inflation hose with shut-off valve. A venturi vacuum pump is available to speed up deflation of the panels.



With each section weighing only 29 pounds, Smartshore is easy for workers to set in place and transport.

"I was looking at buying some trench boxes," explains Schooley. Then he saw Smartshore at the Water & Wastewater Equipment, Treatment & Transport (WWETT) Show. "Every

year there's that one thing that makes the trip worthwhile, and that year it was Smartshore."

Now the company uses them often, since most of Stemmle's work involves excavations deeper than 4 feet.

"We have four excavators and a hydroexcavator and were doing more and more work where we were using the hydraulic shoring and steel-framed shoring, which is a pain. Excavators don't always have the weight capability to lower them into the holes. Smartshore weighs so little that it's easy for one person to move them around. They set up in minutes and are easy to adjust with a couple of turns of the wrench."



In addition to its light weight and quick setup, the Smartshore system folds up for easy storage.





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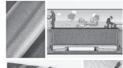
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The Smartshore system sets up in as little as 10 minutes.

Now that Schooley has enough to go around, every excavator travels with Smartshore, two sets for each of the large excavators and a single set for the small one. The inflatable panels and equipment are stored in plastic boxes Schooley picked up at a big-box store with the struts packed on top of the box. They are carried in the pickups that haul the excavators.

The first time Stemmle workers used Smartshore was at a power plant project. "The guys fell in love with it because it is so light, easy to get into the holes, and strong," Schooley says.

On a recent sewer connection job, Schooley says the 20-foot-long trench kept undermining until the Smartshore was installed. "We were able to work in there and a couple of times the base fell in and didn't even move the shoring because it was locked in place. I got Smartshore because it is so easy to handle and work with that the guys would be more apt to use them, and they have been."

About 20 workers die annually in trenching accidents, all of which can be prevented with proper equipment and work practices. **c**





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A Pressure Washer On Steroids

New jetter is NLB's solution for customers seeking hot water and high pressure in a compact package By Craig Mandli

or some cleaning applications, hot water just works best. That's why the technicians at NLB Corp. are so excited about the company's new 535 Series high-pressure hot-water jetting unit, on display for the first time at the 2016 Water & Wastewater Equipment, Treatment & Transport Show.

According to Jim Van Dam, NLB's director of product development and marketing, the unit is ideal for anything from jetting sewer lines to treatment plant cleaning.

"This is a unit we consider our one-stop shop," he says. "It's really a pressure washer on steroids."

At the heart of the unit is an NLB CV150 slow-running, 400 rpm power frame providing 10 gpm at 4,950 psi. A powerful 36 hp Yanmar four-cylinder industrial diesel engine generates power, while an Epps 700,000 Btu 12-volt diesel-fired heater keeps water consistently hot for long periods. It comes with a durable 60-gallon aluminum fuel tank and a 60-gallon stainless steel water tank, along with a stainless steel inlet filter housing. A stainless steel wye discharge fitting allows for multiple guns to be in operation simultaneously. The unit is available in a skid-mount configuration or on a heavy-duty tandem-axle trailer.

"While cold-water jetters are certainly effective, for certain applications, hot water is the way to go," Van Dam says. "In certain applications, warm or hot water can increase the cleaning effectiveness of high-pressure jetting operations, especially when cleaning grease from pipes or clearing ice-clogged pipes."

The 535 Series was completely new to the industry at the 2016 WWETT Show, so it has understandably received little feedback. According to Van Dam, the unit was in development for several months prior to the show, and the first unit was delivered to an NLB customer just days before the show opened.

"It's certainly a product that we feel is a great fit for a lot of the attendees at this show," he says. "We designed it specifically for the people we see here."

NLB Corp. is a longtime exhibitor at the WWETT Show. Van Dam says it always gives them the opportunity both to meet with existing customers and show off their products to potential new customers.



NLB sales representative Kirk Bell (left) points out the features of the company's new 535 Series high-pressure jetting unit to an attendee at the 2016 WWETT Show. The unit features an Epps 700,000 Btu 12-volt diesel-fired heater that keeps water consistently hot for long periods. (Photo by Craig Mandli)

"This show in particular is great because so many of the people here work with the types of products we focus our business on," he says. "We're always very excited to come here to learn what people in this industry are looking for."

In fact, Van Dam pointed out that it was feedback gained from past WWETT Shows in particular that led to the design of the 535 Series. They were looking for a jetter that was powerful enough to perform pipe cleaning, yet compact enough to get into tight areas for floor cleaning and other functions. The hot water capability is an added feature that increases the unit's versatility.

"I would say this is our most versatile unit for meeting the varied needs of those in the drain cleaning industry," he says. "The feedback we've gotten from the people at the show has told us that this is exactly what they are looking for." 800/227-7652; www.nlbcorp.com. **c**





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Create Employee Alignment

Your business will benefit and prosper when everyone understands and is working toward the core mission

By Magi Graziano

n today's disjointed world, most people say they feel disconnected and apathetic in regards to their jobs. With all the negative noise streaming in from multiple modalities, people are often overwhelmed with demotivating and disturbing messages. These negative messages get in the way and distract people from thinking straight and staying focused at work.

Feeling a strong connection with the mission and vision of a company is one of the top global drivers of employee engagement. CEOs who are committed to strengthening employee engagement work hard to advance their skills inspiring others and creating buy in.

Why do some leaders easily catalyze their teams toward new goals and achievements while others seem to struggle just to maintain the status quo?

One of the primary traits of a successful leader is the ability to inspire people around a purpose, a mission and a vision. Leaders who are most effective at motivating and organizing people toward a common vision do five key things very well. They work diligently at sharing their vision and articulating the direction and mission of the organization. They outline the strategy and plan, and openly communicate the company's core values and

These five keys are the cornerstones to creating companywide alignment that boosts engagement, morale and overall success.

1. Share and inspire a compelling mission

Great leaders regularly bring people closer to their purpose and the purpose of their work. If the vision for the organization is not inspiring — or is only to make a profit — it is pretty challenging to inspire others and get them to rally around it.

Employee engagement research states that for people to feel a connection with their work, they need to be able to envision themselves achieving purpose at work. An astute leader nurtures alignment among their workforce by linking the key performance indicators of each role in the organization to the overall key performance indicators and objectives of the business. When people are able to "connect the dots" from what they do each day to how it impacts the customer — and maybe even the world at large — they are much more engaged and concerned for what they do and how well they deliver it.

2. Institutionalize and perpetuate guiding principles and values

Building guiding principles and core values into the culture is a very powerful way to institutionalize and perpetuate the right behaviors throughout the organization. Leaders who are serious about their core values and guiding principles discipline themselves and their organization to only hire people who are aligned and have the ability to demonstrate those values and principles through the right on-the-job behavior. Behavioral and valuesbased interviewing is a key component of a values-driven organization's hiring process. In these same types of companies, leadership development and succession planning programs are created and built on the foundation of the core values and guiding principles.

3. Clearly articulate expectations and intended outcomes

Organizational objectives and desired outcomes are best achieved when clearly articulated and repeated often. Business leaders often voice frustration because their message in its true intent is not reaching all the ranks. The reality is, most people need to hear things seven times before committing them to memory. Therefore, role requirements, goals and objectives also need to be repeated frequently enough to ensure everyone involved is present and aware of the game plan and what it looks like to win.

Some leaders of larger organizations cascade their message to the workforce through their trusted and capable management team. Others design a communication strategy and deliver their message through a series of channels like individualized emails, the company intranet, weekly talks, or monthly town hall meetings and newsletters.

4. Foster excitement and celebrate forward momentum

Alignment happens intrinsically when people are gathered together in service of a mission bigger than themselves. They are called forth by the purpose and the mission, and then measure their success by milestones and accomplishments along the way. A leader that celebrates forward movement, learning from failures, taking risks and working collaboratively to remove barriers and advance is a leader who teaches his troops to keep their eye on the prize.

5. Build trust through open communication and clarity

One of the most important components necessary to nurture and grow workforce alignment is for the leader and management to have a strong relationship with their word. Trusting senior leaders and management is a critical driver of employee engagement. Integrity and open communication is one of the most crucial behaviors of highly effective leaders. People do not trust a leader of an organization who does not follow through on promises or has a reputation as someone who renegotiates agreements after the fact. Creating boundaries and agreements as well as honoring those agreements and boundaries is where the rubber meets the road with honoring one's word.

Trust is not about being perfect and certainly not about keeping things static and steady. It is about clearly communicating when and why things need to change, and giving people advance notice of those changes and how they can best adapt.



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ABOUT THE AUTHOR

Magi Graziano is the CEO of Conscious Hiring and Development and author of The Wealth of Talent

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PIRANHA HOSE PRODUCTS ARMOR BELT

Armor Belt jetter hose from Piranha Hose Products is lightweight, durable and highly abrasion resistant. It is available in Series SAOR



orange covered, 2,500 psi, I.D. sizes 5/8 to 1 1/4 inches; Series HABU blue covered, 3,000 psi, I.D. sizes 3/4 to 1 inch; and Series LAGR green covered, 4,000 psi, I.D. size 1/2 inch. 800/250-5132; www.piranhahose.com.

HOSE REELS

COXREELS T SERIES

T Series truck-mount spring-driven hose reels from Coxreels have an extra-large chassis with dual pedestalstyle arms and a Super Hub that provides triple-axle support while reducing vibration and strengthening the structural integrity of the reel. They can be used for off-road applications that demand reliability in the most abusive and demanding environments. CNC robotically spun and ribbed discs with rolled edges provide strength, safety and durability within any application or work environment. 800/269-7335; www.coxreels.com.



HANNAY REELS N700 SERIES

Lightweight, compact N700 Series spring-rewind hose reels from Hannay Reels are ideal for lubrication, washdown, high-pressure and general industry applications. They have a narrow frame and compact mounting base, along with nonsparking ratchet assembly and a declutching arbor in order to

prevent damage from reverse winding. They can handle standard pressures from 3,000 to 10,000 psi upon request and temperatures from minus 60 to 250 degrees F. The low-maintenance reels are built to customer specs in about a week. 518/797-3791; www.hannay.com.

REELCRAFT INDUSTRIES SERIES HD70000

Series HD70000 hose reels from Reelcraft Industries are designed to accommodate up to 100 feet of 3/8-inch I.D. hose or 75 feet of 1/2-inch I.D. hose. The heavy-duty base design, all steel construction and a baked-on powder-coat finish combine to produce a corrosion-resistant product. A redesigned latching mechanism provides longer service life of the latch



Reelcraft Industries

components. The containerized drive spring offers safe and easy handling during maintenance. Two sealed ball bearings produce a smooth spool rotation and easy operation. The guide arm adjusts to seven positions for various mounting locations and applications. 800/444-3134; www.reelcraft.com.

INDUSTRIAL VACUUM TRUCKS

GAPVAX HV55 HYDROVAX

The GapVax HV55 HydroVax wet/dry unit is constructed of 1/4-inch ASTM A572 Grade 50 steel, and has a 12 1/2-cubic-yard debris body and water tank options ranging from 400 to 1,400 gallons. It includes a positive displacement vacuum pump rated at



5,250 cfm with 28 inches Hg. The design prolongs the life of the filter bags and eliminates the threat of material entering the vacuum pump. The tailgate is fully opening with a field-adjustable hinge and dual cylinders, with four failsafe, individually adjustable locks that ensure a complete seal. Options include a cold weather recirculation package, sludge pump, auger unloading system, body pressurization system, remote pendants and wireless remotes, high-rail package and stainless steel body. 888/442-7829; www.gapvax.com.

GUZZLER MANUFACTURING PREDATOR

The Predator vacuum tanker from Guzzler Manufacturing is designed for handling bulk liquids, sludge and semisolid waste in industrial applications. The 3,000-gallon payload capacity tanker has a standard vacuum pump capable of suction pressures up to 27 to 29 inches Hg, maximum



airflow of more than 400 cfm, and more than 300 cfm at 18 inches Hg. Alternate pump sizes are available. The single compartment tank is constructed with carbon steel and rated for continuous maximum vacuum operation and 15 psi working pressure. The tank is ASME Section VIII boiler code- and DOT 412-compliant for hauling hazardous materials on the highway. 815/672-3171; www.guzzler.com.

PRESVAC POWERVAC WITH CHUTES

The Powervac With Chutes from Presvac is a positive displacement blower wet/dry vacuum loader that can operate as an air mover for dry applications or use full vacuum and extreme recovery rates for tough liquid, biosolids and slurry



jobs. The material knockout feature in the debris tank minimizes carryover. Heavy-duty modular filtration configured to blower cfm provides protection and minimal maintenance. The 12-inch dump chutes with heavy-duty springtensioned bolts allow for adjustment to maintain leak-proof sealing. Dump chute doors open with the debris tank door. Blower options include Hibon, Roots or Robuschi units, with full vacuum from 3,500 to 6,600 cfm. 800/387-7763; www.presvac.com.

NOZZLES

ARTHUR PRODUCTS PX REVOLVER G3

The PX Revolver G3 from Arthur Products is designed for the operator who must not only service a line, but have the ability to travel a long distance in the line. It has three additional fixed rear jets dedicated to generating large thrust for long runs. The addition of the rear jets allows the rotor jets to focus on penetration, polishing and flushing. It is manufactured from high-grade stainless steel and custom



drilled for equipment. It is available in 1/4-, 3/8- and 1/2-inch NPT sizes. 800/322-0510; www.arthurproducts.com.

ENVIROSIGHT JETSCAN HD

Deployed on any 3/4- or 1 1/2-inch jetter hose, the JetScan HD video nozzle from Envirosight is a quick, easy way for a cleaning crew to determine what tools and setup to use, identify blockages during emergency callouts, and document the



outcome of cleaning operations. As it advances down pipe 8 to 24 inches in diameter, it records 720p HD video in MPEG format to an onboard SD memory card. Immediately afterward, the card can be removed and video viewed 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.

ENZ USA UC LINE

The UC Line of CrossJet Technology from Enz USA can be used to clean heat exchangers and completely clogged pipes in industrial settings. These nozzles offer cleaning performance with low



water consumption and long durability. The integrated design includes thrust jets, and models are available up to 22,000 psi. They are available in 12, 18, 22 and 28 mm sizes, with a smaller 9.5 mm size coming soon. 877/369-8721; www.enzusainc.com.

HYDRA-FLEX RIPSAW ROTATING TURBO NOZZLE

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, which helps complete jobs faster with less runtime and less downtime. Its cone-shaped flow pattern is ideal for potholing applications. These 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 for extended life and lower operating costs. The non-conductive urethane coating on the nozzle body protects both the operator and sensitive underground assets. With the Ripsaw's greater impingement, the operator can use a smaller nozzle size while getting the same impact as nozzles with higher gpm flow rates. 952/808-3640; www.hydraflexinc.com.

NOZZTEQ MONRO-JET

The MONRO-JET hydroexcavation nozzle from NozzTeq combines the power of a solidstream pencil jet with the large coverage of a fan jet. Its circular water jet motion generates tremendous power at modest gpm rates, allowing the operator



to move faster whether hydroexcavating, surface cleaning or cleaning sewer lines. It can be used for other types of surface cleaning such as concrete, steel, castings and large surface areas including line removal from runways. It can be modified for internal pipe cleaning of sewers and pipes of all types. It has an orbital design that increases performance at a lower gpm rate and pressures as high as 36,250 psi. 866/620-5915; www.nozzteq.com.

SOUTHLAND TOOL ARROW DIAMOND CALCIUM CUTTER

The Arrow Diamond Calcium Cutter for hydraulic jet motors from Southland Tool helps remove deposits of calcium carbonate caused by infiltration. Over time this tuberculation



will form in the pipe and make rock-hard deposits that reduce flow, cause blockages and preclude TV inspection. The cutter is made of thick 1/4-inch reinforced steel with a welded 1-inch arbor hub. The front arrow divides into four fins to start in the middle of the deposits. Each of the four tapered fins has a thick 1/4- by 2-inch diamond segment brazed to the steel. They will chop and break away calcium deposits. Working into deposits breaks off chunks that will be jettisoned downstream. It is suggested to have a camera looking at the cutter from the upstream position. 714/632-8198; www.southlandtool.com.

STONEAGE WGR **MAGNUM SWITCHER**

The WGR Magnum switcher from StoneAge eliminates the need to swap nozzles mid-job, meaning fewer runs as well as less time and water required. When the pump is



idled down and brought back to pressure, the tool will switch the water flow between two different patterns of jets. This allows the tool to switch between pulling and cleaning without the need to remove it from the pipe. The pulling/ flushing jet pattern directs maximum power to the rear jets to pull or flush debris backwards. The cleaning/descaling jet pattern directs power to the side jets for cleaning deposits and cutting roots. It navigates pipes 8 to 36 inches in diameter and handles pressures up to 5,000 psi at up to 100 gpm. 970/259-2869; www.sewernozzles.com.

USB - SEWER EQUIPMENT CORPORATION CLEANING NOZZLES

One-piece stainless steel cleaning nozzles from USB - Sewer Equipment Corporation are neither bonded nor screwed together, enhancing strength and reducing chances of failure under pressure. Their Advanced Optimized 3D Hydro Mechanics, located in



the lower part of the chamber, eliminate pressure in the upper portion of the nozzle and prevent explosion in a sewer line or manhole. The water coming from a pressurized hose is immediately guided directly into channels and smoothly directed into one-piece ceramic nozzle inserts, which do not require winglets or flow straighteners because of the hydromechanics in and out of the chamber. The result is a highly efficient jet pattern. They are precision engineered and manufactured according to DIN EN ISO 9001:2000. One-piece nozzles include the Antiblaster Nozzle 3D, the Flying Nozzle 3D, the Cleaning Nozzle 3D and the FJ Penetrator Nozzle 3D. 866/408-2814; www.usbsec.com.

WATER CANNON TURBO NOZZLE

Turbo nozzles from Water Cannon combine a zero-degree blast in a 25-degree pattern with no gears, teeth or bearings to wear out. They have precision ceramic surfaces to provide long life and are rebuildable. They can be used for stripping paint,



degreasing heavy-duty equipment and removing stubborn oil, dirt, grime and soil residues from concrete, walkways, driveways, sidewalks, brick and building exteriors. Specially designed accessories can make any pressure cleaning job easier and more efficient. The turbo rotating nozzle increases the blasting power by concentrating a zero-degree stream of water into a 25-degree high rpm pattern. The nozzle works with equipment rated from 3,000 to 4,500 psi with orifice sizes up to 7 inches. 800/333-9274; www.watercannon.com.

PORTABLE TRUCK/TRAILER JETTERS

AMAZING MACHINERY BRUTEJET MAX

The BruteJet Max skid-mounted jetter from Amazing Machinery is fully selfcontained and can be mounted in many applications. It is 65 inches long and 30 inches wide, and comes with a 12-volt electric



hose reel (with no outside power needed), 200 feet of jetter hose, two nozzles, foot pedal and a complete set of washdown accessories. The 6-gallon fuel tank allows for an extended runtime and quick disconnects from the unit for offsite refueling. The power plant, reel and fuel tank are mounted to an all-aircraftaluminum skid. It offers pressures between 2,000 and 4,000 psi, and flow rates up to 11 gpm. 800/504-7435; www.amazingmachinery.com.

AMERICAN JETTER 51T PRO SERIES

The 51T PRO Series from American Jetter offers flows from 8 to 40 gpm at up to 5,000 psi. Consistent power is provided by dual 37 hp Kohler gasoline engines, creating the cleaning power of 74 hp. The hydraulic reel rotates 180 degrees for easy access. Low water shut-off prevents pump damage if the optional 400- to 600-gallon tanks run low. Hose reel speed



control allows for precise cleaning in both directions. The 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 standard electric brakes on both axles. 866/944-3569; www.americanjetter.com.

CAM SPRAY RCJ SERIES

RCJ Series skid-mounted jetters from Cam Spray are offered in flows and pressures of 8 gpm at 3,500 psi and 7 gpm at 4,000 psi. A three-plunger industrial pump with pulse is powered by a 688 cc Honda engine. Its 200 feet of jetter hose can be used to supply an optional 200DS4 portable reel cart available with 200 feet of 3/8-inch jet hose. It comes



Cam Spray

with a 35-gallon buffer water tank with float control, powder-coated heavy tube frame, washdown gun and a four-nozzle set. It easily mounts in the side door of a cargo van, on a truck bed or inside a service truck. A root-cutting nozzle enables residential root cutting. 800/648-5011; www.camspray.com.

ELECTRIC EEL EEL JET EJ3000

The Eel Jet EJ3000 high-pressure jetter from Electric Eel cleans 2- to 8-inch-diameter drainlines for a fast blast through clogs like sludge, ice, grease, sand, soap, dirt and debris. It comes with steel nozzles to penetrate and clean tough problems from pipe walls with a variety of spray angles. It can be used to clean lines up to 300 feet, and offers 3,000 psi at 4.7 gpm, a 13 hp overhead valve engine for smooth,



quiet running and dependable operation with electric start available, a 2-1 gearreduced triplex pump with pulsation for longer life, a 300-foot-capacity hose reel, a throttle-back control that automatically adjusts engine speed, and a lowtone muffler for quiet operation. It uses 1/4- and 3/8-inch-diameter jet hose. It has 12-inch pneumatic tires for easy maneuverability on a rugged steel base with front bar for motor protection. 800/833-1212; www.electriceel.com.

GENERAL PIPE CLEANERS TYPHOON

The Typhoon trailer jet from General Pipe Cleaners delivers 12 gpm at 2,500 psi to blast lines clean of grease, sediment and debris from 4- to 12-inch lines up to 400 feet long. A 200-gallon holding tank carries enough water



General Pipe Cleaners

to handle remote applications where access to water is limited. It has electric

brakes, a safety strobe light, safety cones, rear fold-down stabilizer jacks, retractable hose guide arm and antifreeze system. Its 24 hp Honda engine with electric start and 7-gallon fuel tank ensures extended performance on stubborn stoppages. On-demand Vibra-pulse helps slide the nozzle around tight bends and propel the hose down long lines. Two hose reels — a jet hose reel with a 400-foot capacity 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 next to the pressure gauge and output valve. 800/245-6200; www.drainbrain.com.

GORLITZ SEWER & DRAIN MODEL GO 1500A SERIES

The Model GO 1500A Series jetter from Gorlitz Sewer & Drain has a functional frame construction with a carrying handle, reel accessory tube, retractable pull handle and phenolic 4-inch wheels for easy transportation to



the job site. All models come with a custom-built, dual capacitor 2 hp electric motor drawing 19.8 amps at full load. The duplex ceramic plunger pump with dual pulsation will generate over 1,500 psi at 2.1 gph to clear tough stoppages or open frozen pipes. The unit is supplied with one 1/8-inch by 50-foot-long trap hose to clear drainlines from 1 1/2 to 3 inches in diameter. The hose and reel connections are provided with quick disconnect fittings to simplify operation. The reel accessory tube accepts an optional hose reel for compact hose storage and operation. 562/944-3060; www.gorlitz.com.

HI-VAC CORPORATION O'BRIEN 7000 SERIES

The O'Brien 7000 Series trailer-mounted jetter from **Hi-Vac Corporation** comes with water tanks and a sediment pump for easier cleaning and longer life. The trailer has the muffler and



air cleaner mounted inside the enclosure for improved sight lines, electric reel control for smoother rotation and easier operation, and hydraulic and water gauges mounted in the main control panel for easier viewing. 800/752-2400; www.hi-vac.com.

HOT JET USA HOTJET III

The HotJet III from Hot Jet USA offers an output of 20 gpm at 3,850 psi (with an option to run at 35 or 70 hp with either hot or cold water), cutting roots with either a custom root-cutting tool or a Warthog nozzle in pipes up to 24



inches. It provides the option to run 300 feet of 3/8-inch line or 500 feet of 1/2inch line, depending on the size of line the operator is cleaning. The 3/8-inch line is effective in cleaning 12-inch-maximum pipes and the 1/2-inch line is effective in cleaning up to 24-inch pipes. 800/213-3272; www.hotjetusa.com.

MONGOOSE JETTERS BY SEWER EQUIPMENT MODEL 184

The Model 184 jetter from Mongoose Jetters by Sewer Equipment has a tubular steel frame, corrosion-resistant pre-painted subassemblies,



state-of-the-art controls, strong hose reel, a high-quality diesel engine and the Mongoose run-dry pump. 877/735-4640; www.mongoosejetters.com.

PIPELINE RENEWAL TECHNOLOGIES CLEANSTEER

The CleanSteer from Pipeline Renewal Technologies uses high-pressure water for propulsion, steering and cleaning as it captures live inspection video from inside lateral lines. It is able to traverse multiple bends in pipe, steer through branches and levitate above debris, allowing municipal contractors and commercial plumbers to locate failed pipes, cross bores and blockages, as well as clean the pipes. It is fully water driven, as six propulsion nozzles generate the power needed to pull its own flexible hose



through multiple bends, and a side nozzle on the camera can be aimed to steer through diverging pipes and hover past obstacles. An optional forwardfacing nozzle can be pulsed to clear debris and other obstructions. The system works with any high-pressure water source, including pressure washers and combination trucks. Its 1/2-inch hose comes in lengths from 115 to 190 feet. 866/936-8476; www.pipelinert.com.

RIDGID KJ-3100

The RIDGID KJ-3100 portable water jetter has 3,000 psi of working pressure and 5.5 gpm of flow for fast, effective cleaning of large commercial and industrial lines. The jetter propels a flexible and lightweight hose through 2- to 10-inch lines, blasting through sludge, soap, grease and sediment blockages. As the hose is pulled back, it power scrubs the line, flushing debris away and restoring drainlines to their full, free-flowing capacity without the



use of chemicals. Pulse action also allows for easy negotiation of difficult bends and traps. It has a removable hose reel and triplex pump with corrosionresistant, forged brass head and comes on a two-wheeled cart that easily fits through standard-size doors and negotiates tight turns with ease. 800/769-7743; www.ridgid.com.

RING-O-MATIC 550

The Ring-O-Matic 550 dual-pump combination jetter and vacuum excavator gives contractors and municipalities the advantages of a dedicated combination jetter/vacuum truck in a versatile compact trailer unit. It can jet and vacuum sewer lines up to 20 inches in diam-



eter in spaces too confined for stand-alone jetters and vacuum excavators, or a carrier-mounted combo rig. Powered by an 81 hp CAT turbo diesel, the machine has a 1,000 cfm blower and can deliver 27 gpm at 2,700 psi up to 400 feet with its 3/4-inch jetter hose. Its trailer's axles are rated to 16,000 pounds, allowing the 550-gallon spoils tank and 500-gallon freshwater tank to be easily pulled behind a suitably equipped 3/4- or 1-ton truck. 800/544-2518; www.ring-o-matic.com.

SPARTAN TOOL HI-FLOW **ULTIMATE WARRIOR**

The Hi-Flow Ultimate Warrior jetter from Spartan Tool is ideal for small municipalities to use in larger sewers, culverts and drains. The unit's clean finish allows for



customization with a company logo and signature colors, allowing it to be easily transformed into a mobile billboard. Its triplex ceramic plunger pump delivers 3,000 psi at 35 gpm. It includes a 600-gallon baffled water tank, 500 feet of 5/8-inch high-pressure cleaning hose, 100 feet of 5/8-inch rubber supply hose, 75 feet of 1/4-inch trap-cleaning hose and 15 feet of color-coded leader hose. Maintenance features include a full system winterization with antifreeze recirculation. All trailers are certified fully compliant by the National Association of Trailer Manufacturers. 800/435-3866; www.spartantool.com.

SUPER PRODUCTS CAMEL JET 1600

The Camel Jet 1600 from Super Products is a truck-mounted, high-pressure waterjetting system that offers a convenient method for dealing with root control issues, and for keeping municipal sewers, sanitary and storm sewer lines, laterals and drainage



Super Products

lines clean and free flowing. It uses three modular tanks to carry up to 1,600 gallons of water. The tanks are formed of rotationally molded polyethylene with ultraviolet stabilizers. Its Lexan Containment System means that users have additional safety protection from hose rupture or high-pressure water. It has a heavy-duty triplex continuous-flow water pump to provide up to 80 gpm and pressure up to 2,000 psi. In addition to its single-engine design, which translates to lower fuel costs, the unit provides users with a host of options, including water pump and drive system options, as well as a front- or rearmounted 180-degree rotating hose reel with a 1,000-foot capacity. 800/837-9711; www.superproductsllc.com.

US JETTING 4018

The 4018 trailer jetter from US Jetting is available with powder-coated or galvanized frames, as well as aluminum components such as fenders, toolboxes, antifreeze tanks and fuel tanks. The 4,000 psi at 18 gpm unit has a



true run-dry pump with a stainless steel fluid end and triplex plungers that are easy to maintain and service. A HATZ Tier 4 Final four-cylinder diesel engine is fuel efficient, lightweight and generates a high amount of power. 800/538-8464; www.usjetting.com.

VAC-CON HOT SHOT

The Hot Shot high-pressure water jet machine from Vac-Con is used for removing stones, bottles, cans, grease, sludge and other debris from sanitary sewer and/or storm drainlines. It comes with a noncorroding polyethylene water tank and can be operated



by a single person with all controls for high-pressure water and hose reel located at the front of the machine for ease of operation and increased safety. Units are available with 1,000- and 1,600-gallon water tank capacities. 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 hand gun system with 25 feet of hose and a selection of nozzles. 855/336-2962; www.vac-con.com.

VACTOR RAMJET

Vactor Ramjet trailer jetters are ideal for fast, safe response to sewer blockages, as well as regular preventive line maintenance. The line of reliable, high-pressure water jetters is designed for cleaning municipal sewer, drain



and pipelines, and culverts. They provide high pressure at low water volume and are ideal for cost-effective maintenance and emergency response in tight, confined environments. Jetters are available with a variety of engine and pump configurations, water tanks up to 1,000 gallons and a range of optional equipment. 800/627-3171; www.vactor.com.

SAFETY EQUIPMENT

ARMSTRONG EQUIPMENT HAWS AXION MSR EMERGENCY SHOWER

The Haws Axion MSR Emergency Shower from Armstrong Equipment is a combination shower featuring Axion eye/face wash assembly with a consistent stream height allowing a full 15-minute flush, an even laminar flow for comfortable water pressure, and an Axion hydrodynamic showerhead design. Axion MSR eye/face wash has an inverted flow stream designed to carry contaminants to the outer edges of the eye to avoid recontamination. The showerhead has integral flow control to ensure a uniform flush and is ANSI Z358.1 compliant for velocity/gpm. All units are prebuilt and fully tested for reliability. They are customizable to fit facility needs, and can be corrosion resistant with either ABS plastic or stainless steel options. Options for freeze and scald protection are available. They come in a variety of configurations such as combo showers, wall mounted and pedestal eye/face washes. Head sets for both eye/



face washes and showers are designed to be a simple retrofit. 800/699-7557; www.vacpump.biz.

BRASS KNUCKLE PROTECTION N-FOG PLUS

N-FOG PLUS anti-fog eyewear from Brass Knuckle Protection are available in Snap and Mega styles. They are ANSI Z87.1+ protective eyewear, manufactured to exceed the most stringent anti-fog standard, EN166/168. The lens coating delivers anti-fog protection more than 40 times greater than what is required, exceeding the world's most stringent standard by 300 percent. Snap



provides ultralight comfort and crisp vision even in the wettest, most humid conditions. With a high-fashion vibe and sporty design, Snap has glossy black







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temples and a partially rimless design with green accents on the temples. Mega has a cushioned foam dust protector designed to help prevent fine particulate matter from falling into or behind the frame and lenses. Its application-specific, interchangeable design allows it, with the push of a button, to transition from a snug-fitting dust goggle with adjustable-length temples to a tighter-hold dust goggle with a strap. 770/674-8930; www.brassknuckleprotection.com.

GARDNER DENVER WATERJETTING SYSTEMS PRS UNLOADER

The Pressure Regulating System Unloader nitrogen-regulated pressure unloader valve for multiple guns from Gardner Denver Waterjetting Systems uses a nitrogen bladder to maintain at least 98 percent pressure to allow multiple operators unrestricted freedom



and safety, while reducing shock to operators when guns are actuated. It absorbs the shock from the energy in a rubber bladder inflated with a cushion of high-pressure nitrogen able to safely actuate water pressure up to 20,000 psi. 281/448-5800; www.gardnerdenverproducts.com.

MSA NORTH AMERICA V-GARD HELMET

The V-Gard helmet from MSA North America, with its distinctive trademark V design, has Fas-Trac III Suspension for increased comfort and stability. It is slotted for use with MSA accessories, with non-slotted versions available. It is available in more than 20 colors and in three sizes to ensure a proper fit. Custom imprinting and striping is available. The company's logo program makes accessorizing and



customization effortless. 800/672-2222; www.msasafety.com.

SOUTHERN GLOVE ARMA TUFF ARMADILLO

The Arma Tuff Armadillo impact glove from Southern Glove offers medium-impact protection with comfort and dexterity. The glove has a one-piece thermoplastic rubberpadded back to protect the back of the hand, fingers and thumb. The unibody design enables the back to be highvisibility colored with a contrasting high-visibility, corded



Southern Glove

double palm. The glove style is available in a high-visibility orange swirl pattern palm that offers excellent wet and dry grip. They have a Kevlar-reinforced thumb crotch, and a 3-inch neoprene cuff. They are available in sizes M through XXL. 800/222-1113; www.southernglove.com.

TST SWEDEN PROOPERATOR PROTECTIVE CLOTHING

ProOperator protective clothing from TST Sweden is available in a version that is CE-certified according to EN ISO 20471:2013 Class 3 High Visibility. The clothes are comfortable and functional, and protect from dangerous water jets. They are constructed from strong Dyneema fiber. In addition to the high-visibility clothes, a short apron, arm protectors and a hose protection shroud are available. www.tst-sweden.com.



VACUWORX INTERNATIONAL H-MODEL

Hydraulic-powered H-Model vacuum lifting systems from Vacuworx International have the same performance of Vacuworx diesel-powered lifters with lower operating costs. The hydraulic option is available for the Vacuworx MC 5 and all RC Series systems. They attach easily to excavators and backhoes with a dedicated auxiliary hammer circuit, with or without a coupler system. The



environmentally friendly hydraulic lifting systems produce near zero noise and air pollution, providing the ideal solution for construction sites within city limits or with strict emission guidelines. Hydraulic operation provides improved startup performance in cold weather and eliminates the possibility of fuel freezing in extreme conditions. The hydraulic lifters are lightweight, allowing farther reach and greater total lift capacities. 866/664-3450; www.vacuworx.com.

WATER PUMPS

CAT PUMPS MODEL 3570

The Model 3570 from Cat Pumps is rated to 30 gpm and 3,000 psi, a combination of high flow and high pressure that is a fit for hydroexcavating, jetting, hydrostatic testing and high-pressure cleaning. It is designed for demanding applications requiring dependable



intermittent-duty-cycle performance. It includes concentric, high-density polished solid plungers that provide a true wear surface and long seal life. The drive end consists of matched connecting rods and oversized bearings to provide thousands of hours of trouble-free service. V-packings and low-pressure seals are completely lubricated and cooled, increasing service life. The highpressure manifold is easily serviced without entering the crankcase, reducing field service time. 763/780-5440; www.catpumps.com.

GORMAN-RUPP COMPANY PRIME AIRE PLUS

Prime Aire Plus pumps from Gorman-Rupp Company employ the same venturi/ compressor priming system as the Prime Aire Line, with increased head, flow and enhanced maintenance features. Models featuring up to 8-inch flanged discharge sizes are available, providing flows up to 4,950 gpm and heads to



475 feet, that are suitable for both clear liquids and liquids containing large solids. They are available coupled to the latest EPA Tier-compliant engines or premium efficiency electric motors. They have an integral seal oil chamber, ductile iron body and impeller, two lip seals and atmospheric vent to ensure bearing protection, oil-lubricated versus grease-lubricated bearings, the ability to fit other pumping installations, and a fuel level monitoring system (on Interim Tier 4 engine-driven models). 419/755-1011; www.grpumps.com.

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The HDP-MC high-pressure pump from Hammelmann Corp. is a compact, directdriven 1,500 hp unit with pressures to 43,500 psi and flows exceeding 785 gpm. It is built to operate at continuous maximum duty stated in



the performance parameters and deliver high fluid efficiency. A complete line of accessories and 3-D tank cleaners are available with pressures up to 26,000

MORO USA PLUNGER PUMP

Plunger pumps from Moro USA are high-pressure triplex water pumps designed for a wide variety of industrial applications. Producing a smooth liquid flow up to a maximum water temperature of 140 degrees on standard pumps (higher temperature ratings



available), the double-projection drive shaft can be operated by pulley, flexible joint or cardan shaft. The pump includes ceramic plungers, double pressure packings, vertical-fitted valves, water spill venting and oil-bath mechanical parts with splash lubrication. They are available with a maximum flow rate of 128 gpm and maximum pressure of 22,000 psi. Versions include stainless steel or aluminum-bronze fluid ends designed for pumping corrosive liquids. 800/383-6304: www.morousa.com.

psi and flows exceeding 250 gpm. 800/783-4935; www.hammelmann.com.

WATER BLASTERS

NLB CORP. 335DHW-TRA-SA

The 335DHW-TRA-SA from NLB Corp. has a powerful and dependable triplex pump capable of 15 gpm at 3,500 psi and a 700,000 Btu burner to handle the demands of many cycles, long hours of operation and transportation. An overhead-mounted water tank is easy to



NLB Corp.

winterize, and a 75-micron inlet strainer can be cleaned, eliminating the traditional changeable filters. A rupture disk has been eliminated from the unit's design and replaced with a self-resetting pop-off valve. It offers an unloader valve for single or dual lance use and a direct-drive design that eliminates PTO and PTO maintenance. Power is provided by a Kubota v3600 66 hp industrial diesel engine. It has a 5,000-pound-capacity DOT-compliant steel frame, and single-axle trailer with gusseted industrial-strength wheel fenders. 800/227-7652: www.nlb.com.

PSI PRESSURE SYSTEMS CORP. NX

NX (Next Generation) waterblasting units from PSI Pressure Systems Corp. have an SWS conversion system, allowing it to operate throughout its pressure range of 8,000 to 40,000 psi without changing or removing the discharge manifold, accessory



PSI Pressure Systems Corp.

manifold, rupture disc assemblies or pressure gauges. 855/775-5055; www.psipressuresystems.com. c

Waterblasting and Water Jet **Cleaning and Accessories**

By Craig Mandli



PRECISION JET CUTTING USED ON HARDENED FAT DEPOSIT

PROBLEM

In Bedfordshire, United Kingdom, an enormous FOG deposit 9.5 inches thick and 330 feet long was taking up half the width of a sewer pipe. The deposit, caused by congealed fats and oils mixed with baby wipes, was so hard that various cleaning attempts with regular jetting equipment were unsuccessful.

SOLUTION

The Anglian Water District turned to ID-TEC's PRECISION JET CUTTING system from the Netherlands. The equipment has a precise steerable nozzle and a camera at the front of a sewer robot. The technique can be used with water pressures from 3,000 up to 32,000 psi for removing FOG, tree roots, extremely hard calcium deposits and accidentally dumped concrete.

RESULT

The massive fat problem was fully removed from the pipeline using 7,250 psi precision jet cutting in a 10-day operation. 503/504-8474; www.sr-series.com.

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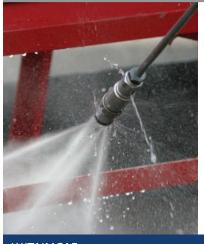
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PRODUCT SPOTLIGHT

Jetstream Orbi-Jet X22 rotary nozzle makes surface cleaning easier

By Luke LeNoble

The Orbi-Jet X22 rotary nozzle from Jetstream of Houston is designed for industrial surface cleaning applications. Rated for pressures up to 22,000 psi, the self-rotating nozzle features four jets designed to make surface cleaning safer and easier.

"This nozzle can be used for any industrial cleaning application," says David Osier, district sales manager. "We've got guys who are using this for scarifying concrete or removing paint on concrete, rubber liners in tanks, cleaning components for pad work — pretty much anything that requires surface prep."

Compound angles in each of the four jets follow a different cleaning path to provide greater coverage and less streaking than a fan-tip or single straight nozzle.

"You've got the options in this tool to use a narrow pattern, a wide pattern or a four-nozzle pattern," Osier says. "We've also laser-etched the tool so that it's easy for customers to know whether they are using a narrow pattern or a wide pattern."

Nozzles are also safety colored for pressure recognition. "The ease of the tool — knowing nozzle selection, knowing what adapter you need to connect to a specific pressure gun — people seem to like," Osier says.

Thrust spins the tool so no external drive is required. A lightweight Twis-Lok shroud ensures safer water displacement and protects the nozzle



from damage during operation. A magnetic braking system controls rotational speed for minimal wear and maximum impact without streaking.

"We've also designed it so it can be field repairable," Osier says. "Competitors' nozzles require a fluid to slow down the tool. We use magnets. This is all part of the quick-repair option. You're looking at five minutes for a seal replacement or seven minutes for a complete rebuild, and that's all due to the fact that it is magnetic and does not require any fluid."

The premium kit includes the Orbi-Jet X22 nozzle, an optional 15,000 psi adapter, maintenance kit, secondary rebuild kit and tools for greater ease of maintenance and longer runtimes.

"When we put the packages together we basically set up three kits — a starter kit, a 15K kit and a premium kit," Osier says. "In all three kits you have the option to use two nozzles in the two different pattern configurations or four nozzles for less streaking and a smoother finish.

"We also adapted this tool to be used on a lance machine, so that contractors can use this for automated cleaning as well," Osier says. 800/231-8192; www.waterblast.com.







J.C. WHITLAM MFG. CO. DRAIN OPENER

Talon drain opener from J.C. Whitlam Mfg. Co. is formulated to quickly open drains clogged with grease, hair and other organic matter. It also controls root growth. The dry product is odor-free, safe for septic systems and can be used monthly as preventive maintenance to keep drains clean. 800/321-8358; www.joinpipe.com.

CUES PORTABLE INSPECTION SYSTEM

The MARK 3 portable inspection system from CUES is designed for 6- to 72-inch pipe and can be mounted in a range of vehicles and trailers, or used as a stand-alone system. It's compact enough to mount in smaller vehicles, including an ATV or Ford Transit, and can be outfitted with a soft mount and

carrying handles to transport the system between inspection platforms. A built-in SD card enables digital video recording, video playback and digital image capture. The LCD display case features a built-in keypad that can be removed and remotely mounted up to 20 feet away. 800/327-7791; www.cuesinc.com.

ELECTRIC EEL MFG. PORTABLE BATTERY PACK

The portable battery pack from Electric Eel Mfg. is designed for use with the Ecam Ace, Ace Wi-Fi and Ace 2 pipeline inspection cameras. The lithiumion battery pack will operate units for up to five hours and features a battery gauge and low-power alarm. Output voltages are 12 volts via DC jack and 5 volts via USB port. Units come with a wall adapter for charging. 800/833-1212; www.electriceel.com.



MILWAUKEE ELECTRIC TOOL CORP. PORTABLE DRAIN CLEANING MACHINE

The M12 Drain Snake from Milwaukee Electric Tool Corp. is designed to clean fixtures and drainlines up to 2 1/2 inches in diameter. The cordless machine, with 25 feet of cable, is powered by an M12 lithium-ion battery, which provides instant setup and reduces the risk of electroshock. Cable sizes range from 5/16 to 1/4 inch. Other features include a fixed shield around the removable drum for safer operation. 800/729-3878; www.milwaukeetool.com.

GENERAL PUMP HYDROEXCAVATION NOZZLE

HX hydroexcavation nozzles from General Pump are urethane-coated for durability and operator protection. Featuring a stainless steel body, the nozzles are rated for up to 30 gpm and 1,000 to 4,000 psi. 888/474-5487; www.generalpump.com.

GENERAL EQUIPMENT COMPANY EARTH AUGER

The M235 two-man hole digger from General Equipment Company is designed for various soil types. The auger features a Briggs & Stratton 190 cc, 4.5 hp gasoline engine with a drilling torque of 154 ft-lbs. The Gen 2 Comfort-Flex operator handle absorbs torque-related kickback and vibrations, reducing physical stress and operator fatigue. An oil-cooled transmission includes a centrifugal all-metal clutch and machine-cut spur gears with a 1-inch output shaft. Augers are available in diameters ranging from 2 1/4 to 12 inches for digging up to 30 inches deep. A 15-inch extension is available for deeper holedigging applications. 800/533-0524; www.generalequip.com. c



GapVax names sales rep

GapVax named Terry Brown sales representative for the Southeast territory. He has 25 years of experience in operations, construction and business development in the utility and gas markets.



Terry Brown

Sioux Corporation electric pressure washers receive hazardous-use certification

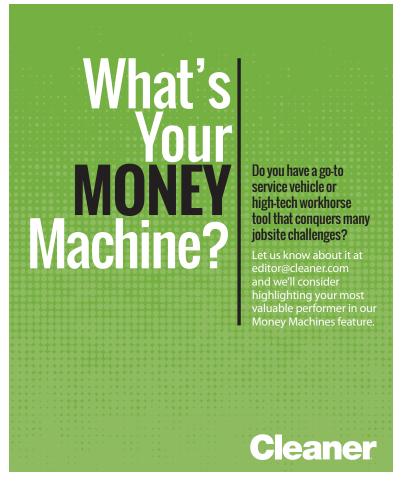
Sioux Corporation all-electric pressure washers and steam cleaners received approval for Class I, Division 1, Group C and D; and Class II, Division 1, Group F and G hazardous environments.

RauschUSA adds MME to distributor network

RauschUSA added Municipal Maintenance Equipment of Sacramento, California, to its family of authorized distributors. With four locations, MME serves contractors and municipalities in California and Nevada.

Jack Doheny Companies to become exclusive dealer for RapidView IBAK

Jack Doheny Companies will become the exclusive dealer of RapidView IBAK pipeline inspection and rehabilitation equipment in Florida. Jack Doheny Companies maintains facilities in Orlando and Miami and will provide sales, support, service and training throughout the state.



GPS Insight partners with Fleetio

GPS Insight formed an integration partnership with Fleetio, a fleet maintenance software company. The data integration will allow customers who use both systems to receive automated odometer readings and DTC alerts from GPS Insight inside the Fleetio software application.

HammerHead adds coating system, cleaning tool

HammerHead Trenchless Equipment, a Charles Machine Works company, added the Picote Pipe Coating System and Picote Smart Spider pipe cleaning tool to its Picote product line.

VE Group to coordinate sales for TRIC Tools

VE Group will coordinate sales for TRIC Tools in the Southeast region of the United States. VE Group also represents TRIC in Mexico, Latin America and South America.

Sauereisen launches website

Sauereisen, a producer of protective linings, coatings and ceramics for industrial users, launched a new website, www.sauereisen.com. The site is available in 12 languages and offers easy viewing and navigation from mobile devices.

Dwyer Group names board member

Imran Jooma joined the board of directors for the Dwyer Group. In his new appointment, Jooma will work with current board members to guide activities at Dwyer Group and the company's family of service brands.

NexTraq partners with Fleetio

NexTraq and Fleetio have partnered to streamline fleet management processes for its customers and reduce operational costs. Through the partnership, NexTraq will automatically update the current odometer reading once per day for each Fleetio-mapped vehicle.

Trelleborg Pipe Seals signs agreement with Statoil

Trelleborg Pipe Seals' offshore operation in Norway signed a six-year framework agreement with Statoil for the supply of Elastopipe, Passive Fire Protection and Thermal Insulation (Vikotherm R2, S1 and P7).

Under Pressure Systems owner passes away

Eugene "Gene" Raymond Valentine, owner of Under Pressure Systems, passed away May 16. Valentine, 78, is survived by his wife, Cynthia Jane (Chenevey) Valentine, and children Daniel (Suzzane) Valentine, Shelly (Dave) Parrott, David (Deena) Valentine and Christopher Valentine.

Nu Flow moves to larger office in Maryland

Nu Flow relocated its Maryland office to a 3,000-square-foot building in Frederick, Maryland. The increased space will allow the branch to operate more efficiently and meet the demands of customers throughout the Mid-Atlantic region. C



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Teri Marinello

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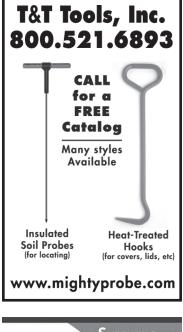
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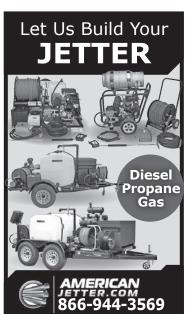






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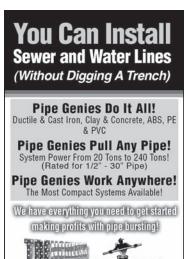
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C08

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C09

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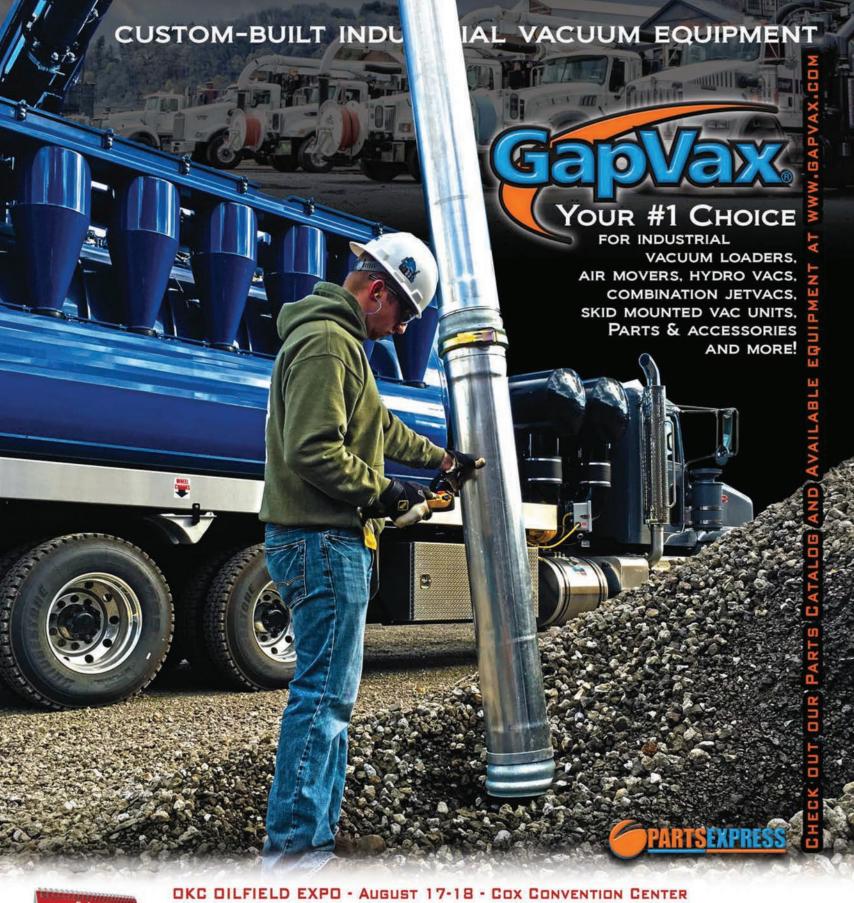
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