

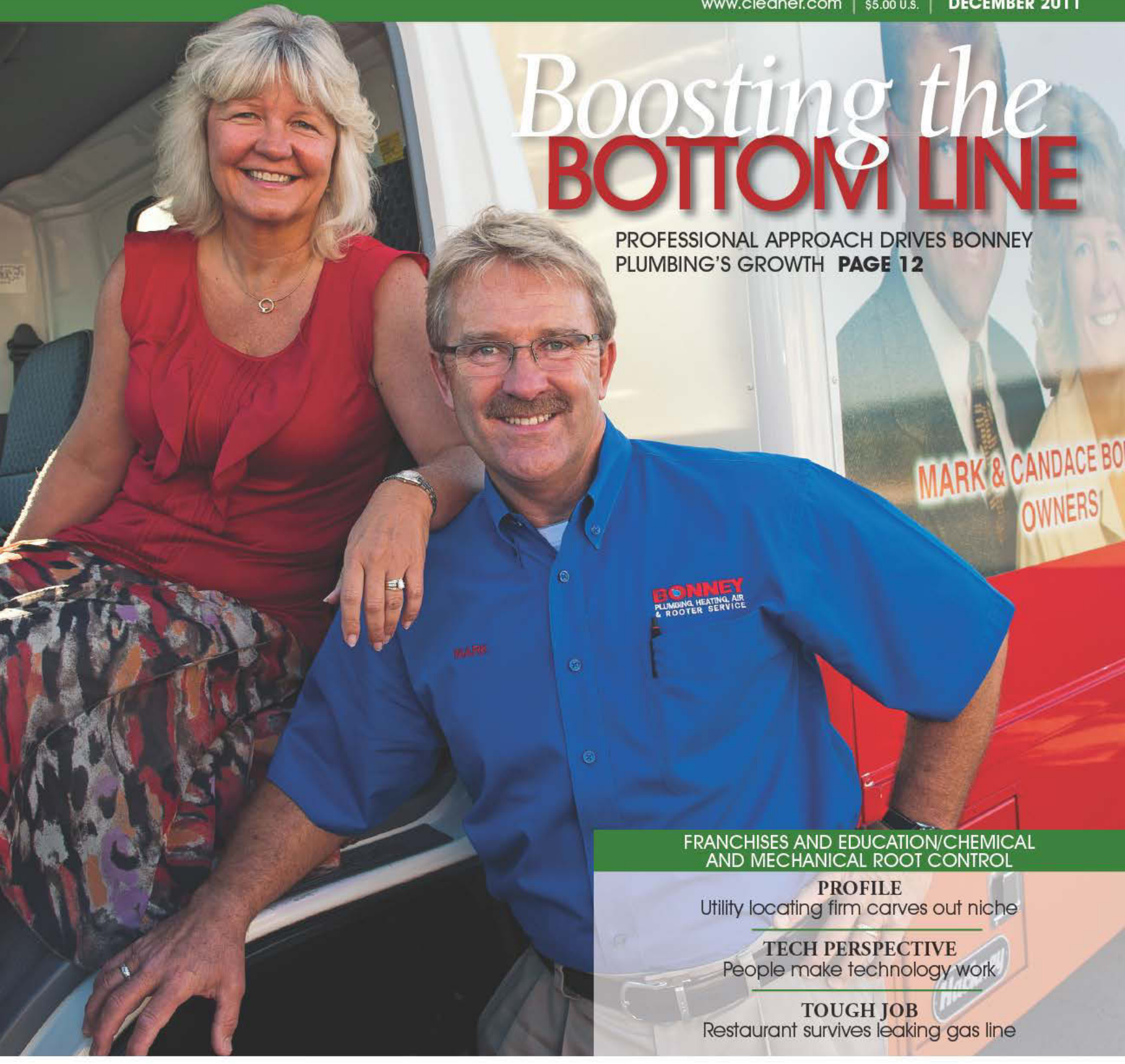
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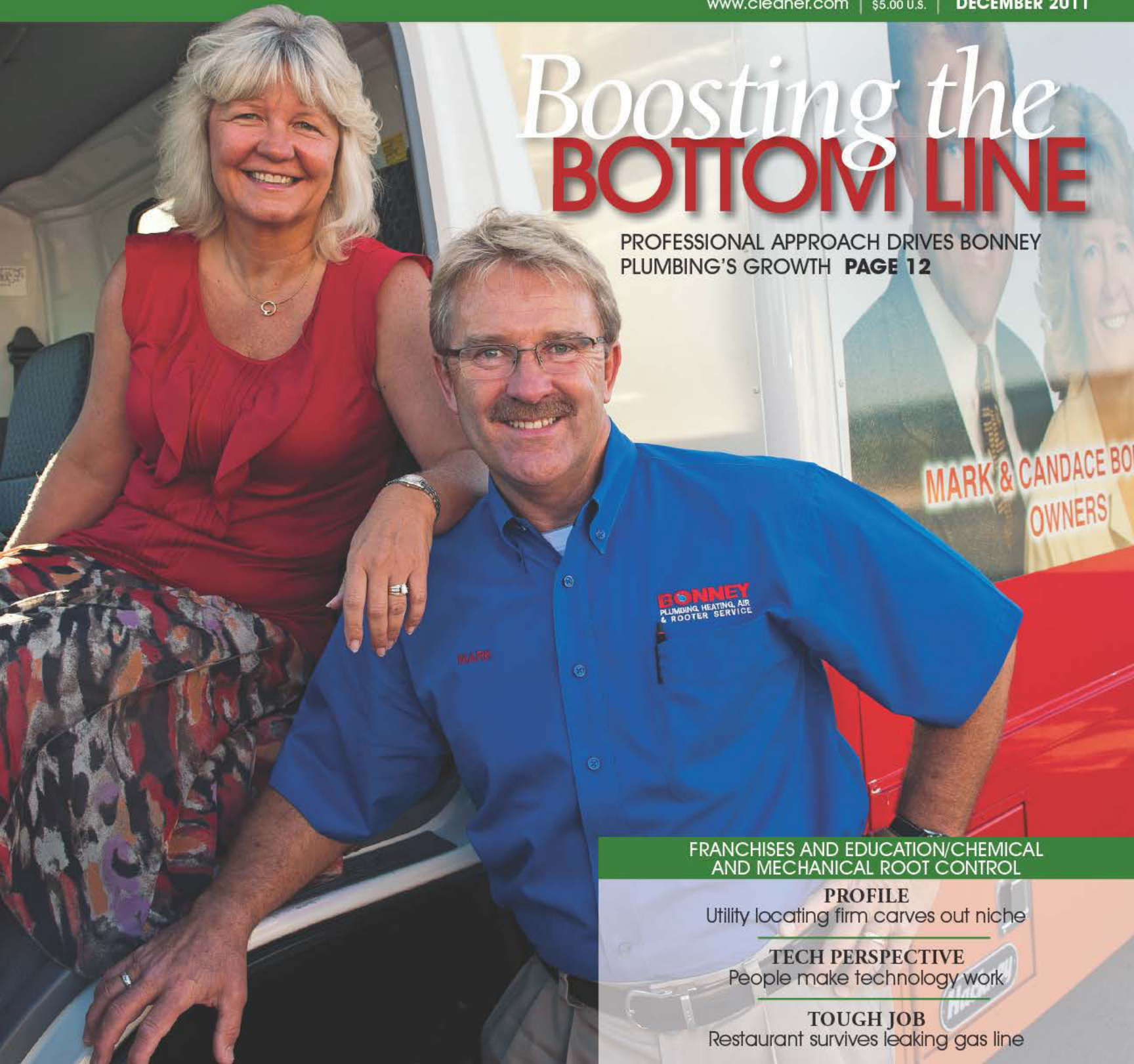
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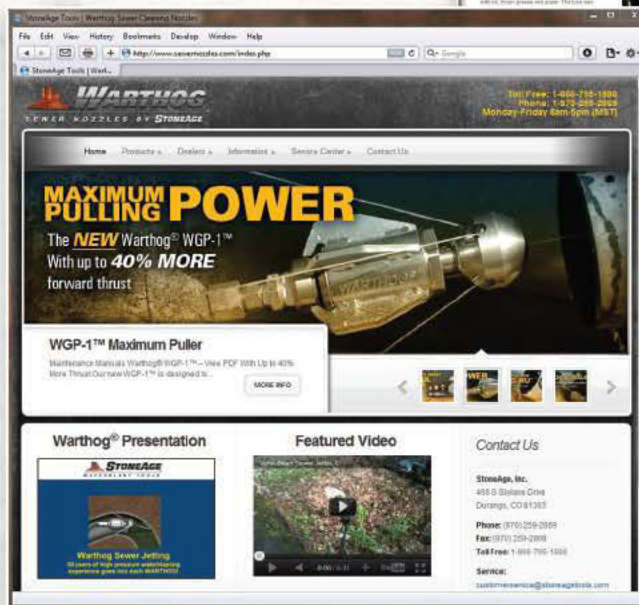
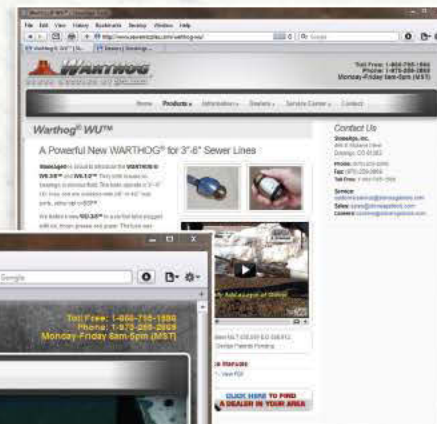
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On the cover: Mark and Candace Bonney, co-owners of Bonney Plumbing, Heating, Air & Rooter Service in Sacramento, Calif., attribute the explosive growth of their business to diversification and high professional standards. The company has enjoyed a ten-fold increase in annual gross revenue since 1996. (Photography by Lezlie Sterling)

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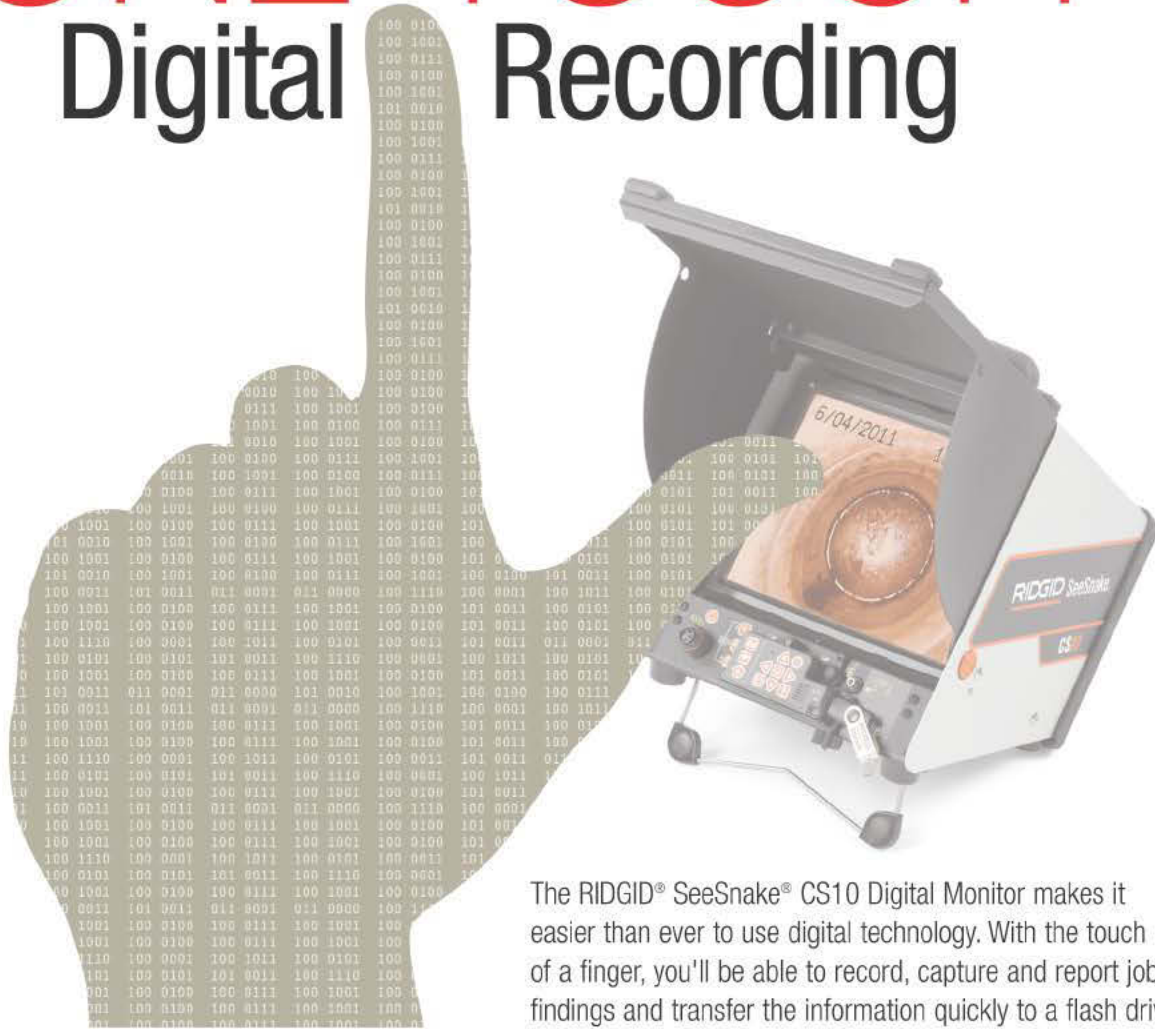
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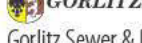
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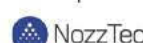
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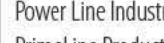


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Luke Laggis
editor@cleaner.com

BY LUKE LAGGIS, EDITOR

The start of another new year is nearly upon us. While many prognosticators of doom predict the world as we know it will cease to exist in 2012, none of us can afford to fold up shop and take an extended vacation while preparing for the end of days. Instead, we have to look ahead and chart the best course toward a prosperous future.

The coming year will mark a new beginning for *Cleaner*, a new beginning that actually starts with this issue, my first as editor. Ted Rulseh served at the helm of this publication for 11 years, producing a fine product and building a strong rapport with drain cleaning professionals and equipment manufacturers across the country. I hope to build on that and make *Cleaner* an even greater resource for the hardworking businesspeople of this industry.

Business owners and managers need to constantly add to their knowledge and skill bases in order to move their companies forward and get the most from their people and equipment.

I come to *Cleaner* with well over a decade in the news business, including coverage of water and wastewater issues across many municipalities. I've reported on everything from flooded storm sewers and failing lift stations to the expansion of infrastructure to support new development and the planning and construction of a new \$25 million wastewater treatment facility in my hometown.

Ultimately, taking over the reins of this publication requires me to learn a great deal more about the drain cleaning business and environmental services industries, just as operating your own business requires you to continually learn about new techniques, products and services. That meshes with the theme of this issue of *Cleaner*: Chemical and Mechanical Root Control, Franchises and Education.

In this issue, Jim Aanderud of Innerline Engineering lends his voice to the Tech Perspective feature, explaining the critical importance of properly training and educating new members of your team. He explains that thorough and proper training is of utmost importance if operators are to successfully diagnose and resolve problems and properly represent your company to customers. Good companies, as Aanderud notes, invest heavily in training because it has a huge impact on the bottom line.

Blood Hound Underground, profiled on page 28, attributes its success to – among other things – investing in technology and employing rigorous training and quality control programs. Since the company is based on one primary service – underground locating – they have to do it extremely well, according to company president Mark Mason. The company prides itself on thorough training, with all technicians certified at Staking University in Manteno, Ill., a training facility for subsurface utility locating practices. Most of the company's training is so specific, however, that Blood Hound creates about 90 percent of its own training materials. There is also extensive safety training, which has helped form business relationships with companies where contractor safety is critical.

The key with Blood Hound and other successful companies is the emphasis they put on training and continuing education. Without continuing education, we all stagnate, and that's bad for business.

Of course, training and education isn't just for the technicians in the field. Business owners and managers need to constantly add to their knowledge and skill bases in order to move their companies forward and get the most from their people and equipment. Continuing education, cited by many successful industry professionals as the lynchpin to continued success, can take many forms. Coursework in finance or business management at the local community college can help you grow from a great plumber to a great business owner or manager, and the growth of online courses makes it even easier to further your education.

Webinars and trade show seminars are also great opportunities to expand your knowledge base. The 2012 Pumper & Cleaner Environmental Expo, to be held Feb. 27 to March 1 in Indianapolis, Ind., is an outstanding opportunity for professionals across the environmental services industries to come together, learn from their peers and get a first look at the newest and best products on the market. It is also a tremendous learning opportunity.

Many of you have attended the Expo in the past. Others, much like myself, are looking forward to their first trip to the industry's largest trade show. I am most looking forward to the opportunity to get to know you, the contractors and manufacturers who form the backbone of this industry.

As we move forward, we will try to cover more of the pertinent stories that shape the industry, more of the news that will define the future of the industry, and more of the business and financial advice that will help you establish and maintain your place in the industry.

Hopefully this magazine can be a part of the education for you and your team. Here's to 2012 and new opportunities. ☺

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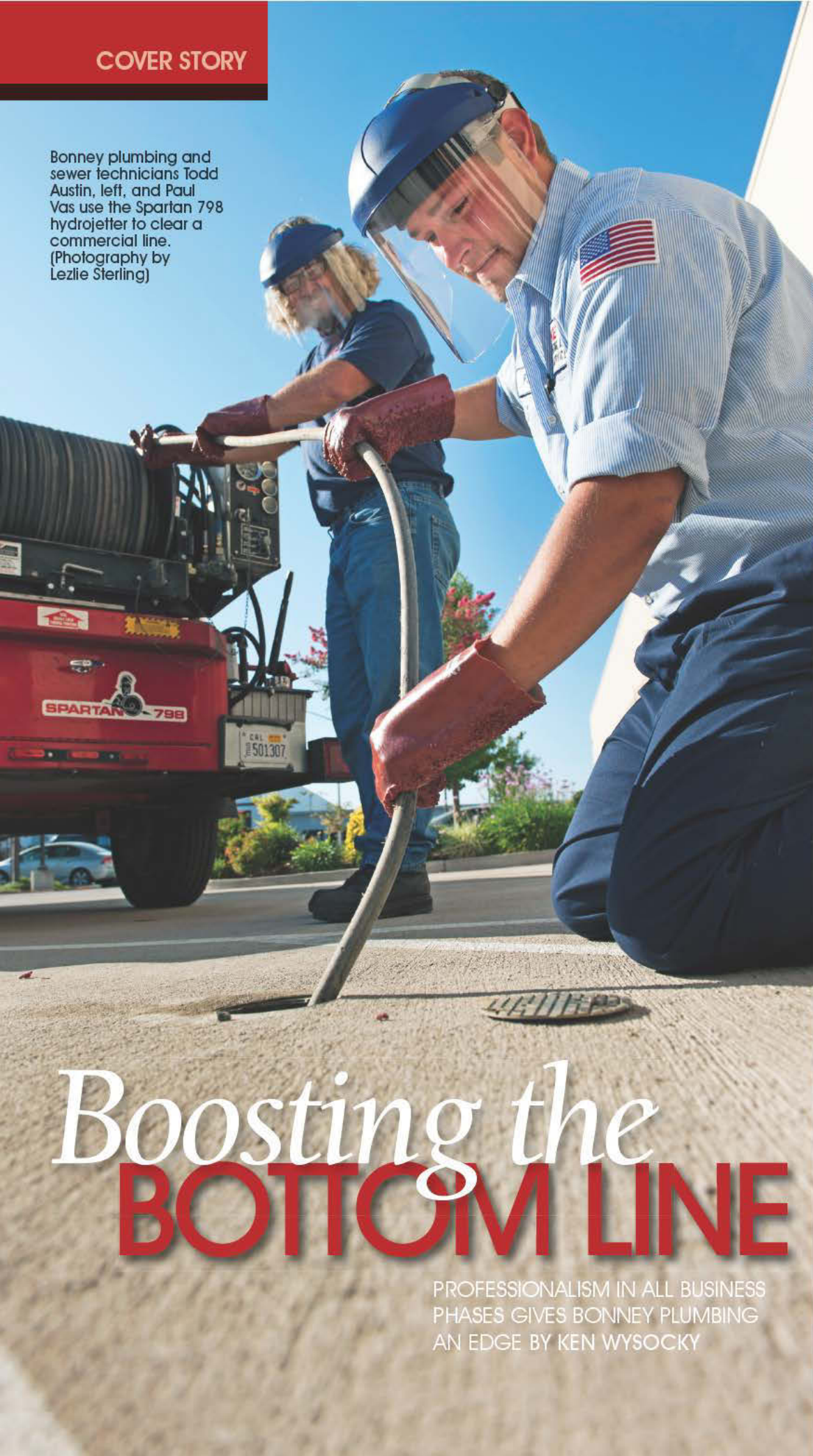


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Bonney plumbing and sewer technicians Todd Austin, left, and Paul Vas use the Spartan 798 hydrojetter to clear a commercial line. (Photography by Lezlie Sterling)



Boosting the BOTTOM LINE

PROFESSIONALISM IN ALL BUSINESS PHASES GIVES BONNEY PLUMBING AN EDGE BY KEN WYSOCKY

An old adage says you never get a second chance to make a good first impression. Mark and Candace Bonney, the co-owners of Bonney Plumbing, Heating, Air & Rooter Service in Sacramento, Calif., concur, which is why the company's service technicians blow away conventional plumber stereotypes.

Bonney technicians stand out like bright chrome wheels on a rusty car. For starters, they're clean-shaven and well groomed, wear shoe covers and sport crisp, freshly laundered uniforms, complete with name patches and a company logo. They drive newer, spotless trucks, and never park them in a customer's driveway unless they first get permission.

And less visible but equally important, the technicians are knowledgeable, well-trained professionals – and standup guys who pass background checks and drug tests, say the Bonneys, who co-own the business with Skylight Capital, an equity firm.

"We're kind of an anomaly," Mark says. "Our plumbers are truly professionals who drive beautiful warehouses on wheels. They're the kind of guys you want to come in your home when your wife is at home by herself – outstanding individuals with integrity.

"They look good, smell good and carry extra uniforms in their trucks in case the one they're wearing gets dirty ... and they leave a job site cleaner than they found it," he adds. "It all portrays value to the customer. Most people expect someone gruff and smelly. Our guys are a lot more personable and they present well."

PROFITING FROM PROFESSIONALISM

Aside from impressing customers, the Bonneys are quick to point out that the emphasis on professionalism yields another important benefit: It helps boost the company's bottom line.

"Having professional employees allows you to charge accordingly for your services," Mark says. "Value is a comparison of what you pay versus what you receive. And by doing little things like being on time, parking
(continued)

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Candace and Mark Bonney of Bonney Plumbing in Sacramento, Calif., hold their weekly staff meeting.

After striking out on his own to install plumbing in new houses, Mark returned to Wallner Plumbing to help his mentor start a new-construction plumbing division.

In 1981, Mark earned a contractor's license and continued to install plumbing in houses in large subdivisions under the auspices of RM Bonney Plumbing. But he soon realized he was in over his head.

"I think every plumber thinks he should be his own boss – that there's some glamour in calling your own shots, plus imagining all the money you'll make," he notes. "But while you might be an awesome technician,

you're doomed to failure if you have no background in running a business or in finances.

"As a subcontractor, I found I was only as good as my last cheap bid," he continues. "Then you realize you don't own a business – you own a job. I was in that category for a while ... you think that if you under-price the competition, you'll get the job and make money on the volume of work you get. But the reality is that when cash flow stops, you're left with nothing. It took me 10 years to figure that out."

Mark and Candace got married in 1990, and shortly thereafter, decided to change the company's direction. They moved out of new construction and into service and repair work. Candace, who has a master's degree in finance, helped Mark run the company on a part-time basis for five years, then finally quit her job as a senior manager for a governmental consulting company around 1996 and joined Bonney Plumbing full time.

profile

BONNEY PLUMBING, HEATING, AIR & ROOTER SERVICE, SACRAMENTO, CALIF.

OWNERS:	Mark and Candace Bonney, Skylight Capital
FOUNDED:	1978
EMPLOYEES:	50
SERVICE AREA:	Sacramento and Vacaville
WEBSITE:	www.bonneyplumbing.com



trucks straight instead of up on a curb, knocking on doors instead of ringing doorbells and wearing shoe covers, it adds value to the job – and pricing is less of a problem."

The company's approach has been successful. Since 1996, when Candace joined the company full time, Bonney Plumbing has grown from a small shop with five or six employees to a full-service company with more than 50 employees and dozens of service vehicles. In addition, it enjoyed about a ten-fold increase in annual gross revenue during that time, up to \$12 million a year, Candace says.

Mark says the company also emphasizes to technicians the value of active listening and speaking intelligently.

"If they listen to all the customers' clues and their body language, you'll be surprised at how many calls you can close," Mark notes. "It's all about listening and presenting options."

DEEP PLUMBING ROOTS

Such heady success was hard to envision when Mark first broke into the industry almost 40 years ago as a sophomore in high school, working part-time for a mom-and-pop plumbing outfit in Redding. Impressed with his mechanical aptitude, his boss and mentor, Al Wallner, soon asked him to grow a mustache so he'd look older, and make service calls.

"I liked the freedom of having a job where you didn't know exactly what you'd be doing all day," he says. "Every call was different."

"Having professional employees allows you to charge accordingly for your services. Value is a comparison of what you pay versus what you receive. And by doing little things like being on time, parking trucks straight instead of up on a curb, knocking on doors instead of ringing doorbells and wearing shoe covers, it adds value to the job – and pricing is less of a problem."

Mark Bonney

In 2006, the company's success caught the eye of Skylight Capital, which now owns 85 percent of the company.

DIVERSIFICATION KEYED GROWTH

Diversified services were critical to the company's growth. In 1999, the company formed a sewer division and embraced an emerging technology: trenchless pipe repair. At the time, the Bonneys were motivated by the fact that home insurance companies would pay the cost of replacing sewer laterals infiltrated by tree roots.

(continued)

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"We really went after that business," Candace says. "Then it became less lucrative as insurance companies limited what they would reimburse. Eventually the insurance money dried up completely ... but at that point, we were expert drain cleaners.

"It was a great business for us," she continues. "You almost always got the business because no one wants to call around for bids (for an emergency drain line blockage). It was an add-on business with a high, high closing rate and excellent profit margins."

Later, the company diversified further, entering the heating and air-conditioning fields. Providing more services requires more equipment, and Bonney Plumbing has grown significantly in that department, too. Along with trenchless equipment from TRIC Tools Inc., Bonney Plumbing owns more than four-dozen service vehicles, including almost two-dozen Chevrolet W3500 and W4500 cabover trucks, most equipped with Hackney cube bodies. The company also owns a Takeuchi excavator, eight trailers and a Spartan 798 waterjetter, made by Spartan Tool LLC.

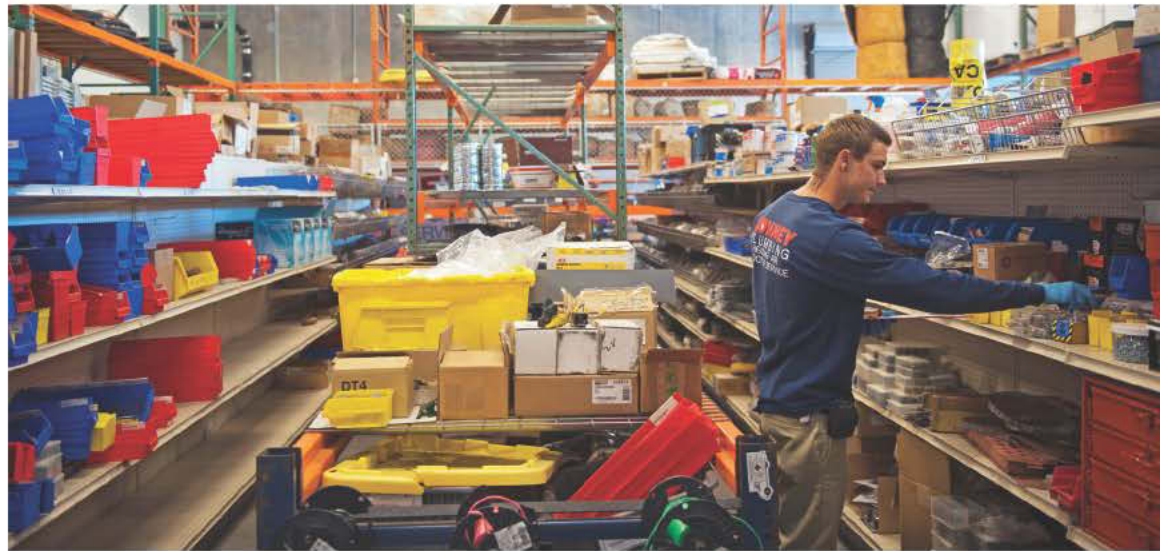
Each drain cleaning truck carries \$15,000 worth of parts inventory. That improves productivity because the technicians can spend more time on jobs and less time driving to and from a supply house, Mark says.

Each truck also carries a GO 68 cable drain cleaning machine and a GO 380 for smaller drains, both made by Gorlitz Sewer & Drain Inc.; a 1065 drain cleaning machine, made by Spartan Tool LLC; and either a Vivax pipeline camera inspection system, manufactured by Vivax-Metrotech Corp., or a Gen-Eye

3 inspection camera, made by General Pipe Cleaners (a division of General Wire Spring Co.).

In addition, the company keeps about \$500,000 worth of parts on hand in a warehouse. Whenever a technician uses a part, he writes it down on an inventory replenishment sheet. Every night, the technicians fax those sheets from their homes to the warehouse manager, using company-issued fax machines. Then the manager fulfills those orders, and on Mondays and Wednesdays, each technician goes to a bin with his name on it and picks up the parts to restock.

"Having that kind of inventory on hand helps with two things," Mark explains. "We get better pricing with volume buying, and our guys don't waste time waiting in line at a supply house."



Alex Brogden grabs items for restocking the trucks in the inventory locker at Bonney Plumbing. The company keeps about \$500,000 worth of parts on hand in their warehouse.

ATTRACTIVE BENEFITS, GOOD PAY HELP RETAIN GREAT EMPLOYEES

During their first several years of running Bonney Plumbing, Heating, Air & Rooter Service in Sacramento, Calif., owners Mark and Candace Bonney came to an unsettling realization: Employee turnover was low, but oddly enough, that was a detriment to the company.

"We learned a lesson in those first three years ... that some of our techs weren't people we wanted in our own homes," Candace recalls. "So we changed our hiring philosophy - started to pay technicians more and offered benefits that would attract the cream of the crop."

To attract and retain employees who would fully embrace the company's strong emphasis on professionalism and customer service, Bonney Plumbing offers a primo benefit: company-paid health insurance premiums. The company also offers employees a 401(k) program in which the company matches employee contributions up to 4 percent of their gross pay.

Employees also receive one week of paid vacation during each of their first two years of employment, two weeks in the third year and seven paid holidays.

In addition, technicians don't get a traditional straight salary. Instead, their pay is based on commission plus a \$45 payment for each billable hour.

"It's no mystery to them; it's very clear and concise," Candace explains, noting they based the system on information gleaned

from various seminars. "There are built-in incentives that allow them to achieve bonuses based on revenue production. It's easy for them to manage and they know exactly how they've done at the end of the day."

Adds Mark: "The system is designed to reward guys who show up every day, are efficient and know what they're doing."

But the Bonneys didn't stop there. Employees also enjoy free access to a 1,700-square-foot cabin on Lake Tahoe. And as an added bonus, the company also has taken employees and their spouses on lavish, all-expenses-paid vacations, such as cruises to Mexico, Hawaii and Canada and a trip to Las Vegas. The company used to offer the excursions every 12 to 18 months, and would do them in two shifts so that half the employees would be around to keep the company running.

"We're not doing those right now because the economy has been hard on all of us," Candace notes. "We kind of put it on hold because our health insurance costs went up. But that's not to say we won't do it again. We think it's very beneficial to our employees. But for now, it's one of those things we've pulled back on."

The company also shows its appreciation for employees in other ways. For example, the company's website (www.bonneyplumbing.com) includes a "Meet the Brigade" section that displays a short profile and photo of each employee, including a summary of their experience.

(continued)

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Mark and Candace Bonney with their plumbing technicians at Bonney Plumbing in Sacramento, Calif. Technicians are clean-shaven and well groomed, wear shoe covers and sport crisp, freshly laundered uniforms, complete with name patches and a company logo.

EMBRACING NEW TECHNOLOGY

Mark firmly believes in keeping up with the latest technology to improve productivity and boost profitability. For example, he's currently considering investing in lateral relining systems.

"We continue to train our employees and make them aware of new technologies out there," Mark says. "If you get complacent and rest on your reputation, you wake up with a new competitor in town that's taking your work away."

With that in mind, the company committed to buying a pipeline video-inspection system for each truck.

"I know some companies that rotate one camera from truck to truck, but that creates mayhem," he says. "We issue a camera to each technician. That

"I think every plumber thinks he should be his own boss – that there's some glamour in calling your own shots, plus imagining all the money you'll make. But while you might be an awesome technician, you're doomed to failure if you have no background in running a business or in finances."

Mark Bonney

way, if you go on a sewer line job and have a camera, you can ask if the customer wants a recording – and you can do it right then.

"If you tell a customer they have to wait until you can come back tomorrow with a camera, they might not say yes," he adds. "The inspection systems also give us the means to email a video clip of a pipeline inspection to a customer if they can't be at home when we're there for an inspection.

"The more efficient you are, the more profitable you'll be," he continues. "New technology can make you more cost-effective as well ... allow you to come in with a lower price."

As an example, he points to trenchless technology. While the initial equipment outlay was expensive, it reduced costs by eliminating expenses such as excavating and relandscaping.

PLANS FOR FUTURE GROWTH

The Bonneys are optimistic about the company's future, even as the economy continues to struggle. They plan to grow the company either organically or through acquisitions that expand its geographic territory.

The company took the first step toward that goal in June 2011 by purchasing a plumbing, heating and air-conditioning company in Vacaville.

"Our goal for the next three years is acquiring two more locations – one in Marin (County) and another in the East Bay area (of San Francisco)," Mark says. "We also want to achieve \$25 million in gross sales."

No matter where the company expands, though, one thing is certain: Polite, well-groomed, uniformed technicians in spotless trucks will knock on customers' doors, making a good first impression. **C**

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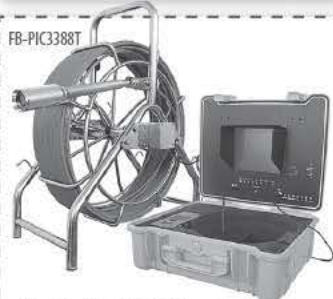
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BREAKFAST ROUNDTABLE DISCUSSIONS GIVE BUSINESS OWNERS AND MANAGERS A CHANCE TO NETWORK WITH PEERS AND SHARE IDEAS ON A HOST OF TOPICS

BY JIM KNEISZEL

For Kenney Lee, there's no better way to get a business boost than to network with fellow attendees at the Pumper & Cleaner Environmental Expo International. And his favorite way to hook up with industry peers is the Expo's Breakfast Roundtable Discussion.

You'll be sure to find Lee, owner of Metro Septic in Cartersville, Ga., at the restaurant area of the Indiana Convention Center on Thursday, Mar. 1, 2012, as he intently listens to the advice of other industry professionals. Lee says the small group sessions are a great way to test new ideas for his business. Running from 8 to 10 a.m., the roundtable discussions will feature topics of interest to a variety of Pumper & Cleaner Expo attendees.

"To sit at a table and talk with guys who've been doing this work for 40 or 50 years, and with their sons who have been working 20 to 30 years, you can't really put a price on that. It's priceless," Lee says. "In the future, my company will be a better and stronger company from what I learn at these roundtable discussions."

FREE TO SHARE

The roundtable discussions are indispensable because they link contractors from across the country to share best business practices and industry-specific technologies, Lee explains. Because Lee and his breakfast tablemates aren't

direct competitors, there is a free flow of information and advice that proves invaluable.

For example, Lee went into the 2011 Expo Roundtable Discussions with a plan to start processing the septage he collects. Talking to contractors who had set up their own dewatering facilities, Lee was steered toward a system that ended up costing a fraction of what he was expecting to pay. He also collected business cards from several other business owners who offered follow-up help in putting the system together.

"I could have spent thousands of dollars to figure out how to make the processing work. But you don't have to spend thousands of dollars when somebody tells you how to do it for free," Lee says. "I could sit down with somebody who was in my shoes and told me the best way to do it."

Keith Kirkman, of Kirkman's Plumbing & Eel Service, Inc., Greenville, Ohio, says the informal setting is what makes the roundtable discussions so successful. Participants feel freer to chime in with their opinions than they do in larger group seminars. Contractors are able to bring up any topic that interests them.

"They aren't afraid to stand up and say something that they might not say to a full room," Kirkman says. And when folks at the Expo talk, Kirkman says he's going to listen.

"To me, people who go to the Expo are the leaders of the industry," Kirkman says. "They recognize how much the Expo helps them and that's who's at these roundtables."

Leading up to the Expo, organizers will gather topics of interest to roundtable participants. These may run the gamut from marketing through websites to use of a variety of technologies across the wastewater

industry. Tables will be organized by topic and attendees will be able to rotate from one table to another to take part in a variety of discussions. Each discussion will be moderated by a table leader who will take notes and summarize the comments at the end of the roundtable.


PRACTICAL KNOWLEDGE

Jim Anderson, the education coordinator for the National Association of Wastewater Transporters, moderated a roundtable discussion on customer service in 2011. He was impressed with the free exchange of ideas and thought the participants walked away with a lot of practical knowledge about what works and what doesn't.

Anderson said the give-and-take was significant compared to the feedback he gets as an instructor in more formal education settings.

"If you think about Education Day, there's 150 to 300 people in a session. To stand up in the middle of that and share is very difficult for most people," Anderson says. "But when you're sitting over breakfast, you just talk about those things that are important. It's really a good way to talk to the folks who are struggling with the same questions and challenges you are and hearing how they're dealing with them."

Like every year, Lee is going to walk the Expo exhibit floor and marvel at the latest trucks and greatest technology the industry has to offer. He'll attend Expo Education Day and learn as much as he can to improve his business. And you can bet the young business owner will be at the breakfast roundtable discussions, bright and early.

"I hope to be one of those guys in 20 years sharing my advice," Lee says. "I'd like to be able to tell them how I built an empire from what I've learned here." 



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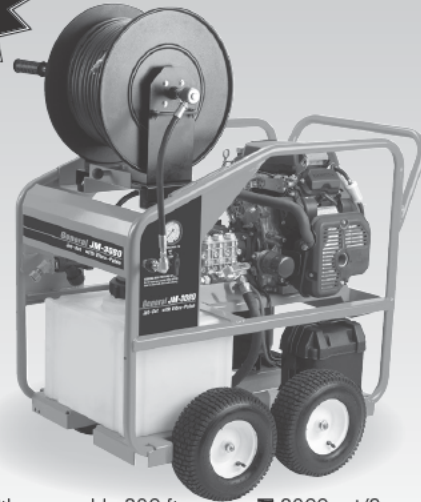


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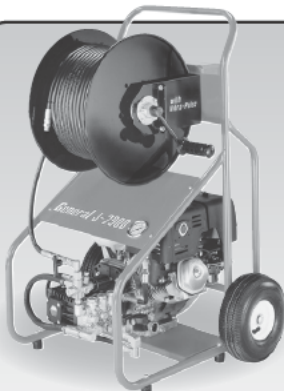
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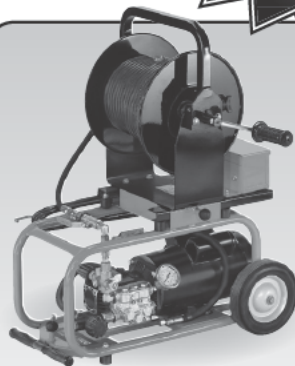
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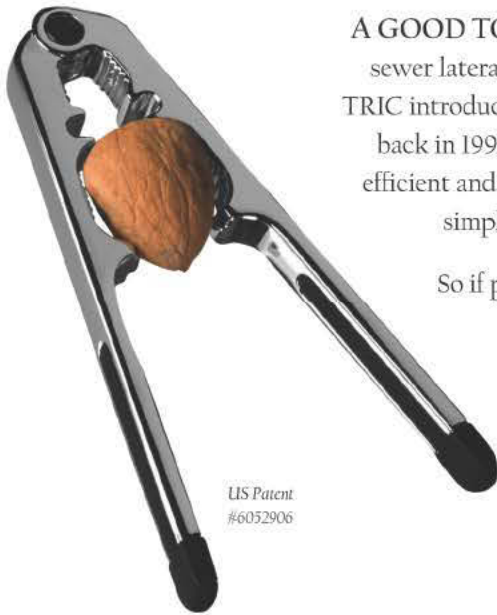
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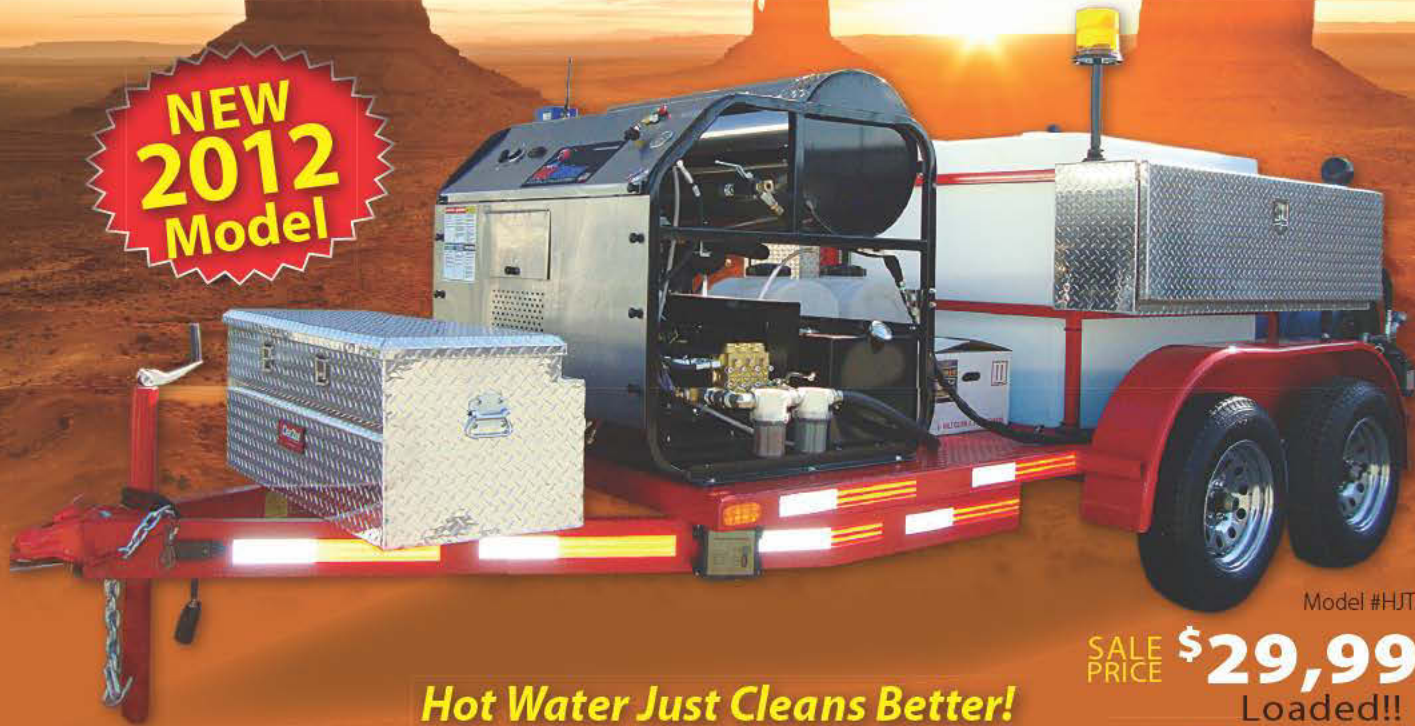
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profile

BLOOD HOUND UNDERGROUND UTILITY LOCATORS OF BROWNSBURG, IND.



PRESIDENT: Mark A. Mason
 FOUNDED: 1999
 EMPLOYEES: 40
 SPECIALTIES: Underground utility location and damage investigation
 SERVICE AREA: U.S. and Canada
 AFFILIATIONS: The Common Ground Alliance, National Utility Contractors Association, National Utility Locating Contractors Association, The Indiana Damage Prevention Council, Indiana Underground Plant Protection Service, Southwest Ohio Utility Safety Council, The Greater Dayton Ohio Utility Council, Ohio Utilities Protection Service, KY BUD
 WEBSITE: www.BHUG.com



Utility locating specialist Dwayne Ware of Blood Hound Underground Utility Locators uses the Sensors & Software Noggin ground penetrating radar (GPR) unit. (Photography by Doug McSchooler)

SUBTERRANEAN SUCCESS

BLOOD HOUND UNDERGROUND CARVES OUT A NICHE IN UNDERGROUND UTILITY LOCATION

BY PETER KENTER

Blood Hound Underground lives up to its name as a company that provides just one service – underground locating. President Mark Mason’s credo: “If you do one thing, you’d better do it extremely well.”

The company has maintained its reputation through rapid expansion by investing in technology, employing rigorous training and quality control programs, and focusing on the safety of its employees.

(continued)

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Mason started in the business at the age of 19 as a technician with a company that offered contract locating services. He eventually wound up as a district manager in a locating firm, where he noticed the private locating market was underserved.

"When the parent company closed in 1999, I was the first person in management to be let go," Mason said. "I was a technician first and a management type second. I used my lump sum severance payment to buy an electromagnetic (EM) locating system. Private utility locating is a low-margin service for those companies who don't specialize in it. By specializing, I believed I could make a profit."

"We often get a client asking us to locate a sewer or a waterline. Once we start, we might ask them whether they'd like us to map the fiber optic cable running alongside it. That usually gets their attention."

Mark Mason

Mason founded Blood Hound that same year in Brownsburg, Ind., just west of Indianapolis. He says he invested particular effort in selecting the company name.

"It not only has to be catchy, it has to tell the customer exactly what you offer," he says. "You want a name big enough to grow with the company."

Most municipalities have "one-call" phone numbers designed to provide the location of utilities. "But their assistance ends on private property," he says. "You usually won't get enough information that you would risk a lawsuit or accident going forward."

A NOSE FOR MYSTERY

While Blood Hound Underground promotes its utility locating services, the company occasionally uses ground penetrating radar (GPR) to find something it didn't quite expect.

"We were once called to a commercial facility where we expected to find underground storage tanks," says company president Mark Mason. "We wound up finding a series of buried railroad cars. Nobody could think of a reason for them to be there."

Mason also accepts occasional offbeat assignments. Among its nonutility clients, police departments and treasure seekers.

Blood Hound recently assisted the Dayton Police Department in Dayton, Ohio, looking for a possible grave in a murder investigation. "We did two searches for Dayton," says Mason. "Neither turned up evidence, but we helped eliminate possible areas so police could continue to focus on other leads."

The company also helped to locate human remains in a forgotten cemetery in Fortville, Ind., after grave markers were accidentally bulldozed.

"We were once approached by a woman whose father had passed away," says Mason. "She believed that he had money buried in the backyard. We found five potential targets where we saw that the ground had been disturbed. She never told us whether she found any money, but we believe we were on target."



Nick Mason uses a vLocPro locator from Vivax-Melrotech to locate the sewer line coming from a home in Plainfield, Ind.

Mason says he initially drove around to drum up business, offering EM services. "If I saw a guy with a backhoe, I would hand out a business card," he says. "The work just began to compound from there."

EM LOCATING PROVIDES BUSINESS BASE

EM locating involves using a transmitter to induce a signal into the actual utility conduit – pipe or wire – then following that signal along the ground using a receiver.

Blood Hound contracts range from locating the water, wastewater and fire protection system lines in a large manufacturing concern or university campus, to finding electric conduits in a shopping center parking lot. Clients include municipalities, engineering firms, property managers, excavating companies and environmental remediation firms.

About half the company's contracts involve private sewer and waterline locating. Often the work is subcontracted by private companies, engineers, or construction companies assisting public utilities.

Sometimes clients get more than they're asking for.

"We often get a client asking us to locate a sewer or a waterline," says Mason. "Once we start, we might ask them whether they'd like us to map the fiber optic cable running alongside it. That usually gets their attention."

EXPANDING OUT OF STATE

Mason expanded out of state with a call from Delta Environmental Consultants Inc., (now Antea Group) in Novi, Mich., in 2002. "They were doing environmental work for BP and needed private locating done," says Mason.

Initially Mason worked the contract, but then sent his first employee, his father Robert, a retired firefighter. A year later, Mason hired his brother and eight family members.

(continued)



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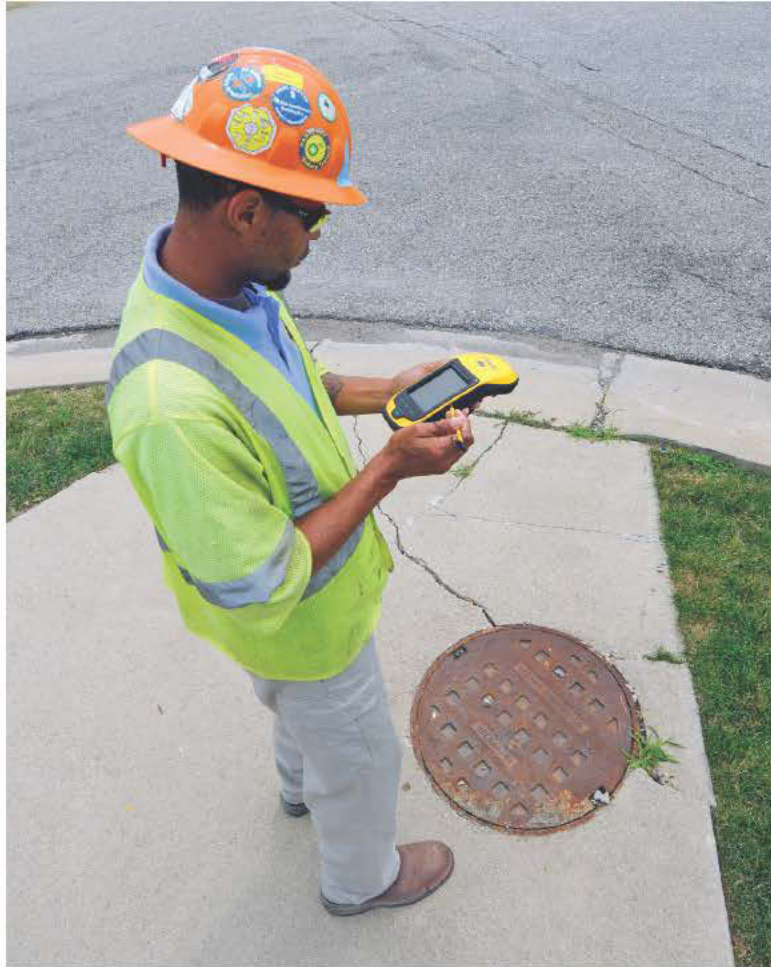


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Above: Utility locating specialist Dwayne Ware catches underground data with the Trimble GeoExplorer 6000. Right: Ware gets the Sensors & Software Noggin ground penetrating radar (GPR) unit ready for a job.

The company has since expanded to include five locations, including Cincinnati, Knoxville, Fort Wayne, and Indianapolis, and service is offered nationwide. Blood Hound has worked contracts as far away as California, Nebraska, Texas, New York City and Canada. All work is done using ground vehicles from one of the five offices.

“We carry so much equipment, we need to drive everywhere,” says Mason. Vivax-Metrotech Corporation supplies most of the company’s EM loca-

“We recently completed a job in Manhattan locating lines buried in a concrete pier, and the client was shocked that we had gone through the expense of sending someone out to double-check the work.”

Mark Mason

tors, an inventory of about 100 units. Blood Hound also assisted South Carolina-based Jameson LLC to develop a fiberglass rodder with a built-in metal tone wire to assist with EM locates on plastic gas and sewer lines that would otherwise be invisible. The tone wire rodder has a range of either 500 or 750 feet, depending on which model is used.

Early on, Mason experimented with the range of equipment and ancillary services he offered.

“For the first few years we offered excavation and sewer and waterline repair,” he says. “I eventually asked myself why I was in the excavating business, competing with people who were beating up on each other on low profit margins. Our resources were better spent closer to our core business.”

FIVE-POINT SERVICE MENU

Eventually, Blood Hound settled on a list of services that include:

- EM
- Ground penetrating radar
- Vacuum excavation
- Global Positioning System (GPS)/Geographical Information System (GIS) mapping
- Closed-circuit television (CCTV) inspections

Ground penetrating radar (GPR) is used to find utilities that are untraceable or have no direct access. Among the targets of the technology are underground storage tanks, plastic sewer and waterlines, septic tanks and anything missed using EM.

GPR allows for real-time visualization of subsurface features. Blood Hound’s inventory includes 30 to 40 GPR units.

“We use MALA GeoScience units for day-to-day work, US Radar for intermediate work and Sensors & Software for more advanced and finicky work,” says Mason.

More recent models feature larger wheels and an independent suspension to allow for more effective surveys over rough terrain.



“Knowing the limits of EM and GPR to determine an exact depth, we will hydroexcavate, usually to between five to eight feet down, especially around highly sensitive utilities like high-pressure gas lines,” says Mason. The company also offers air-knife excavation and employs three Ditch Witch vacuum excavators.

After capturing location data, Blood Hound can create a permanent GPS or GIS record of utility locates. The data can later be used to produce maps or be incorporated into the client’s computer location database. Typically, technicians employ Trimble GeoExplorer series data recording units with exterior antennas from Trimble Navigation Limited.

Blood Hound uses fiber optic reel-mounted CCTV cameras as well as robotic-mounted cameras to televise underground utilities from 1-inch conduits to 60-inch storm sewer lines to a range of up to 500 feet. The company features cameras by RIDGID and Vivax-Metrotech in tandem with a radio-frequency locator that pinpoints structural faults and other problems.

“We used the cameras extensively when we worked on preconstruction for Lucas Oil Stadium in Indianapolis,” notes Mason. “We pushed the cameras through every kind of duct and conduit leading from the construction site to see which were usable and unusable.”

Recognizing that various clients require different ranges of services, Blood Hound offers tiered pricing packages. Tier 1 pricing applies to residential customers requesting EM locating only, while Tier 2 pricing is based on the individual services ordered.

(continued)

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Company president Mark Mason opened Blood Hound Underground in Brownsburg, Ind., in 1999.

Tier 3 offers pricing based on a flat rate, including EM, GPR and CCTV service. “At this level, we offer limited liability to the customer,” says Mason. “If we overlooked something we will take care of it. However, if we aren’t given full access to the utility chase and damage occurs later, what happened will be open to interpretation. In Tier 4 we offer the same services and accept liability to \$10,000 for repair of damaged utilities, subject to the terms of contract.”

MOST TRAINING DEVELOPED IN-HOUSE

The company prides itself on thorough training, with all technicians certified at Staking University in Manteno, Ill., a training facility for subsurface utility locating practices. However, most of the company’s training is so specific that Blood Hound generates about 90 percent of its own training materials.

“Part of our training involves taking technicians to different customers so they can understand the infrastructure and how it changes from a water purification facility to a force main sewer to a nuclear power plant,” says Mason. “At an airport, for example, they have a lot of icing problems. When the water is captured after de-icing they have a special storm system of valves and conduits that our technicians need to understand when performing a locate.”

Safety training includes OSHA 30-hour construction safety, 40-hour Hazardous Waste Operations and Emergency Response (HAZWOPER), work zone traffic, confined-space training, defensive driving, electrical safety, and emergency action planning. The training has helped to develop business relationships with companies where contractor safety is critical.

Auditing of the company’s own work is handled in-house by a quality assurance manager. One team member is assigned to about 10 technicians to check a percentage of locates and ensure all paperwork has been filed correctly.

“We recently completed a job in Manhattan locating lines buried in a concrete pier, and the client was shocked that we had gone through the expense of sending someone out to double-check the work,” says Mason. “If there’s a problem, we make it right. We track the reports and look for trends, either in equipment, software or individual technicians, to see how we can improve the final product.”

Mason pays particular attention to his company website, where he can make a good first impression on clients. “You want a professionally prepared site to let the customer know that you’re a professional company,” he says.

The bloodhound motif is featured prominently – you can even hear it bark – but that’s just window dressing. The site acts as both a sophisticated online work scheduling tool and educational resource. Clients can select service appointment dates online. A series of videos explain the technology

the company uses and how that technology can work for customers.

“We’ve put a lot of work into the videos,” notes Mason. “We want to show the customer that we’re embracing advanced technology and we update the videos regularly so there’s always something new on the site. Our technicians will often pull out an iPhone, Droid or iPad in the field so they can provide customers with all the information available to make an informed decision about which solution to choose.”

THIRD-PARTY EXPERTISE

The company launched a subsidiary, Utility Damage Investigations Inc., in 2003. It employs four in-house experts who specialize in third-party utility damage investigations and expert witness services.

“You’re a contractor installing a water main and you damage a fiber optic telephone cable conduit that was mismarked,” says Mason. “You receive a bill for \$50,000 in damages and suddenly we’re in a legal debate about who is responsible. The contractor will need to mount a defense, but quite often even the photos used as evidence will be shot at angles that benefit the party who took them. As the investigator, we’ll investigate impartially, discover the root cause of the damage, and tell the client whether we believe they’re at fault. If they are, we’ll try to mitigate their costs.”

UDI also audits out-of-house locating services, usually for municipal utility companies.

CUSTOM SCHEDULING SOFTWARE

The company uses Enterprise Resource Planning software developed in-house from the ground up to allocate human and material resources across all regions. Technicians can be cross-referenced according to their capabilities and safety training. The software is part of the company’s two-year plan to go completely paperless.

Blood Hound continues to grow – it had record sales in 2009 and 2010, difficult years for competitors. A dedicated sales force, including a manager of business development, helps to keep the company busy.

“We are planning for continued growth, as long as we can maintain our level of service quality,” says Mason. “It takes a year or two of training to get our technicians to fully wrap their heads around what they’re doing. Of the 10 we hire, we might keep three or four. We don’t want to grow unless we know we’re sending out the best of the best.” c

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INDUSTRIAL CLEANING SYSTEM HELPS A CONTRACTOR TACKLE ITS TOUGHEST JOBS

BY KEN WYSOCKY

Like most contractors, Antone Belcher has a favorite tough-job-ever story. But these days, the assistant operations manager for Texas-based AIMM Technologies is looking for a new one, thanks to the Armadillo industrial cleaning system made by Aqua Sales.

The tube-cleaning system effectively tamed what used to be a bear of a job: the annual cleaning of a heat exchanger located at a small crude-oil processing facility on Alaska's North Slope.

"On a scale of one to 10, this job is a 35," says Belcher. "The scale that builds up inside (the heat exchanger tubes) is one of the thickest, hardest and toughest materials I've ever come across in my industrial cleaning career."

"Then we tried the Armadillo. It still took us about two and a half weeks, but the Armadillo thoroughly cleaned every tube. It hasn't met a tube on that exchanger that it couldn't unplug ... it cleans them spotless."

Antone Belcher

The processing facility is located on a drilling site owned by a major oil company. Because the crude oil produced there is too thick to pump to a nearby processing facility, it must first go through a separation process that includes a tube-and-shell heat exchanger.

By removing nonoil products – such as water, gases and sand – the process renders the crude suitable for pumping. But it also does a number on the exchanger's 1,350 tubes, which are 55 feet long and 1 inch in diameter.

"Sometimes up to 400 of the tubes are totally blocked," Belcher notes. "And on average, the majority of them are 70 to 75 percent blocked. The first two times we cleaned it, we used our patented hydrokinetic technology, which



The Armadillo industrial cleaning system jets out a 55-foot-long, 1-inch diameter tube on a heat exchanger at a crude-oil processing facility in Alaska.



The Armadillo industrial cleaning system by Aqua Sales has allowed Texas-based AIMM Technologies to handle one of its most difficult cleaning jobs far more effectively.

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COST:	\$50,000 - \$75,000

took us about two and a half weeks, working 12-hour shifts a day. But we still weren't able to clear all the tubes.

"Then we tried the Armadillo," he continues. "It still took us about two and a half weeks, but the Armadillo thoroughly cleaned every tube. It hasn't met a tube on that exchanger that it couldn't unplug ... it cleans them spotless."

That's important because cleaner tubes stay in service longer before scale builds up and causes the exchanger to lose heat efficiency, he notes.

Aimed at the petrochemical, paper and other heavy-industrial manufacturing sectors that use heat exchangers, the Armadillo system features remote-control operation. It allows operators to turn the water on and off, and control the nozzle/hose revolutions (10 to 375 rpm) and the insertion and regression speed. It can handle tubes from 1/2 inch in diameter and up, and generates 20,000 psi at 23 to 24 gpm.

An indexer, a component that guides the high-pressure rotating hose/ nozzle into each tube, includes independent drives that allow the operator to exactly align the traveling head with each row of tubes, which increases cleaning efficiency and tube travel time. The indexer is easy to set up and tear down, requiring no tools.

Along with superior cleaning ability, Belcher says the Armadillo offers another huge benefit: increased job site safety.

"It takes the high-pressure water stream out of the hands of the individual operating the system," he points out. "That drastically reduces the chance of the operator being cut by high-pressure water, or the lance coming back out of the tube at them."

In addition, the Armadillo reduces operator fatigue, requires less people on a job site and improves productivity because it can work up to 40 to 50 percent faster than manual cleaning, according to Aqua Sales officials.

"It takes the high-pressure water stream out of the hands of the individual operating the system. That drastically reduces the chance of the operator being cut by high-pressure water, or the lance coming back out of the tube at them."

Antone Belcher



The Armadillo system features remote-control operation, which allows operators to control the water supply as well as the nozzle/hose revolutions and the insertion and regression speed. The remote operability also improves safety.

"Ever since we bought the machine more than a year ago, it has opened up additional work that we couldn't pursue before," Belcher adds. "For instance, before we bought the Armadillo, we couldn't get some equipment clean enough for IRIS (Internal Rotational

Inspection System) inspections, especially in older tubes with a lot of pitting."

AIMM bought the Armadillo system more than a year ago, and overall, Belcher says it was a sound investment. The unit has not only paid for itself, it has opened up new markets AIMM couldn't pursue before.

"Initially we brought it in for the one application in Alaska ... and it did exactly what they said it could do," he says. "It amazed and impressed me, because I had dealt with this (scale) material for two previous years and I knew what to expect. It made a believer out of me. It was worth the investment if we use it just for that one job each year.

"The exchanger runs better now than it ever has, so our customer is happy, too," he adds. "And if they're happy, we're happy." **C**

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Great Technology Doesn't Run Itself

PEOPLE ARE THE MOST IMPORTANT COMPONENT OF A COMBO TRUCK

BY JIM AANDERUD

The pipeline cleaning industry has become a very competitive business. New companies are constantly emerging while established companies scramble to maintain their market share. Companies that thrive have established themselves as industry leaders and maintain a steady workflow because of the demand they have created for their services.

Understanding the roles that personnel play within a company is the first step in building a strong organization. We often think of the combination unit operator as the key figure in the cleaning business. As important as that role is, a support staff that sets up and oversees the cleaning operation is just as important.

THE OPERATOR

I once worked for a company whose only criteria for hiring a combination unit operator was that they have a class A or B driver's license. They were thrown into the field to clean pipe with minimal training. Naturally, they did the only thing they knew how, which was to run the nozzle all the way out to the manhole, bring it all the way back, and then move on to the next section.

Not only were the lines not being cleaned, the results were often severe sewer overflows. Instead of removing material, operators were dislodging root balls and grease that created blockages downstream.

Such things happen when companies fail to provide adequate training. New employees are often sent into the field to train with an existing operator. If that operator is incompetent, then they will be training another incompetent operator. If a skilled trainer is not available in-house, then one must be found elsewhere.

Pipeline cleaning is a precise art that requires a unique set of skills. Operating a combination unit requires physical exertion, so the operator must be physically fit. In many ways, it is a young person's job. That doesn't mean that older people can't operate successfully. Many do superb jobs every day, but at some point it becomes very difficult to keep up with the demands that a combo unit places on the body.

Successful cleaning companies find the right operators for the job. They look for people who are creative and have can-do attitudes. They employ individuals who are teachable and take pride in what they do. They take someone with the right set of tools and invest heavily in their training. Their ability to clean pipelines can make or break a company.

An area that is often neglected is the appearance of the crews. Just because they work around sewage and get dirty doesn't mean appearance isn't important. Yes, they get dirty, but they must show up for the job looking clean and professional. First impressions count, and they can be difficult to overcome.



Austin Welch operates a combination unit. Operating a combination unit requires physical exertion, so the operator must be physically fit. (Photos courtesy of Innerline Engineering)

"You can plan as much as you want, but when you get on site, things can be a lot different. Management's involvement prevents disasters by identifying problems, finding solutions and pacifying the customer."

Bill Houser, vice president at Innerline Engineering

THE EQUIPMENT

A combo unit is a delicate piece of equipment that requires a lot of maintenance, some of which must be performed daily. The need for consistent, thorough and meticulous maintenance must be ingrained into operators. Cut corners, and the unit will break down sooner or later.

Reliability is indispensable to a top-rated cleaning company. Customers place their trust in them to not only be there when they say they will, but to get the job done right and on schedule. If the equipment is not being maintained properly and breakdowns prevent successful completion, the trust in the company will be seriously compromised.

Emergency response is another critical role for pipeline cleaning companies.



Austin Welch, left, cleans a section of pipeline while Jake Zeigler verifies cleaning with a CCTV camera. Successful cleaning companies find the right operators for the job. They look for people who are creative and have can-do attitudes. They employ individuals who are teachable and take pride in what they do.

Bill Houser, vice president at Innerline Engineering, believes his company's status would not be what it is without direct management oversight.

"More often than not, a cleaning job will throw you a curve," he says. "You can plan as much as you want, but when you get on site, things can be a lot different. Management's involvement prevents disasters by identifying problems, finding solutions and pacifying the customer."

It is not uncommon for companies to rely on the combination operator to fill this role. Operators should stay in the field cleaning pipelines and

When sewage is gushing out of a manhole and flowing down the street, there is little room for error, so the equipment must be in tip-top shape and ready to roll at a moment's notice.

PROPER TOOLS

Looking into the toolbox of a combo unit can be very telling. Too often, nozzles are poorly maintained. Quality cleaning companies invest heavily, not only for new nozzle technology, but to keep them in good condition.

Duane Johnson, vice president at Affordable Pipeline Services in San Diego, often states during his training sessions that "a truck should carry at least 10 different nozzles. This will ensure that the right tools are available in order to effectively clean pipeline in 90 percent of the situations."

Nothing will hurt a company more than showing up to a job unprepared. If the right tools are not on the truck, or if they are poorly maintained, the work cannot be completed properly.

MANAGEMENT ROLE

Communication with the customer is one of the most significant components of doing business. Communication is critical to each project and helps build a foundation for long-term relationships with customers. The customer's needs must be plainly defined and their expectations clearly understood. Knowing the expectations and meeting them consistently is what defines success.

Quality cleaning companies excel in this area, and they do it by assigning someone to oversee the projects in order to ensure success. These individuals are capable of communicating on both a technical and personal level, and are able to contribute creatively to the project.

Ideally, a person in management should fill this role. Dealing with someone with decision-making powers will impart confidence to the customer. This individual should have a strong industry background, be personable and be able to think outside the box. Coming up with creative and cost-effective ideas to get the project done is what sells. The right person will solidify the relationship with the customer.

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generating income for the company. Putting them in a dual role will guarantee that neither role is performed adequately. They will not be able to give the customer their full and undivided attention and they will be distracted while cleaning.

FEEDING THE BOTTOM LINE

The media has demonized the word "profit" in recent years. But it is the lifeblood of our ongoing success. A string of financial losses could put any company out of business. Projects must be quoted properly without sacrificing the profit margin. Competition often forces us to bid projects lower than we would like, but we must never compromise on profit. Bidding a job just to "keep the guys working" is a recipe for disaster.

Breaking even is never that, it is always a loss. A company must make a profit so that it can upgrade equipment, invest in new nozzle technology or even purchase a new combination unit.

Becoming an industry leader isn't easy. It takes a lot of determination and hard work, but the effort to get there is worthwhile and will ensure steady work and growth for years ahead.

Leaders don't stumble to the top; they attain their status because they work hard at all aspects of their business. They have taken conscious steps, sometimes with great difficulty, to reach the point where they look good and perform well. They have worked hard at projecting an air of confidence and competence and are able to back it up with superior work. These companies rarely lack for work because they are always in demand. **c**

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Lower Your Property Taxes

WITH PROPERTY VALUES DOWN IN SOME AREAS, APPEALING YOUR VALUATION COULD LOWER YOUR TAX BILL

BY FRED S. STEINGOLD

Property taxes are always higher than you'd like, and these days, because real estate values have fallen in many cities, the taxes may seem especially excessive. Fortunately, it's often possible to get relief.

It's more common for property owners to take action to reduce the taxes on their homes, but commercial property is usually taxed under the same rules as homes. If you own the building in which you do business, it's worthwhile to look into a possible reduction in taxes. And if you're a renter who pays some or all of the property taxes, you or the landlord may be able to achieve some savings.

Typically, the local municipality levies property taxes based on the laws in your state. The procedures vary but, normally, the process begins with the local tax assessor determining the market value of your property. Then, the property value is multiplied by the tax rate (or "millage") to set the amount of your tax bill.

As an individual, you can't do anything to change the tax rate. You may, however, be able to reduce the assessed value of your property. If you succeed, your tax bill will be lower.

It would be ideal if the tax assessor updated property values each year. This usually doesn't happen. The assessor may only review your property once every two or three years. This means that your tax bill may reflect what your property was worth two or three years ago. If property values in your community dropped 20 percent in the last two years, you may be taxed based on outdated information.

Tax assessment records are public. In some communities they're available online. If not, you can go down to city hall to see the records for your property. You may find that the records contain wrong information. Maybe the assessor has listed more square footage than your building actually contains, or perhaps has incorrectly stated the age of your building or the type of construction.

Errors such as these can lead to an inflated valuation, meaning that your taxes will be too high. With errors of this sort, you can often get a lower valuation by simply talking to the assessor and pointing out the errors.

MARKET CONDITIONS

Beyond factual errors, the assessor may not be up to date on current market conditions for your type of building in your community. You'll need to do some investigating to demonstrate current market conditions. You may need some professional help to ferret out the data.

You want to gather information about what buildings similar to yours have sold for in the last six to 12 months. While there's probably an abundance of data available about home sales, the same won't be true about commercial buildings. There are fewer commercial buildings being sold than homes.

It may be worth hiring an experienced commercial appraiser or real estate broker to help you gather the information and build your case for a lower valuation.



Fred S. Steingold practices law in Ann Arbor, Mich. He is the author of Legal Guide for Starting and Running a Small Business and The Employer's Legal Handbook published by Nolo. Legal strategies may vary depending on the state in which you live and the specifics of your situation. See your lawyer for legal advice.

If you produce convincing data, the assessor may reduce the valuation. Unfortunately, however, many cities today are facing tough budget problems. The assessor should be objective in determining property values, but may be reluctant to take a step that will reduce tax revenues.

TAKING AN APPEAL

The assessor doesn't have the last word on the subject. In most states, you can appeal the assessor's valuation to a local review board. Check on when the board meets and the cut-off date for filing an appeal. If you miss the deadline, you'll probably be out of luck for the current tax year.

If you didn't use an appraiser or broker to help you in discussions with the assessor, consider hiring one to help you prepare your appeal. Some lawyers also do this kind of work. An experienced professional will often make the difference between winning and losing your appeal.

You'll probably submit a written petition that contains the evidence supporting your appeal. Then you'll be scheduled for a face-to-face hearing before the appeal board. If you've hired a professional to help you prepare your appeal, you can bring him or her along to speak for you at the hearing.

Within a few weeks after the hearing, you'll get a written report on whether the appeal board reduced your valuation, and by what amount.

If you're not satisfied with the result, you can usually go to a state-level board or commission to challenge the valuation. Again, there will be a strict filing deadline. If you miss it, you'll be stuck with the valuation until next year.

One final tip: Do the math before you spend a lot of time pursuing a tax reduction or hiring a professional. Make sure that the ultimate savings are worth your while. You don't want to spend hour after hour digging up data or pay a thousand dollars to a professional if the most you can realistically save on taxes is just a few hundred dollars.

On the other hand, if you feel you have a shot at significant savings, it's usually worth spending time – and even investing money – to seek a reduction in your tax assessment. Many owners have embarked on such a quest with success. **c**

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The museum's collection includes works by Winslow Homer, George Bellows, LeRoy Neiman and Ogden Pleissner. Sports legends represented include Johnny Unitas, Joe Louis, Michael Jordan and Bob Cousy. The museum also includes a few paintings created by celebrities, such as Muhammad Ali.

The collection is exhibited in the public spaces of University Place Conference Center & Hotel on the downtown campus of Indiana University-Purdue University Indianapolis. Visit www.namos.iupui.edu.

FINER THINGS

For those who enjoy wine, fine food, and maybe a celebrity sighting, it's worth a visit to **Tastings, A Wine Experience**, four blocks from the

Convention Center at 50 W. Washington St. Voted the best wine bar in Indianapolis, **Tastings** has a unique bar and bistro concept where guests can try more than 100 wines from around the world by the taste, glass or bottle. The menu includes artisan cheese plates, flatbread pizzas, gourmet sandwiches and salads, bistro plates and fine desserts. Visit www.awineexperience.com.

SHOPPING

One of Indianapolis' six cultural districts, the five-block **Mass Ave Arts District** is filled with theaters, restaurants, art galleries and, most of all, eclectic independent boutiques. Unique finds await on each block, from Stout's Shoes (the nation's oldest shoe store, established in 1886), to Silver In The City/At Home In The City (offering silver jewelry and unique gift items), to The Best Chocolate In Town. The district is on the angled area of downtown, a two-minute cab ride from the Convention Center at 339 Massachusetts Ave. Visit www.discovermassave.com.


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Harry & Izzy's, downtown at 153 S. Illinois St., one block from the Convention Center,



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The **Indianapolis Museum of Art**, one of the nation's largest and oldest general art museums, has a collection of more than 50,000 works from a variety of cultures and periods in history. It also provides national and international traveling exhibitions. The 152-acre grounds include the Virginia B. Fairbanks Art & Nature Park, an urban oasis with 100 acres of woodlands, wetlands, a lake and meadows. Admission is free. The museum is located at 4000 Michigan Rd., 10 minutes from the Convention center. Visit www.imamuseum.org. 

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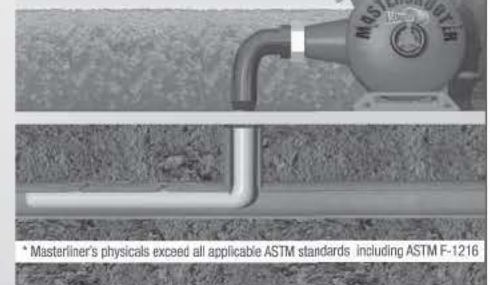
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Twists and Turns

AN ADVENTURE IN TEXAS GETS A RESTAURANT BACK IN OPERATION

BY SCOTTIE DAYTON

A leaking 4-inch HDPE gas line under the main access road between an office building and parking garage at The Towers at Williams Square in Irving, Texas, posed a big problem for a restaurant operating in the building. With no gas, the restaurant had to hire caterers to provide food, so the staff was anxious to have repairs finished quickly.

Atmos Energy shut off the gas on a Thursday afternoon and the building engineer called plumbing contractor Robert Barones, owner of ARJ Plumbing Services in Fort Worth. Open-cutting would have taken too long, but Barones lacked the equipment for pipe bursting. Needing help, he called John Newell, owner of DigTec in Dallas.

"We arrived Friday morning and Robert asked if I could have the gas back on by 7 a.m. Monday," says Newell. "I said yes, because the pipe was supposed to run straight under the road for 400 feet."

It didn't, and Newell spent the weekend working around obstructions that turned the job into much more of an adventure than was originally anticipated.



HammerHead Trenchless Equipment representative Jeff Gabrielse shipped the poly pipe splitter, left, by overnight express.

SUBTERRANEAN SECRETS

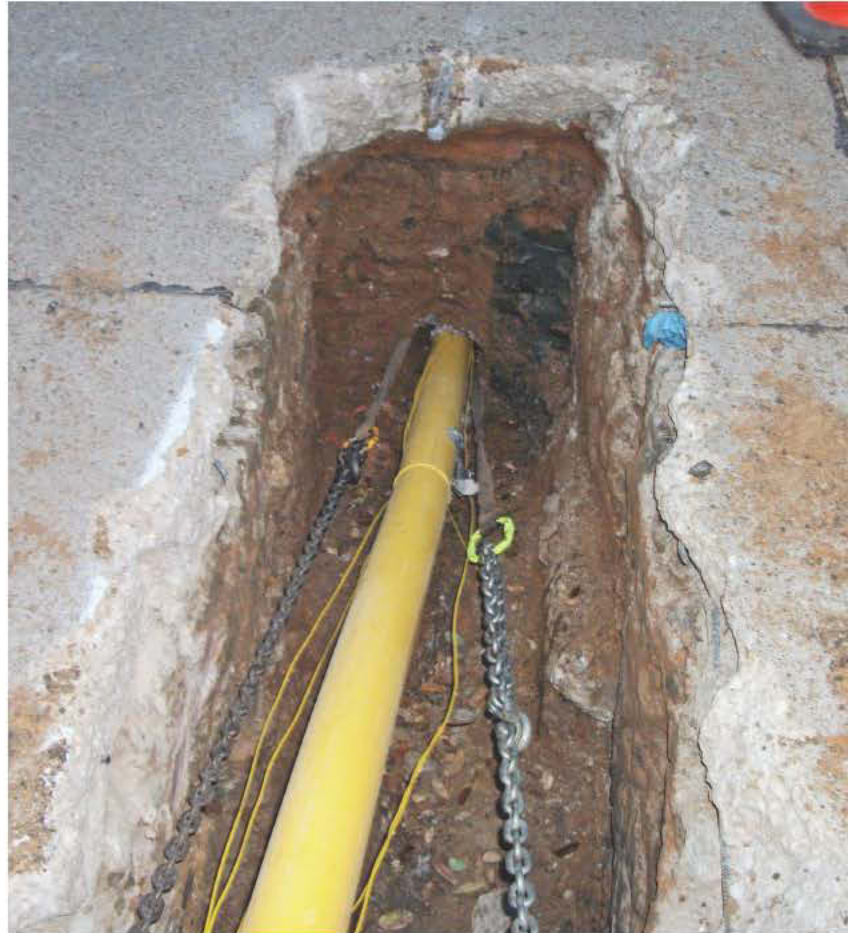
Newell had experience bursting short runs of gas pipe and knew the difficulty.

"Pulling poly pipe inside poly pipe creates friction, and the heat melts the materials enough to fuse them together," he said. "The correct bursting head would be crucial."

"Pulling poly pipe inside poly pipe creates friction, and the heat melts the materials enough to fuse them together. The correct bursting head would be crucial."

John Newell

HammerHead Trenchless Equipment representative Jeff Gabrielse shipped a poly pipe splitter by overnight express. After Newell's crew closed one of two traffic lanes, they tried pinpointing the pipe but received no signal from the tracer wire. They moved to the basement delivery area and located where the



The restraining system on the split host pipe included nylon straps shackled to a length of flat plate and grade 70 equipment boomer chains looped through metal rings on the straps. (Photos courtesy of DigTec, Dallas, Texas)

tough job

PROJECT:	Restore gas service to a restaurant in three days
CUSTOMER:	The Towers at Williams Square, Irving, Texas
CONTRACTOR:	ARJ Plumbing Services, Fort Worth
SUBCONTRACTOR:	DigTec, Dallas
EQUIPMENT:	PortaBurst PB30 lateral pipe bursting machine, HammerHead Trenchless Equipment 800/331-6653 www.hammerheadtrenchless.com
RESULTS:	Service restored on schedule

gas line for the restaurant came through the retaining wall. Using a Kent pneumatic jackhammer on the boom of a TB135 Takeuchi tracked mini excavator, they broke through the concrete road and excavated down to the pipe with a 24-inch bucket on a second machine. Spoil was stockpiled behind the building.

Meanwhile, Newell jackhammered and excavated the 5-foot-square by 4-foot-deep pulling pit on the south end of the road 30 feet from busy O'Connor Boulevard, then set up the PortaBurst PB30 lateral pipe bursting machine from HammerHead. ARJ workers assisted with the setup and controlled the steady stream of delivery trucks and traffic flowing off the boulevard. Newell also made one excavation on the north end to expose the gas meter connection on the corner of the parking garage.

"Our plan was to run the B.E.S. FiberSnake duct rodder through the gas line and pull back the 3/4-inch cable needed for the burst," says Newell. "At about 350 feet, the operator hit an obstruction."

(continued)

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ABOVE: The 350-foot-long replacement pipe snakes over the top of the grease interceptor and under the pickup truck to the entry pit. BELOW: Workers use a self-propelled Core Cut concrete saw from Diamond Products to square excavations in preparation for pouring concrete.



After marking the distance on the concrete, they hammered and dug until they uncovered a 90-degree elbow and the broken end of the tracer wire. With no idea of what they were up against, the crew chased the line with the two machines.

“Every time we thought we had the pipe going straight, we’d send in the rodder and it hit another elbow,” says Newell.

Two 90-degree bends, two 45s and 75 feet later, the pipe straightened out for the last 35 feet.

“Every time we thought we had the pipe going straight, we’d send in the rodder and it hit another elbow.”

John Newell

“Someone had rerouted the gas line around a grease interceptor and several fittings were leaking gas,” says Newell. “The detour created an 18-hour day.”

STRAP THE BAD BOY DOWN!

Saturday morning, the crew continued excavations including the entrance pit behind the interceptor, and installed hydraulic shoring as needed where the line went through the basement wall. They also fused 40-foot sticks of 4-inch HDPE gas pipe while waiting for the splitting head to arrive.

“We had to keep the parking garage access open for the office personnel working that day,” says Newell. “ARJ assisted and directed traffic again, but we mainly had the place to ourselves.”

The 350-foot straight pull began soon after the splitting head arrived. Even with the head traveling at 1 to 2 feet per minute and using a polymer lubricating system, friction heated the pipes enough to begin the bonding process. Within 50 feet, the new pipe developed enough drag in the host pipe to pull it along. The pull stopped while workers rigged a restraining system.

They drilled holes in each half of the split pipe, bolted a length of flat plate to them and shackled nylon straps to the metal. The other end of the straps had rings.

“We ran grade 70 equipment boomer chains through them, then attached the chains to the D-rings on the front of the Ford 550 pickup truck,” said Newell. “I reversed until it pulled hard against the pipe, then put the transmission in park and set the emergency brake.”

The pull resumed and took four hours. At times, progress stopped as the pull sucked in more host pipe.

“That made me nervous,” said Newell. “So I put my trust in the equipment, cranked the machine wide open and pulled at the maximum 30 tons.”

The effort even dragged the truck forward, but the pull was successful.

SERVICE RESTORED

The line around the interceptor had to be replaced by hand, but the backfill was unstable sandy clay soil. On Sunday, workers constructed hydraulic jack shoring before Newell squeezed his 6-foot, 3-inch, 230-pound frame into the trenches to weld the pipes and elbows using a McElory fusing machine. Meanwhile, workers open-cut and replaced the remaining 35 feet from the interceptor to the connection through the basement wall.

A city inspector arrived at 6 a.m. Monday, passed the work and notified Atmos Energy to turn on the gas. Service was restored before 7:30 a.m. The crew backfilled and compacted the holes with spoil, squared the excavations with a self-propelled Core Cut concrete saw from Diamond Products, and cleaned up. Tuesday morning, the cement mixer arrived to restore the street. By Wednesday, life had returned to normal for everyone at The Towers. ☐

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February 27th – March 1st, 2012

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Education Day

Monday, February 27th

SSCSC

Southern Sections Collection Systems Committee

- 8 a.m. Rust into Gold
- 9:30 a.m. Maintaining Collection System Easements
- 11 a.m. Sanitary Sewer Overflows: What To Do When It Is Flowing Down the Street
- 1:30 p.m. Finding Success and Growth in the Pipeline Cleaning Business
- 3 p.m. Evaluating and Optimizing the Efficiency of a Combination Truck
- 4:30 p.m. CCTV Inspection Essentials

NOWRA

National Onsite Wastewater Recycling Association

- 8 a.m. Aerobic or Anaerobic - Which One Is Better?
- 9:30 a.m. Mound Systems – Not Just for Wisconsin!
- 11 a.m. Dead Bacteria - How Overuse of Cleaners and Household Products KILL
- 1:30 p.m. Onsite Electrical
- 3 p.m. Managing Commercial Wastewater Treatments
- 4:30 p.m. Choosing the Right Float to Control Your Pump

NAWT

National Association of Wastewater Transporters

- 8 a.m. What I Need to Know About Trucking Safety
- 9:30 a.m. Setting the Dose, Establishing the Pump Delivery Rate & Relative Control Sensor Adjustment
- 11 a.m. Certification and Septic System Inspections
- 1:30 p.m. Is There Value in Processing My Own Sludge?
- 3 p.m. Maintenance Frequency Standards and Requirements
- 4:30 p.m. Working with Small Communities: System Management

NEHA

National Environmental Health Association

- 8 a.m. Promoting Competence: What's in It for Me?
- 9:30 a.m. Septic Tank Science
- 11 a.m. Advanced Treatment - What Does That Mean?
- 1:30 p.m. Successfully Dosing Pipe Networks
- 3 p.m. Pump Replacement
- 4:30 p.m. The State of the Industry: The Forecast, The Strategy, The Tools

NASSCO

National Association of Sewer Service Companies

- 8 a.m. Sewer Ops and CMOM - Leveraging the CMOM Process for Operational Benefit
- 9:30 a.m. Larry Keist - Developments in Water Main Linings
- 11 a.m. Culvert Rehabilitation: Have It Your Way
- 1:30 p.m. Manhole Lining: The Secret to a Successful Installation
- 3 p.m. Inspection of Pipelines Under Full Flow Conditions
- 4:30 p.m. Sewer and Industrial Equipment Rental - What are the Options?

BUSINESS TRACK

General Business - Scott Hunter

- 8 a.m. Keeping Employees and Customers Happy - Part 1
- 9:30 a.m. Keeping Employees and Customers Happy - Part 2
- 11 a.m. Keeping Employees and Customers Happy - Part 3
- 3 p.m. How to be Successful and Profitable in Any Economy - Part 1
- 4:30 p.m. How to be Successful and Profitable in Any Economy - Part 2

WJTA

WaterJet Technology Association

- 8 a.m. Accessorizing Your Vacuum Unit
- 9:30 a.m. Good Craftsmen Have Heavy Toolboxes
- 11 a.m. Waterjet Technology: Applications and Equipment

PSAI

Portable Sanitation Association International

- 1:30 p.m. Cost Analysis: Delivery, Removal, Moves and Tip-Overs - Part 1
- 3 p.m. Cost Analysis: Delivery, Removal, Moves and Tip-Overs - Part 2

WASTEWATER EDUCATION

in Association with NOWRA

- 8 a.m. Social Media: Friend or Foe?
- 9:30 a.m. Taking it to the Web, Infinity and Beyond!



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Indianapolis 2012

Tuesday Sessions

February 28, 2012

MUNICIPAL TRACK

- 8 a.m.** Inspecting and Locating Laterals
Edward A. "Digger" Diggs - CUES, Inc.
- 9:30 a.m.** Get Quality Results From Your Inspection Management Program!
Rod Thornhill, Cori Criss - Infrastructure Technologies
- 11 a.m.** Using Chemical Grouts to Protect Mainlines, Laterals, Manholes and Lift Stations
Daniel Magill - Avanti International

SEWER AND DRAIN TRACK

- 8 a.m.** Contractors Need to Improve Jetting Sales
Nick Woodhead, Ken Bryson - US Jetting
- 9:30 a.m.** Lift Station Backup Pumping
Majid Tavakoli - Thompson Pump
- 11 a.m.** Optical Advancements Improve Range and Clarity of Pipeline Zoom Inspection
Richard Lindner - EnviroSight

BUSINESS TRACK

- 8 a.m.** Market Like the Green Bay Packers
Jerard Nighorn - Lenzyme, Inc.
- 9:30 a.m.** Training is the Key to Unclogging a Messy Business
William Raymond - Nexstar Network
- 11 a.m.** How to Make Profits That Drop Straight to the Bottom Line
Jenny Alday - One Biotechnology

PORTABLE RESTROOM TRACK

- 8 a.m.** How Your Portable Toilet Company Can Save Money By Saying "No"
Joel Smith - Clear Computing
- 9:30 a.m.** New Emission Standards for Service Trucks
John Olson - Satellite Industries
- 11 a.m.** New Portable Restroom Products
David Roncadori - J&J Chemical Co.

LIQUID WASTE TRACK

- 8 a.m.** What You Should Know About ATUs and How to Evaluate and Service Them
Doug Dent - Ecological Labs
- 9:30 a.m.** From the Kitchen to the Grease Trap to the Landfill
Dennis Brunetti - FloTrend
- 11 a.m.** The Evolution of Effluent Filters
Theo Terry - Bear Onsite

Wednesday Sessions

February 29, 2012

PIPE RELINING TRACK

- 8 a.m.** Advances in Monitoring Technology Help Ensure Proper Liner Cure
Jake Wells - Pipeline Renewal Technologies
- 9:30 a.m.** UV Cured Fiberglass Pressure Liner
Richard Montemarano - LightStream
- 11 a.m.** New Braunfels Utilities Performs Manhole-to-Manhole Lining in-House
Travis Bohm - Perma-Liner Industries

INSTALLER TRACK

- 8 a.m.** Installation and Operation of Float Switches
Brett Wilfong - SJE-Rhombus
- 9:30 a.m.** STEPPing Up
Dennis Hallahan P.E. - Infiltrator Systems

BUSINESS TRACK

- 8 a.m.** Septic, Sewer & Portable Business Valuation Basics
Jeff Bruss - COLE Publishing
- 9:30 a.m.** Inexpensive Marketing, Promotion & Advertising Ideas for Septic, Sewer & Portable Companies
Jeff Bruss - COLE Publishing
- 11 a.m.** Making the Most of Mobile Marketing
Jeff Bruss - COLE Publishing

GAS, OIL AND MINING TRACK

- 8 a.m.** Vacuum Equipment in the Marcellus Shale Region
Mark Nixon - MORO USA
- 9:30 a.m.** How to Vacuum More Efficiently with a Positive Displacement Blower
Jeff Peterson - Hibon, Inc., a division of Ingersoll Rand
- 11 a.m.** Why Choose Hydroexcavation? Opportunities in the Oil and Gas Exploration Industry
Neil McLean - Hydro Excavation Consulting Unlimited

INDUSTRY SAFETY TRACK

- 8 a.m.** Cross Bores, Deadly but Preventable - Your Actions Can Save Your Life
Mark Bruce - Can Clay
- 9:30 a.m.** Is the Air in Your Manhole or Confined Space Safe to Breathe?
Ed Fitzgerald - Jack Doherty Companies
- 11 a.m.** OSHA: Introduction to Soil Analysis
Gary Hooks



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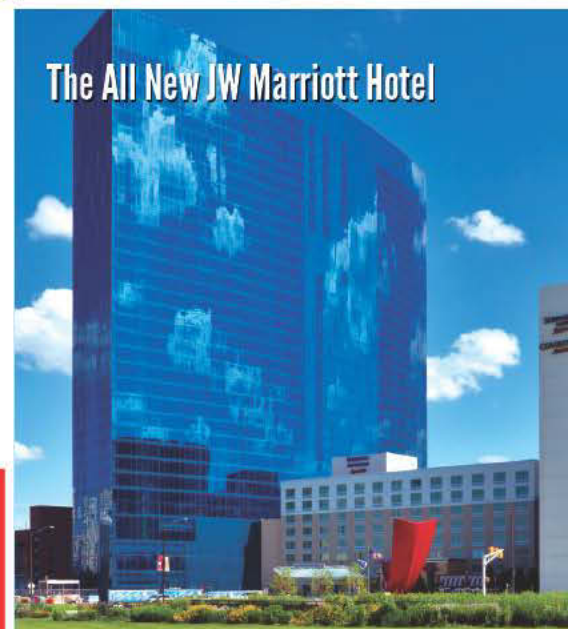
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Head Injuries are Serious Business

DON'T DISMISS THE EFFECTS OF A "MINOR" BLOW TO THE HEAD. BRAIN INJURIES CAN HAVE SERIOUS CONSEQUENCES.

BY TED J. RULSEH

Remember the old days of professional football? A player who acted a little woozy after taking a shot to the head was said to have "had his bell rung." He stayed on the sidelines for a while and then went back into the game.

No longer. From the National Football League on down, football teams treat head injuries seriously. Concussions now often sideline players for a week or more. They have ended the careers of some high-profile players. Evidence is mounting about the connection between multiple concussions and neurological diseases such as Alzheimer's and Parkinson's, multiple sclerosis and even the risk of drug and alcohol addiction.

You wouldn't want something like that to happen to a member of your work team, so it pays to learn more about the implications of head injuries and the precautions you should take if one of your people experiences head trauma.

WHAT HAPPENS?

A jolt to the head can impede the brain's normal function. The effects of even a so-called "mild concussion" can be serious. Some people who experience a concussion are unconscious for a short time. Others are only dazed or confused.

People with mild injuries usually recover fully, but symptoms can linger for days, weeks, or longer. Older people recover more slowly, and so may people who have had one or more concussions before.

Some people may show concussion symptoms on the spot. In others, symptoms may not appear until days or weeks later. The signs can be so subtle family members and even doctors may not notice them, according to an article on the website of the Brain Injury Resource Center (www.braininjury.com).

People with mild head injuries usually recover fully, but symptoms can linger for days, weeks or longer. Older people recover more slowly, and so may people who have had one or more concussions before.

GETTING CARE

If one of your employees sustains a concussion, he or she needs to see a doctor. Treatment may involve nothing more than an office visit, or it may require an overnight hospital stay. A doctor may recommend a CT scan of the brain or do other tests to confirm a diagnosis.

Before sending the person home, a doctor will issue follow-up care instructions. For example, the doctor may ask someone to wake the person up every few hours during the first night. The patient should let the doctor know if he or she is taking any medications, including prescription, over-the-counter or natural remedies. In particular, doctors need to know if the person is on anticoagulant drugs (blood thinners) or aspirin, since these can raise the risk of complications.

WATCHING FOR DANGER

While it's rare, a concussion can lead to the formation of a blood clot that crowds the brain against the skull. A person who experiences headaches that get worse, weakness, numbness, loss of coordination or repeated vomiting should be taken to a hospital emergency department. Similarly, a caregiver should take a person to the emergency room who can't be awakened, has one pupil bigger than the other, has convulsions, seizures or slurred speech, or who becomes increasingly confused, restless or agitated.

RECOVERY PHASE

People vary in how quickly they recover from a brain injury. Recovery time depends on factors that include the severity of the injury, what part of the brain was injured, and how healthy the person was before the injury.

Recovery may take longer for people who already had a medical problem or for people suffering from anxiety or depression. In all cases, rest is important because it allows time for the brain to heal. The person should go back to the daily routine at his or her own pace.

While healing, the person should guard against doing anything that could cause another impact to the head. Rarely, in what is known as "second impact syndrome," another concussion before a brain injury has healed can be fatal.

Even after healed, people should protect themselves against another concussion. Repeated brain injuries can cause serious health problems later in life, including trouble concentrating, loss of memory and loss of physical coordination.

As an employer, the best thing you can do is train your people to avoid head injuries on the job, design workplaces that limit the risk of such, issue appropriate protective headgear and make sure employees wear it when needed. •

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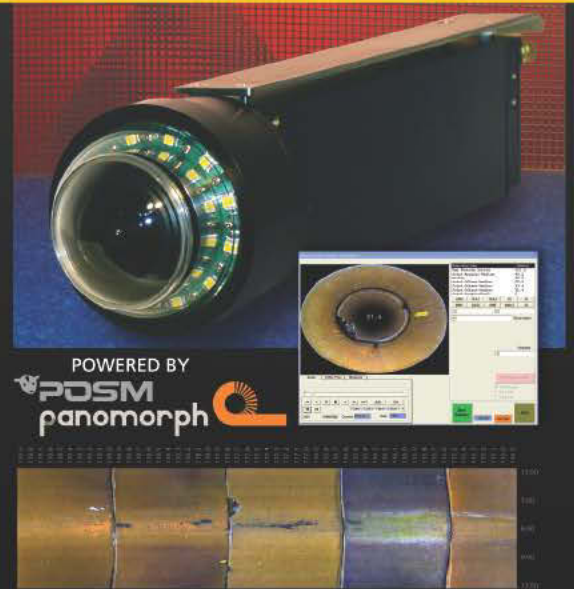
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Expand Your Resources

FRANCHISES AND EDUCATIONAL RESOURCES PROVIDE OPPORTUNITIES TO IMPROVE BUSINESS

BY BRIANA JONES

With the economy still taking its toll in some areas, business owners can find light at the end of the tunnel with possibilities for growth through franchises and an interest in educational resources.

Franchises offer added support via customer assistance, marketing resources and training for employees. While they are not for everyone, doing some research on drain cleaning and plumbing franchises may be a great way to see what methods are available to help you grow your business.

Educational resource groups, such as network groups, provide business-development and instruction for companies seeking more industry knowledge and training. Joining national associations or network groups allows you to meet people experiencing the same issues you are, and to work together to find resolutions.

The following list of resources is available to companies seeking ways to advance to the next level of performance and profit.

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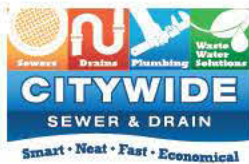
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1-800-PLUMBER

The 1-800-PLUMBER system provides franchisees with around-the-clock business and customer support. The system provides a memorable phone number and corresponding website designed to create top-of-mind awareness with customers. A central sales and dispatch center supports all franchisees, taking incoming calls and dispatching the job to the closest franchise, relieving owners of answering the phones, booking and scheduling jobs, and the related administrative processes.

With the t-Tab technology and implementation of an iPad application, 1-800-PLUMBER places the power to better serve owners and their customers in the hands of their technicians. The service center offers franchisees the ability to track technicians while on jobs and track where calls

come from. The system also offers franchise owners a full-time marketing staff. Franchisees have access to sales training, market research and assistance with integrating new systems and protocols. 281/492-3000; www.1800plumber.com.



CityWide Plumbers

As part of the CityWide system, franchisees can benefit from multiple revenue streams created by an expanded mix of services including sewer and drain cleaning, video inspections, new installations and general plumbing maintenance.

The system offers prime franchise territories, providing a larger base of prospective residential and commercial customers for greater earning potential, as well as buying discounts on supplies and equipment.

The CityWide system includes comprehensive training that covers areas such as hiring, management and operations; a proprietary operations manual with detailed procedures for efficient business operations; ongoing operational support; and advice on implementing effective local advertising and marketing programs and branded website presence. Customized back-end software provides tools to book appointments, route service technicians, generate invoices, track payroll information and maintain customer databases. 800/310-2564; www.citywideplumbers.com.



Mr. Rooter Corp.

Founded in 1974, the Mr. Rooter plumbing and drain cleaning organization has more than 250 franchise locations worldwide. Mr. Rooter believes a properly structured business is designed to pro-

vide five things: a good annual income, more freedom of time to enjoy a better lifestyle, a healthy bottom line to create wealth, equity in your business to pass the business to your children or sell for a profit, and sufficient cash flow to reduce or eliminate debt.

The system combines the benefits of a local business with the strength of a national brand name. Owners get comprehensive training and ongoing support from a franchise consultant. Franchisees also receive local and national marketing support and the opportunity to network with other franchise owners. 800/298-6855; www.mrrooterfranchise.com.



A Corp/Rooter-Man

With a network of over 480 locations, Rooter-Man has been rated as the number one plumbing, sewer and drain cleaning franchise by *Entrepreneur* magazine for the last nine years. Rooter-Man franchise owners become part of a team of independent dealers working together under a nationally recognized trademark and brand.

Franchisees receive comprehensive training programs, ongoing and dedicated support, and exclusive discounts and partnerships. Franchisees are taught how to run a successful business through personal training and 11 step-by-step manuals that outline every aspect of running a Rooter-Man franchise, including comprehensive national and localized Internet marketing programs. 800/700-8062; www.rootermanfranchise.com.

VALU-ROOTER.

Valu-Rooter

In 2004, Valu-Rooter was a one-truck sewer and drain cleaning operation in the residential

market. Effective this fall, Valu-Rooter franchises were made available in selected markets. Committed to helping owner/operators break out of the one-truck trap and enjoy the fruits of their labor, the system offers branded marketing, training and workable systems.

Franchises will command both larger customer bases to enjoy right now and higher resale values for when it's time to sell. The system offers a four-day training session at the Valu-Rooter headquarters along with two-day training sessions at each franchise owner's home base. Annual seminars provide ongoing training and marketing support. 800/438-8258; www.valurooter.com.

1-800-GOT-ROOTS? America's Sewer Service Experts

1-800-GOT-ROOTS

1-800-GOT-ROOTS is a marketing tool available to highly reputable sewer and drain companies looking to get more from their advertising dollars. Service providers can purchase exclusive use of the number for their territory. All calls to the national toll-free number from a provider's service area ring directly to that company's phone number.

For providers with multiple locations, calls can be routed to the closest office based on customer location. Contractors receive a detailed report with date, time, duration, caller's phone number, city and state for each call routed to a given location. Also included is use of the national website to direct customers to their local 1-800-GOT-ROOTS provider. 800/468-7668; www.1800gotroots.com.

EDUCATION RESOURCES



Nexstar Network

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Best practices from across North America are available for members to apply in their own business. Coaches and member trainers come from the industry and have owned and operated businesses. They guide, advise and hold members accountable. 888/240-7827; www.nexstarnetwork.com.



National Association of Wastewater Transporters

NAWT carries on the mission to unify the voice of the sanitary liquid waste management industry while increasing its professionalism and public image through education of the industry to members and the public. The organization develops national representation of individual, state and regional chapters, allowing the industry to exchange ideas and concerns.

The association provides a wide range of training programs that include septic system inspector training and certification, onsite system operation and maintenance training, vacuum truck technician training, and an annual waste treatment symposium. A Train the Trainer program helps the organization take its programs to a wider audience. 800/236-6298; www.nawt.org.



WaterJet Technology Association – Industrial & Municipal Cleaning Association

The WJTA-IMCA provides service, education and representation to members, including contractors, manufacturers, researchers and educators in the waterjetting, industrial cleaning and industrial vacuum equipment industries. The primary goal of WJTA-IMCA is to educate members, their employees and all users of the technology regarding safety and best practices.

The WJTA-IMCA developed the Recommended

Practices for the Use of High Pressure Waterjetting Equipment and the Recommended Practices for the use of Industrial Vacuum Equipment manuals and videos to help people ensure a safe and productive work environment for workers and site visitors.

The WJTA-IMCA Medical Card offers guidance for physicians and emergency medical personnel treating waterjet injuries. The WJTA-IMCA keeps members abreast of the latest developments in products, equipment, applications, industry news and on-the-job safety in a variety of ways: the Jet News newsletter, a regularly updated website, and conferences and expos. Educational "boot camp" sessions on a variety of work-related topics are provided for contractors and end users. 314/241-1445; www.wjta.org.

Top Dollar Press

Top Dollar Press is the publisher of Top Dollar Plumber, a book of advice for plumbing and drain cleaning service contractors. Authors Sid and Ti Sutherland, both experienced plumbing professionals, share advice designed to help contractors grow their businesses and maximize profit. They provide on-site sales training to show plumbers how to close and develop relationships with customers by riding along and critiquing their methods.

The company website includes a variety of articles and other resources with marketing, sales and operations advice. 877/883-9150; www.topdollarplumber.com.

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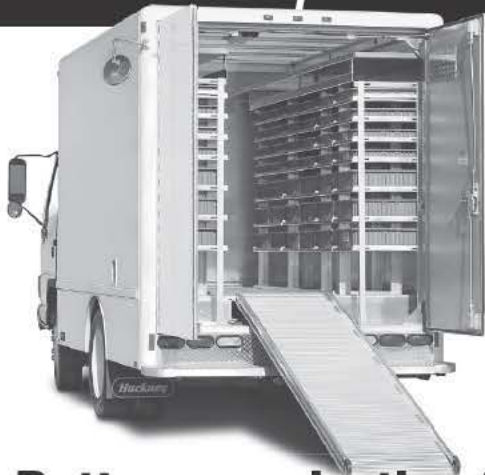
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Avoiding Consensus Overload

SEVEN TIPS TO HELP LEADERS MAKE THOUGHTFUL, YET RAPID DECISIONS

BY MICHAEL FEUER

It's important for leaders to make well-informed, wise decisions. But when time is of the essence, it's also crucial to know when it's time to stop talking and start acting.

Often, the biggest roadblock to execution is the search for consensus. Leaders spend valuable time and money trying to get everyone on board with a decision, and end up stalled in a state of extended discussion. Sometimes, the job of an entrepreneur, manager or CEO is to say, "We're taking this fork in the road, for better or worse, and it's on my head."

There is a leadership style – benevolent dictator – that combines an appreciation for consensus and the input of the team with the ability to recognize when debate, conversation and analysis can't take you any further.

A benevolent dictator can move faster than the competition and save time, money and energy to capitalize on opportunities. You absolutely respect the people on your team, but you also realize the point when talking must end and the decision must be made.

LEARN TO MAKE "BATTLEFIELD" DECISIONS

Being a leader in business is somewhat like being a commander on a battlefield – things are happening quickly, and many of them are outside your control.

As CEO of OfficeMax, I didn't have the luxury of time to build consensus and sway everyone over to my position. It wasn't that my decisions were always better, I simply knew that a decision had to be made and there wasn't time for debate. I could

to that first year's success was our ability to make on-the-run decisions rather than conduct lengthy analysis that would have meant waiting weeks – if not months – before taking the next step.

I realized that one runs a business with the head, the heart and the gut. On a good day, all three kicked in. At other times, I would rely on my heart or gut to make the right move.

NEVER HAVING TO SAY YOU'RE SORRY

The benevolent dictator style may sound autocratic at first, but when the emphasis is on the benevolent portion, meaning you're doing what is right for the greater good, the odds for success are in your favor.

I always made it clear to my employees how much I appreciated and valued them. During high-

There is a leadership style – benevolent dictator – that combines an appreciation for consensus and the input of the team with the ability to recognize when debate, conversation and analysis can't take you any further.

When you're an entrepreneur and a leader, make-or-break decisions are made on a daily basis.

quickly maneuver around flaws in the decision if I was wrong, provided I kept everyone focused on the end game and made adjustments as we moved forward.

stress periods, I would explain, "The next few days are critical for us, so if I ask for something, infer that I said 'please,' and when you do it, know that I mean 'thank you.'"

"READY, AIM, FIRE" ATTITUDE

My method for making difficult choices is to follow the time-tested formula of ready, aim, fire; take emotion out of the equation, gather the facts, decide where I want to go and determine how to get there.

After OfficeMax's first year, we'd grown nicely and were operating stores in Ohio, New York and Michigan. We'd done so with no real casualties and just a few wounds. The key

AVOID THE BULL

People are willing to do just about anything for their leaders as long as the leader is honest. Most of my team members accepted the ground rules that came along with my being a benevolent dictator. They understood that it meant there would be situations where I couldn't open up a decision for debate, or when I would have to rein in a discussion. Most of them appreciated this directness because they respected and understood that we needed to forge ahead quickly.

BEWARE THE DESIRE FOR ZERO RISK

Analyzing data and making informed decisions is good. The problems start when analysis is used as a crutch or to avoid pulling the trigger. You begin second-guessing yourself and giving more and more thought to "what ifs." Before you know



it, you've lost the competitive advantage of speed.

Since you'll never be 100 percent guaranteed to succeed, you'll be stuck studying, researching and consensus-building in a circular fashion. At that point, analysis will become an excuse for continued delays and can doom a project from ever getting off the ground. You must always be moving forward; there's no such thing as a pause button or instant replay in business.

SLEEP ON IT

There will be decisions that require analysis and deep thinking. Often, the best way to work out these problems is to put your subconscious to work.

I had read a lot about subconscious and subliminal thinking. Soon after launching OfficeMax, I started thinking about some of my biggest challenges right before going to bed. I would wake up after four or five hours and presto—I would have answers, or at least possible answers. Doing this allowed me to hit the ground running every morning.

MAKE DECISIONS FOR THE LOVE OF THE COMPANY

When you do what is right for the company, not just to please this or that group, you're half-way to making your undertaking work. All things


being equal, you will not only survive, but also succeed.

Decisions aren't supposed to be easy, especially for leaders. To make your move, you must listen and learn, study the consequences of your decisions from all perspectives—short-term, intermediate-term, and long-term—and learn to do so quickly and effectively. As time goes by, you'll become better and more comfortable with making smart decisions. **c**

ABOUT THE AUTHOR


Michael Feuer is author of *The Benevolent Dictator: Empower Your Employees, Build Your Business, and Outwit the Competition*. He co-founded OfficeMax in 1988, is CEO of Max-Ventures, a venture capital and retail consulting firm, and founder and CEO of Max-Wellness, a comprehensive health and wellness retail chain.

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DELUXE ROOT CUTTER

The deluxe, heavy-duty, high-speed rotating Pro Root Cutter from Amazing Machinery is designed to cut roots and remove scale and debris. Available in both 3/8-inch and 1/2-inch NPT, the nozzle operates with wire extensions inside PVC and clay tile lines, and with chain extensions inside iron pipes. It is recommended that the 3/8-inch cutter be used on an 18 hp or larger jetter, while the 1/2-inch cutter can be used with a 24 hp or larger jetter. Chains for 3-, 4-, 5- or 6-inch lines and wires for 3-, 4-, 5- and 6-inch lines are included. The nozzle can be custom drilled to any orifice size. 800/504-7435; www.amazingmachinery.com.



SLED MACHINE

The DM55 sled drain machine from Duracable Manufacturing offers a maintenance-free gearbox, an industrial 3/4 hp motor at 175 rpm and an indestructible frame. The high-performance gearbox has a 10:1 gear ratio with a cantilever weight capacity of 900 pounds. The drain machine offers fully enclosed polyethylene reels in a variety of sizes, and a standard power cable feed and return. The unit works on main lines, commercial, flood drains, grease and roots. 877/247-4081; www.duracable.com.



JET-DRIVEN CUTTERS

The Cnt-r-KUT Elite cutter from Arthur Products Co. is a rotating mechanical tool with interchangeable chain and cable on the same rotor. The unit operates at 2,000 to 10,000 psi. The lightweight, flexible centering device, engineered from an aerospace elastomer, allows the cutter to navigate the contour of the pipe. Advance jet porting uses both rotor sidekick jets optimizing rotational force and rear thruster jets for maximum propulsion. The tool is available in 3/8-, 1/2- and 1-inch NPT. 800/322-0510; www.arthurproducts.com.



SECTIONAL DRAIN CLEANER

The dual-cable sectional drain cleaner from Electric Eel runs up to 200 feet of 1 1/4-inch self-feeding cable in 8- or 10-foot sections that require no handling when rotating. The machine spins cable at twice the rpm of a continuous cable machine for cleaning 3- to 10-inch-diameter lines. A heavy-duty 1/2 hp Baldor motor comes standard, while 3/4 hp and 1 hp motors are available. A custom-designed gearbox and fully adjustable safety clutch prevent cable and tool breakage and provide overload protection. The drain cleaner comes with a unique fold-down, carry handle. 800/833-1212; www.electriceel.com.



LOW-MAINTENANCE NOZZLES

Root Rat cutting nozzles from Chempure are used with jetters from 11 hp units and are available in 3/8-, 1/2-, 3/4- and 1-inch sizes. Manufactured of hardened stainless steel, the cutters come with a toolbox with two interchangeable rotors: one with cables and the other with chains. The combination kit includes extra chain, cable and bearings. They need no repair or rebuilding other than bearing replacement, which can be completed in less than two minutes for less than \$10 in parts. 800/288-7873; www.chempure.com.

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CHAIN SCRAPERS

Enz USA chain scrapers clean pipes from 3 to 48 inches in diameter. The scrapers come with sealed bearings, which allow each one to operate with clean and recycled water. In addition to removing roots, the units also remove grease, solids, mineral deposits, concrete and grout. Available with 6- to 24-inch diameters, the Diamond Tap Cutters can also remove protruding laterals. 877/369-8721; www.enzusainc.com.



GREASE LIQUEFIER

Jet Power II grease liquefier from Duke's Root Control dissolves grease on contact and homogenizes it so it cannot re-coagulate. The product is nonpetroleum based, biodegradable, noncaustic, nonacidic and noncorrosive. It can be applied quickly and easily with a municipality's own jetting equipment. The solution is sprayed upstream from the affected pipe and treatment requires only 10 to 15 minutes. Ten gallons is needed to produce 1,000 gallons of solution and will treat about 1,000 feet of sewer pipe. 800/447-6687; www.dukes.com.



ROTARY CLEANER

The VIII rotary impingement cleaner from Gamajet Cleaning Systems combines pressure and flow to create two high-impact jets that scour interiors in a global indexing pattern so all surfaces are cleaned. Made of 316 stainless steel, the unit operates between 20 and 1,000 psi and 20 to 130 gpm, and comes standard with a 2-inch camlock. Capable of creating 40 pounds of impact at a 25-foot distance, the cleaner will build up into a fine slurry. Depending on the level of residue, cleaning time takes between eight and 20 minutes, without any additional scraping or chemicals. 877/426-2538; www.gamajet.com.



WET-ONLY VAC TRUCK

The **GapVax MC Series** wet-only vacuum truck is made of 3/16-inch ASTM A572 Grade 50 Exten steel and works for hydroexcavation, jetting and waterblasting. Debris bodies range from 5 to 12 cubic yards. The truck has a unitized stainless steel 2,000-gallon water and debris tank with a

double subframe. A heavy-duty, double-acting, single-lift cylinder provides a 50-degree dump angle. Vacuum pump options range from 3,500 to 5,000 cfm and up to 27 inches Hg.

The truck comes equipped with an 8-foot front-mounted, telescopic boom with dual lift cylinders, reaching 26 feet with a 270-degree rotation. The front-mounted hose reel has an 800-foot by 1-inch hose capacity. The standard water pump is rated at 80 gpm/2,000 psi. Options include a wash-down system; hydroexcavation package; extra storage space; heated boxes; liquid-level load indicators; remote pendants and wireless remotes for boom, vacuum break, and water controls; additional work lights and tube racks. **888/442-7829; www.gapvax.com.**

WATERJETTING GUNS

Tuf Guns from **Gardner Denver Waterjetting Systems** are 50 percent lighter and more ergonomic than aluminum components. No additional tools are necessary for adjusting shoulder stock, front handgrip assembly or for performing cartridge change-outs. A safety trigger latch prevents accidental discharge. **800/231-3628; www.waterjetting.com.**



CUTTING BLADES

ClogChopper cutting blades from **General Pipe Cleaners** are multifunction tools with six self-sharpening blades that break through encrusted debris, root masses, scale, crystallized urine and other stoppages without damaging the pipe. The spherical design maneuvers around tight ends and traps to clean metal, plastic and clay pipes. The tools clean stacks, downspouts, mainlines and drainpipes. They come in 1-, 1 1/2-, 2-, 2 1/2-, 3- and 4-inch sizes and a variety of connector options for General and other major brands of cable machines. **800/245-6200; www.drainbrain.com.**



ELECTRIC CLEANER

The **GO 68HD** heavy-duty electric drain cleaning machine from **Gorlitz Sewer & Drain** is available with an open steel reel or enclosed polyethylene drum and it can be outfitted with an optional power feeder. Standard configuration is 150 feet of 11/16-inch hollow core cable, which should reach most blockages with a single reel. The unit is designed to clean pipes from 3 to 18 inches in diameter



and weighs 185 pounds. **562/944-3060; www.gorlitz.com.**

HYDRAULIC REELS

6200 Series industrial jetting hose reels from **Hannay Reels** are engineered with a direct-drive hydraulic motor that allows precise payout of hose without maintenance. With a capacity of 500 feet of 1-inch hose, the series features a swinging hose guide arm with roller and operator handle; an external hose connection that allows access without removing all the hose from the spool; and a heavy-duty ball-bearing swivel base. **877/467-3357; www.hannay.com.**



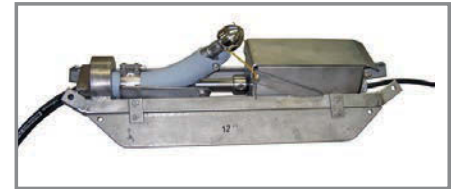
TRAILER JETTER

The **7040-SC** trailer jetter from **O'Brien Mfg.** (a division of Hi-Vac Corporation) has a 700-gallon water tank and 400-foot by 3/4-inch high-impact thermoplastic sewer hose. The unit offers a 40 gpm/2,000 psi engine/pump combination with a 190-degree swivel reel. Tethered hand-operated reel

control, variable-speed control, catwalk fenders, and optional rotary cutter nozzles for various sizes of high-torque root cutters are available. **800/752-2400; www.hi-vac.com.**

CLEANING LAUNCHERS

The **Logiball lateral cleaning launchers** are used from the mainline sewer to launch a cleaning hose and nozzle into the laterals. The launchers clean as far as 70 feet from the main, removing root hairs and other debris. The CCTV camera (on a set of skids) and launching unit are pulled in tandem through the mainline and positioned at the service connection while the clockwise/counter clockwise rotation of the unit is controlled from the tractor controls' forward/reverse of the multiconductor CCTV reel. **800/246-5988; www.logiball.com.**



POWERFUL CUTTERS

NozzTeq Lumberjack cutters are low-torque, variable-speed, multipurpose cutting nozzles, powered by common sewer jetting or combination trucks. The cutting chains rotate at speeds of 10,000 to 50,000 rpm. Designed to cut roots, the cutters also clear out concrete, tuberculation, grease and protruding laterals. Low torque means the cutters won't get stuck, harm host pipe or spin off the hose end.

The units are sealed, grease-lubricated and water-cooled, so they don't need daily maintenance. The cutter drive shaft and turbine are made of hardened steel and the supply tube is made of stainless steel, allowing the nozzle to last for seven to 15 years of heavy use.

Six models clear pipes from 3 to 48 inches. The entire kit includes turbine, water supply tube, chain plate/pull plate, tow ring, cutting blade, sleds, five sets of chain per sled size, propelling nozzle with jets and adapter, spanner wrench, hand tools and toolbox. **866/620-5915; www.nozzteq.com.**



MINI CUTTER

The **Scorpion Mini Cutter** from **Nu Flow Technologies** runs at 28,000 rpm and removes roots, calcite, mortar and cement from pipes up to 6 inches in diameter. The center-focused cutting power eliminates danger of damaging the pipe. A built-in camera harness allows for remote viewing. Using a special attachment, the unit can reinstate laterals that have been previously lined over. Several attachments are available. 800/834-9597; www.nuflowtech.com.

JETTER REELS

Reelcraft's large-frame jetter reels are designed for various high-pressure applications that require the added strength and stability of a heavy-duty frame and spool assembly. They can accommodate up to 1,000 feet of 1-inch I.D. hose. Pressures range from 3,000 to 10,000 psi with a temperature range of 22 to 225 degrees F. Motor mounting options include right/left, front/back or direct drive. Options include hydraulic, pneumatic, 12V DC or 24V DC electric motor.

A direct-drive option eliminates a chain or sprocket and the related maintenance. The frame is constructed of industrial-grade tubular steel, and the spool has a welded wrapper and 3/16-inch spun heads. Hose pinch points have been reduced by incorporating an external hose mounting point so the hose makes a smooth transition onto the spool. A heavy-duty cast guide assembly aides in guiding the hose back onto the spool evenly. The assembly arm can be positioned out of the way and locked when the reel is not in use. Components are individually powder coated for maximum corrosion resistance. 800/444-3134; www.reelcraft.com.



JETTER NOZZLE

With a working pressure of 3,000 psi, the **RR3000 Root Ranger** jetter nozzle from **RIDGID** can remove root obstructions, grease, sludge and mud. The rear-facing jet produces a stream that shears roots from the drain walls. The jet also blasts away build-

up and debris, while the pointed penetrating head helps the nozzle push through obstructions. Designed for a 3/8-inch hose with a 1/4-inch NPT threaded connection, the nozzle works on drains from 4 to 8 inches. 800/769-7743; www.ridgid.com.

DIAMOND ROOT CUTTERS

The **DTC diamond tap root cutters** from **Southland Tool Mfg.** are made of thick steel, balanced and calibrated with industrial diamond segments. The heavy-duty 3/4-inch back plate is milled out to reduce weight and allow good water flow. The cutters are available in 6 to 18 inches. 714/632-8198; www.southlandtool.com.



ORIGINAL ROOT MACHINE

The **1065 Sewer Raider** from **Spartan Tool** uses the SparShine cable to clear roots from 3- to 10-inch sewers. The original root machine has a quiet motor and stays in place even when the cable is fully torqued into a root ball. The toolbox available with the unit contains blades, cutters and accessories. 800/435-3866; www.spartantool.com.



STRONG FORWARD THRUST

The **Warthog WGP-1 nozzle** from **StoneAge** is designed for 8- to 36-inch lines and produces a strong forward thrust. The rear-facing jets are sharply angled and the centralizer fins are trimmed back. This creates more pulling power to handle longer lines, extra distance and moderate inclines. The nozzle features five jet ports, including a boring jet offset at 15 degrees and four jets at 155 degrees. The inlet port is available in 1 NPT or BSP. The unit is well designed for contractors with operating pressures of 2,500 psi or less. 866/795-1586; www.stoneagetools.com.

UEMSI

The **portable mainline reel** from **UEMSI** features a built-in, 120-volt AC power rewind motor operated by the variable-speed controller and automatic levelwind that evenly winds the video cable. The reel incorporates a direct-drive clutch for releasing the power rewind so a tractor can pull out the video cable. The unit has a heavy-duty steel frame and aluminum, diamond-plate top. The reel can be used as a workbench or to house a power control unit. 800/666-0766; www.uemsi.com.



EIGHT DRIVE JETS

The **reversible nozzle** from **US Jetting** has eight drive jets that propel it down the pipe and eight reverse jets to send it back to the entry point. The nozzle will send the pressurized water out of the reverse jets every time the supply is stopped and then restarted. Each time the supply is stopped it will reverse direction. The nozzle is designed for working downstream without bringing back the debris, such as from a cleanout to the main sewer. 800/538-8464; www.usjetting.com.

TURBO CUTTERS

Turbo chain cutters from **USB – Sewer Equipment Corporation** are made of tempered stainless steel and offer unique, continuously adjustable guide skids. The chain retainer is driven by a high-performance turbine to remove roots, grease and mineral deposits from 4- to 48-inch sewer lines. With an optimized 3-D hydromechanics design in conjunction with ceramic nozzle inserts, the cutters use recycled or clean water. They can also be used as barrel cutters with diamond bits for smooth removal of protruding laterals. Heavy mineral deposits can also be removed with carbide bits attached to the specialized chains. 866/408-2814; www.usbsec.com.





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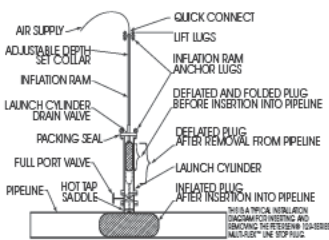
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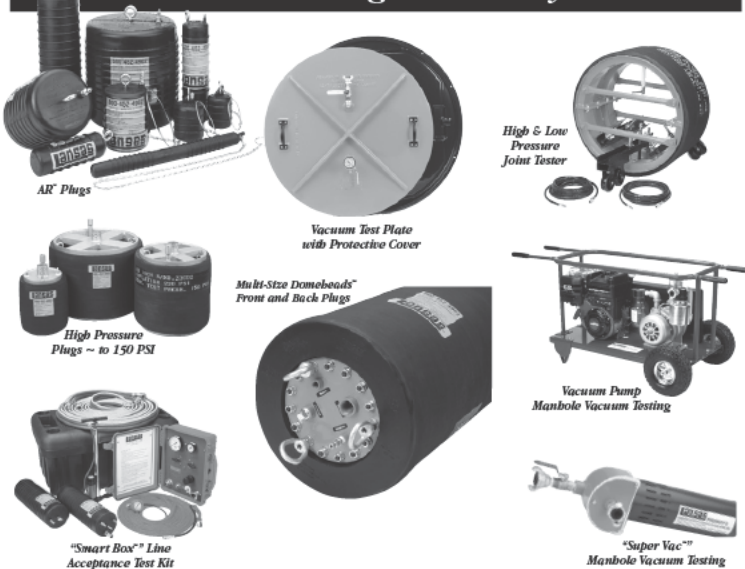
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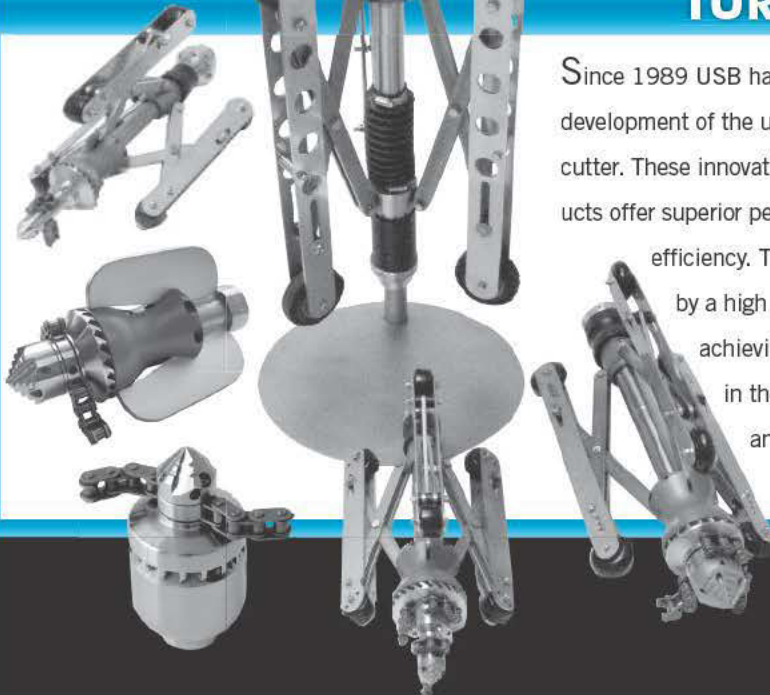
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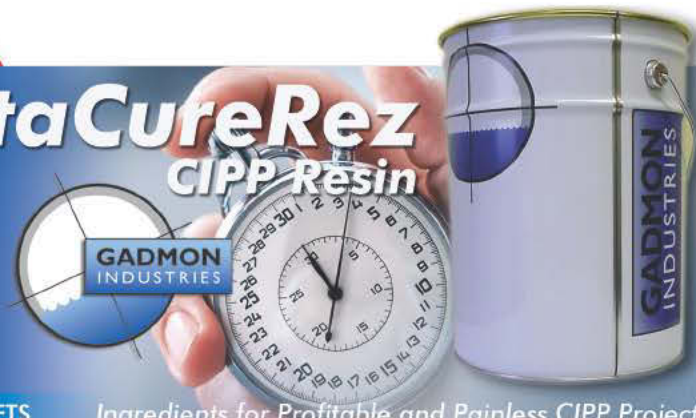
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WATER CANNON LAUNCHES WEBSITE

Water Cannon Inc. launched its user-friendly website, www.watercannon.com, enabling customers to search, view and find products in seconds. The site includes a one-page checkout and customer review section. A filtering feature lets users refine their search for pressure per square inch, gallons per minute, price and more.

WJTA ELECTS BOARD, ADOPTS HOSE CODING

Bill Gaff, vice president of sales and marketing for Vacuum Truck Rentals LLC, was elected 2011-2013 chairman of the board for the WaterJet Technology Association and Industrial & Municipal Cleaning Association. George A. Savanick, consultant, was named president; Pat DeBusk, Inland Industrial Services Group, was named vice president; Hugh Miller, Colorado School of Mines, was named secretary; and Larry Loper, High Pressure Equipment Co., was named treasurer. New board members include Kay Doheny, Jack Doheny Supplies Inc.; Luis Garcia, Channel Safety & Marine Supply Inc.; Kathy Krupp, The Dow Chemical Co., and Kerry Petranek, StoneAge Inc. Forrest Shook, NLB Corp., was re-elected to the board. Mohamed Hashish, Flow International Corp., and Gary Noto, Veolia Environmental Services, continue to serve on the board.

The board also approved the addition of wording regarding a color-coding scheme for pressure hoses to the *Recommended Practices for the Use of High Pressure Waterjetting Equipment*. To better identify the pressure in use, it is recommended, beginning Jan. 1, 2013, the following color scheme be used for applicable maximum working pressure, with abrasion-proof stickers used in the interim:

Yellow: 10,000 psi (690 bar); Green: 15,000 psi (1,034 bar); Blue: 20,000 psi (1,379 bar); Silver: 30,000 psi (2,068 bar); Orange: 40,000 psi (2,758 bar) and Red: 55,000 psi (3,792 bar).



Dave Thomas (second from left) and a colleague from Saddleback Church with local volunteers in Kibuye, Rwanda.

HAAKER'S THOMAS HELPS WITH WATER PROJECT

Dave Thomas, Haaker Equipment Co. sales representative for Elgin street sweepers and Vactor sewer cleaners and hydroexcavators in La Verne, Calif., traveled to Rwanda the past three years as part of the Clean Water Initiative of Saddleback Church in Lake Forest, Calif. Thomas and his colleagues have brought water purification systems to three hospitals in western Rwanda and are working to drill deep wells for more than 100 vil-

lages. His next project is to bring fresh water to a high school in the African nation of Malawi.

ABS INVESTS \$25 MILLION IN REDZONE

RedZone Robotics Inc., designer and manufacturer of wastewater inspection technologies and related analytical solutions for municipalities, received a \$25 million investment from ABS Capital Partners Inc. RedZone will use the funds to expand its product set and geographic reach. As a result of the financing, ABS Capital general partners Bobby Goswami and Laura Witt will join RedZone's board of directors.



NLB TAKES WATERJET ACCESSORIES ON THE ROAD

The 24-foot NLB Corp. touring showroom will travel to customer locations, NLB branches and trade shops around the country. Filled

with nearly 200 high-pressure accessories, including nozzles, fittings and tube bundle cleaning systems, it also features video demonstrations of various products.

SPARTAN NAMES WEBB TERRITORY MANAGER

Spartan Tool LLC named Tom Webb territory manager for Tennessee, northern Mississippi and northern Alabama. He has 14 years experience in the drain cleaning industry.



Tom Webb

HOME SERVICES NAMES MELTON CEO, PRESIDENT

The board of directors for 1-800-Home Services Group Ltd. named Jason Melton chief executive officer and president.



RS TECHNIK LAUNCHES CIPP WEBSITE

RS Technik launched www.rstechnik.us to promote epoxy cured-in-place pipe (CIPP) and other trenchless technologies. The website features a line of environmentally friendly solutions featuring specially formulated epoxy resins.

AM-LINER JOINS NORDIPIPE GROUP

AM-Liner East Inc. is the newest member of the NORDIPIPE licensee family. The northern Virginia-based company is the fourth licensee of NORDIPIPE, a trenchless technology for the rehabilitation of water mains.



James A. Rorison

IPR NAMES RORISON COO

IPR, provider of underground rehabilitation solutions, named James A. Rorison chief operating officer. He has 27 years of business and management experience. **C**

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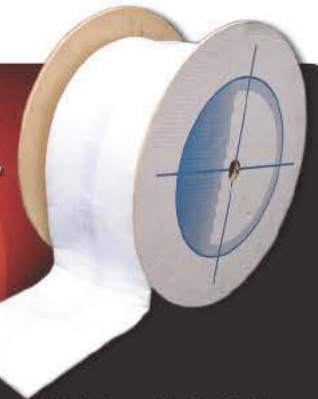
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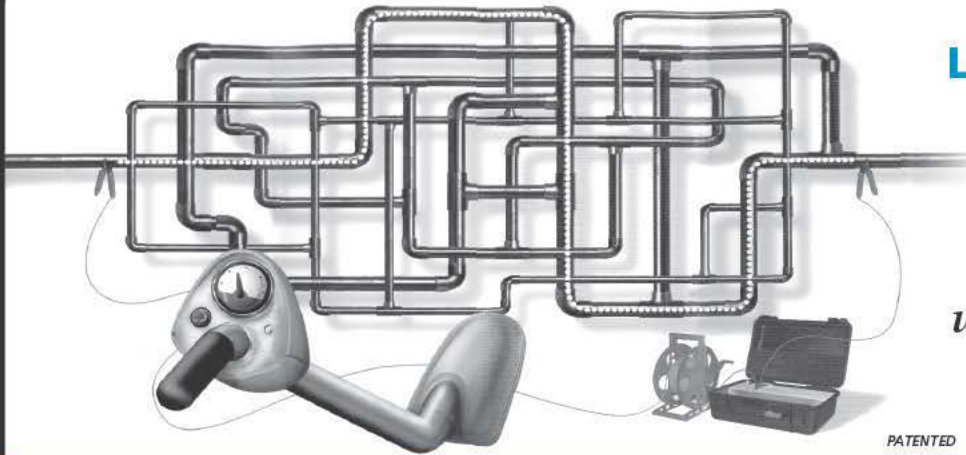
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PROBLEM

Root infiltration affected much of the 1,660-mile collection system of the Colorado Springs (Colo.) Utilities. Maintaining the 50-year-old sewers and eliminating blockages stressed the utility's budget.

SOLUTION

In 2010, the utility purchased a Vactor 2100 Plus sewer cleaner equipped with a Vaporooter Jet Set Commander chemical root control system from Douglas Products. Operators can program the computer on a touch screen and switch from jetting to root control mode by plugging in a cable and turning a valve. The unit then blends the herbicide with water and compressed air to create thick, dense foam applied through the jetter hose and a special nozzle.



RESULT

"The unit enabled us to bring our chemical root program in-house," says manager Dan Fields of wastewater operations maintenance. "The cost savings combined with our new CCTV inspection program allowed us to cut the cleaning workload by half." The utility will add a second Commander-equipped truck next year. 800/841-1444; www.vaporooter.com.

AQUATIC HERBICIDE KILLS ON CONTACT

PROBLEM

Root intrusion was the most destructive element facing customers of Roto-Rooter in Casper, Wyo.

SOLUTION

Owner Ken Schneider added RootX chemical formulation to his services. The aquatic herbicide dichlobenil foams on contact with water to reach the crown of pipes. Degreasing agents strip away grime, enabling the herbicide to penetrate roots and kill them on contact. The formula adheres to pipe walls, preventing roots from re-establishing themselves.



RESULT

Schneider used the RootX registration program to remind customers of needed maintenance. He reports that the product cleared up root blockages and helped customers realize the value of lateral inspections. 800/844-4974; www.rootx.com. c

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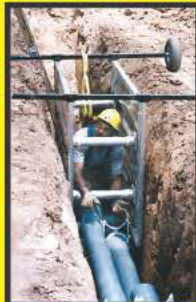
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Twin Engine, Twin-Reel Jetter Delivers Hot or Cold Options

BY ED WODALSKI

The XtremeFlow (model HJ2TA1736) twin-engine, twin-reel hot-water jetter from HotJet USA (Powerline Industries Inc.) delivers up to 17 gpm at 3,600 psi of hot or cold water. Features include twin 35-hp Vanguard gasoline engines and pump units and two onboard hose reels: one with 300 feet of 3/8-inch Piranha hose and one with 300 feet of 1/2-inch Piranha hose (rated to 150 degrees) and standard 1/2- and 3/8-inch nozzles.

The system, designed to clean drains from 2 to 24 inches in diameter, features manual rear controls and offers the option of running a 1/2-inch hose reel with a single 35-hp (Vanguard, electric-start) engine at 8.5 gpm or the 3/8-inch hose reel at 17 gpm with both engines (70 total hp). Running two units simultaneously doubles the gpm. The system also offers the option of running one engine on idle to power a remote hose reel with a foot-peddle and 1/4-inch hose for cleaning laterals and floor drains.

Morris "Mo" Morgan, sales manager of HotJet USA, says the twin-engine concept has been around for years in Europe and was developed by the pump manufacturers. Made to clean 2- to 24-inch lines, the jetter uses two belt-driven, high-flow TSF2021 pumps from General Pump.

"We were debating whether to go with one large diesel engine or have some options," he says. "Diesel engines, by nature, are built to run continuously, where gasoline engines lend themselves better to on/off type work like drain cleaning. Gasoline engines also are more cost-effective: They start better in the cold and parts are relatively inexpensive. This reduces downtime if service is needed."



Mo says most drain contractors will run one jetter power unit about 80 percent of the time, and run both when cleaning larger lines. "They have the ability to run at technically half-power – saving fuel and wear and tear on the system."

The jetters are mounted on a 5-foot-wide, 12-foot-long, trailer (road legal in both the U.S. and Canada) with solid diamond-plate steel deck, twin 3,500-pound axles with brakes on both axles and 2 5/16-inch ball hitch. The trailer holds 330 gallons of water. Optional tanks can hold up to 660 gallons. The diesel/kerosene-fired boiler has a redundant safety system, including thermostat, blow-off valve and high-limit switch.

Other features and options include a tool box (side boxes available), solid state remote control, antifreeze system, twin filters, soap and root control injection systems.

"We built the trailer for 10,000-pound rating and put the lighter axles on it (for a smoother ride)," Mo says. "This unit is engineered to haul the water to the jobsite. And that saves hours and hours of time looking for water. I think that's really critical out there," he says. Tandem axles also provide an extra margin of safety, he says. "You blow a tire on a single-axle trailer and 'hang on' – with two axles and it's 100 percent safer, especially under load." 800/213-3272; www.hotjetusa.com.

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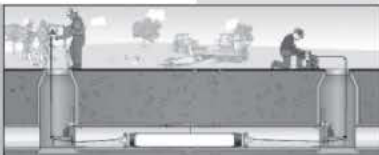
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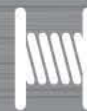


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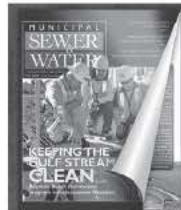
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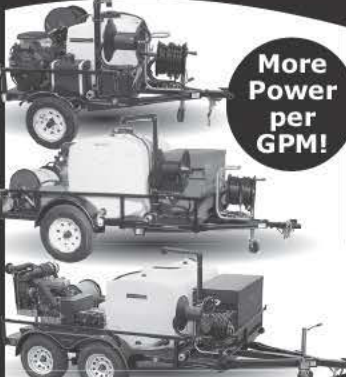
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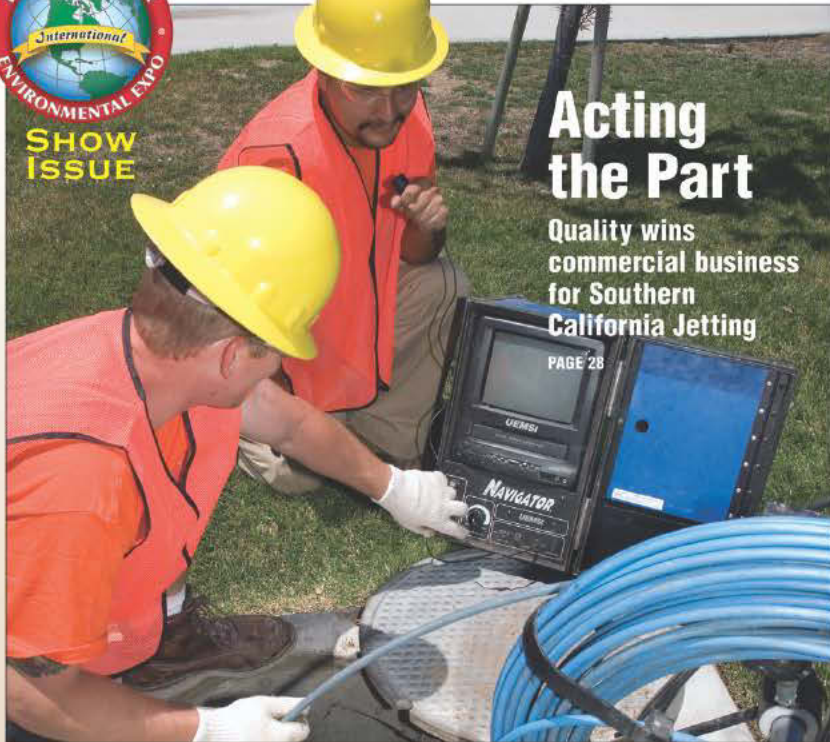
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1998 Sterling cab & chassis with a Cusco Mastervac 3800 wet & dry industrial loader. (Stock #5088C) www.VacuumSalesInc.com, (888) VAC-UNIT (822-8648). (CM12)

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814-696-4343 PA C12

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715-546-2680 WI CBM



2006 Sterling LT9500 Vac Truck: Acert C-13, Fuller 8LL, lockers, 18/40 axles, 4x6 drive, air ride, 24K miles, 208" WB, 227" frame behind cab, 22.5 tires, engine brake, disc wheels, 2006 Presvac tank, s/n: APV-4000-0705-7052, 4,000 gal. tank, Masport pump.....\$89,500
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1999 Sterling cab & chassis with a Cusco Turbovac 3800 industrial loader with a jetting system. (Stock #3163C) www.VacuumSalesInc.com, (888) VAC-UNIT (822-8648). (CM12)

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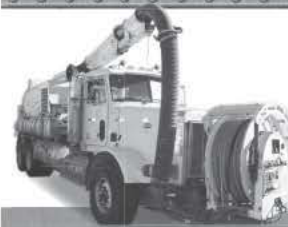
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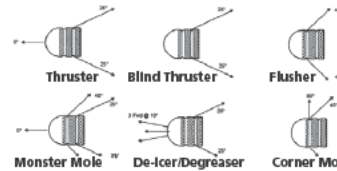


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