FOR DRAIN AND PIPE CLEANING, INSPECTION AND REHABILITATION PROFESSIONALS

# Formula for

ENVIRONMENTAL PIPE CLEANING'S SUCCESS HAS BEEN BUILT ON THE ABILITY TO ADAPT AND OVERCOME PAGE 12

### PRE-SHOW ISSUE

www.cleaner.com

PRODUCT PREVIEW PAGE 70

**FEBRUARY 2013** 

#### FIELD & OFFICE TECHNOLOGY

TOUGH JOB Blown epoxy lining saves apartment pipes

MONEY MACHINES Jetter truck boosts safety and productivity

BETTER BUSINESS Employee handbooks put everyone on same page

# "This machine machine always works the way I do – hard!"

Jeff Wall, Wall Septic & Drain Cleaning Co., Harwichport, MA – and friend.



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A drain cleaning professional for over 30 years, Jeff Wall likes to push his equipment to the limit. "Nothing in its class matches the Mini-Rooter XP for power and torque" Jeff claims. "And Flexicore cable even lets me use it for root cutting – although General said the Mini-Rooter XP isn't designed for that!"

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"I swear by Flexicore – and General cutters," Wall says. "All my equipment is General!"

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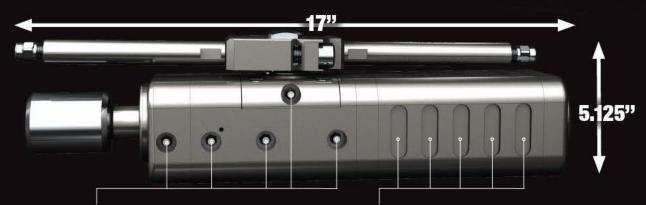
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(interstitution)

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worldwide sales, support and service

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#### features



**On the cover:** Samantha and Dave Hawes, owners of Environmental Pipe Cleaning in Richmond, Va., have reshaped their company multiple times in an effort to better serve customers. As a result, they've become the preferred contractor for many high-profile clients in the Washington, D.C., area. (Photography by Joe Mahoney)

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By Mark Hill

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Special issue: Pumper & Cleaner Expo show issue 2013 Pumper & Cleaner Environmental Expo will feature the best tools and equipment to build your business. By Ed Wodalski

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### **Evolve with the Industry**

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#### BY LUKE LAGGIS

he feature profiles in this issue of *Cleaner* reflect an entrepreneurial spirit, a willingness to evolve, and the value of a fresh start.

Environmental Pipe Cleaning of Richmond, Va., reflects all of these business virtues. The firm has seen more than its share of changes and challenges over the past five decades, but all of it has created a model for infrastructure rehabilitation and maintenance services that make the company a sought-after vendor for many high-profile clients. of pipeline rehabilitation. CIPP and pipe bursting offered great potential, and despite the resistance of some crew members, the company pushed forward into new technology with a desire to be part of the industry's evolution.

When the recent recession brought economic challenges to their door, Samantha and her husband, Dave, pushed forward with a concentrated customer outreach program. They kept a positive attitude, and eventually the projects started coming in again. It was a fresh start for a company that

#### It's a chance for you to network with peers and manufacturers, and find the special piece of equipment that can improve your existing services or give you a fresh start on a new course.

Mindset, or more simply put, a major attitude adjustment in regard to how business should be done and how clients should be treated, has allowed the small family business to become one of the Washington, D.C., area's premier infrastructure problem solvers.

When Samantha Hawes took over the business from her father in 1990, she looked at the industry from a woman's perspective. She impressed upon her new hires how clients felt when they showed up at their homes or businesses; how their appearance, attitude and demeanor made them feel; and how that client's perception could just as easily lead to more business or destroy the firm's hard work and reputation. By evolving, and changing their approach and attitude toward clients, the technicians became one of the most powerful advertising and marketing tools the company possessed.

Five years later, Environmental Pipe Cleaning was ready to take the business to the next level. The firm began to see more opportunities in the area



had already been in business for more than 40 years, and business has been nonstop ever since.

Mr. Rooter of Tri-Cities, the other contractor profiled in this issue, has also shown a willingness to evolve with the advent of new technologies. Investing in the latest plumbing and rooter equipment has given the company an edge over its competition. The company was the first in the area to have cameras installed on its trucks, and today, it's the only company in the region equipped to do pipe bursting and residential pipe lining.

The company's entrepreneurial spirit also shines through in its outlook on the future. Owners Dan and Shaylin King see great opportunity to grow their commercial business by creating a division dedicated strictly to commercial customers, particularly restaurants. They plan to hire a sales manager to call on commercial accounts and set up more preventive maintenance programs with regularly scheduled drain cleanings to avoid emergencies and downtime.

They also believe the future of the plumbing industry will be in-home water treatment, and part of their own evolution involves building a water treatment division for selling and installing water filters, conditioners and softeners.

I hope Environmental Pipe Cleaning and Mr. Rooter of Tri-Cities can provide you some inspiration, and I hope you'll take advantage of another opportunity to see the evolution of this industry on display: the 2013 Pumper & Cleaner Environmental Expo.

The Expo will be held Feb. 25-28 at the Indiana Convention Center in Indianapolis. It's a chance for you to network with peers and manufacturers, and find the special piece of equipment that can improve your existing services or give you a fresh start on a new course. Visit www.pumpershow.com to learn more about it.

Enjoy this month's issue. c



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ATTITUDE, APPROACH AND PERSPECTIVE HELP A D.C. AREA CONTRACTOR BECOME ONE OF THE REGION'S PREEMINENT PROBLEM SOLVERS BY SUZAN MARIE CHIN

D

Like a phoenix rising from the ashes to soar once again, Environmental Pipe Cleaning of Richmond, Va., has reorganized, rebuilt, rebranded, repositioned and reinvented itself on more than one occasion. The firm, established by Harold Hawes in 1966, has seen more than its share of changes and challenges but all of it has created a model for infrastructure rehabilitation and maintenance services that make the company a sought-after vendor for such well-known clients as Arlington National Cemetery, The Smithsonian Institute, the Federal Reserve Bank, and many other important governmental agencies.

Mindset, or more simply put, a major attitude adjustment in regard to how business should be done and how clients should be treated, has allowed the small family business to become one of the capitol's premier infrastructure problem solvers. *(continued)* 

Erik Cox, left, signs off on an air-quality safety check by Dave Hawes prior to a confined-space entry. (Photography by Joe Mahoney)

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#### **BREAKING THE MOLD**

When Harold Hawes' daughter Samantha was a new master plumber training graduate, he offered her a proposition to take over the business and be an entrepreneur in her chosen field of study. The year was 1990, and although the number of females entering the plumbing and sewer maintenance field was on the rise, the industry was definitely still a



Dave Hawes communicates via two-way radio with his underground crew as he observes the operation on a laptop screen.

"man's world" and considered no place for a woman, especially a petite, young, fresh-out-of-technical-college person like Samantha. Never one to back down from a challenge, she took her father up on the offer but had to deal with a lot of pushback from the crew. During the early days, Samantha sought her father's advice, but eventually she knew if this situation was going to work and the business prosper, there would need to be some big changes.

"Samantha made it clear that she was going to run a tight ship," relates Dave Hawes, Samantha's spouse and co-owner of Environmental Pipe Cleaning. "She wasn't going to tolerate any drugs, unprofessional appearance or rudeness. She wanted to erase the stereotype image of the sloppy plumber working under the sink from the company and change how the customer would perceive and remember us."

Samantha initiated mandatory drug testing, resulting in the loss of many former employees.

She was forced to hit reset. She reorganized and rebuilt, and in the process, rebranded and repositioned the firm in the market. Samantha saw the industry



Inspection video footage shows Erik Cox of Environmental Pipe Cleaning at work in a pipe.

profile	
ENVIRONMEI RICHMOND,	NTAL PIPE CLEANING,
OWNERS:	Samantha and Dave Hawes
FOUNDED:	
EMPLOYEES:	
	Washington, D.C.; Maryland; Virginia; West Virginia; North Carolina.
SPECIALTIES:	CIPP: pipe buisting, CCTV inspection, pipe cleaning and replacement
	www.environmentalpipe.com

from a different perspective, a woman's perspective, relating to her new hires how clients felt when they showed up at their homes or businesses; how their appearance, attitude and demeanor made them feel; and how that client's perception could just as easily lead to more business or destroy the firm's hard work and reputation. By changing the approach and attitude toward clients, the technicians would become one of the most powerful advertising and marketing tools the company possessed.

#### **POSITIONED FOR GROWTH**

By 1995, Environmental Pipe Cleaning was ready to take the business to the next level. The firm began to see great opportunities in the area of pipeline rehabilitation and recruited Dave Hawes to help expand and manage the business. Dave was new to the industry and learned quickly that in order to achieve the goals Samantha had set out, he needed to get out into the field to see how the crews operated and exactly what was involved on a day-to-day basis.

"It was a real eye opener," Hawes says. "I had the opportunity to see a situation not only from estimating and profitability for the company but from the service technician's view and the challenges they faced in making sure the repair was a success, and, most importantly, through the client's eyes as they were facing the potential disruption or modification of their property."

As Hawes spent more time in the field, he saw that clients were keen to be offered less invasive alternatives to repair their infrastructure. CIPP and (continued)

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pipe bursting offered great potential but as in the past, some of the technicians resisted management's plans.

Samantha again faced the challenge of having to reorganize and rebuild if the current team wasn't willing to adapt their mindset. The team was given the choice of learning new skills and being team players or moving on. Many

"When it comes to the special landmarks and agencies in our nation's capitol, you really need to push the envelope of trenchless technology. It means not backing down on a challenge and finding a way to make it work for the client and for your crew." Dave Hawes

elected to leave, and a program to recruit and train new technicians began. The new hires brought great promise to the firm and the team appeared to be one big happy family with many crew members developing friendships and socializing outside of work. But the "family-like" team eventually disintegrated as outside problems began to infiltrate the workplace and several crew members were caught working with office personnel to hide funds collected on certain project transactions. When the shortfalls were discovered, Samantha and Dave had to wipe the slate clean and start over again.

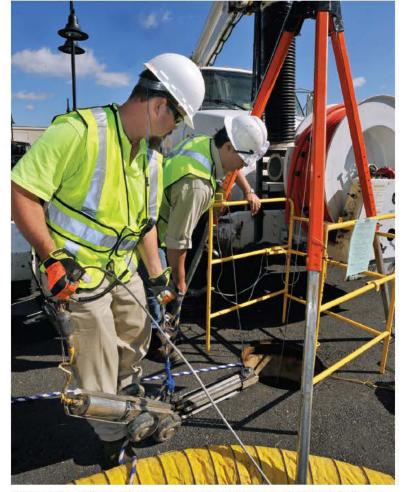
Although many business owners facing this many challenges and forced restarts would throw in the towel, Dave and Samantha saw it as another lesson learned and a reason to try again. Harold came on board for a while to assist Dave in coming up to speed on some of the more technical aspects of the

#### FINDING GOOD PEOPLE IN UNLIKELY PLACES

Environmental Pipe Cleaning, like many contracting firms, often finds it difficult to recruit crew members with the right mix of skills, demeanor and appearance. In a rough and dirty business like sewer and pipeline repair, sometimes the most skilled and experienced technicians are the "roughest" in appearance and communication abilities. With a goal of changing the perception of their contracting business, Samantha and Dave Hawes, owners of Environmental Pipe Cleaning, decided to take a chance and recruit crew members they might be able to mold into the perfect technicians from unusual sources.

One such recruit was a cellular service salesman who had been calling upon Hawes to gain his business. The young man was persistent while still being polite and respectful, and Hawes appreciated his appearance and positive attitude. He bluntly asked the salesman about his compensation and offered the opportunity to test the water and spend a week on the road with him. If he liked what he saw, he could stay and make more money and learn a new trade or go back to his sales position, no hard feelings.

Hawes recognized that even though this would-be techniclan didn't have any technical knowledge, he did have something valuable to the business – the ability to provide excellent customer service, to be able to communicate well with the cusformer, focus on their needs, and make them feel comfortable. The gamble paid off and within a year's time, the former cellular salesperson was one of Environmental Pipe Cleaning's most highly rated technicians with industrial and residential clients alike.



David Howe, left, and Dave Hawes lower an RS Technical camera into a manhole to inspect the pipe.

business and troubleshooting in the field as the company was now down to just Dave and one helper.

"Harold taught me to never, never claim you can do something you can't," Hawes says. "Always deliver what you promise because if you do, people will trust you and call you back. If you don't deliver, clients lose all confidence in you and will take their business elsewhere. This was strong advice and something that has always stuck with me."

So when Environmental Pipe Cleaning was given an opportunity to perform maintenance and rehabilitation work at the Arlington National Cemetery, Hawes knew he needed technical expertise that his existing crew members didn't possess. Not wanting to lose out on what could potentially be an excellent, long-term customer, Hawes set out to find the personnel he needed in an out-of-the-box way.

The project involved the cleaning and lining of several drain lines and would require a technician with experience operating a combination truck. One day Hawes approached some municipal combination truck operators on their lunch break. He made it clear he wasn't asking them to leave their job, but asked if they knew of anyone who was looking for work who had experience operating this particular piece of equipment. They had just the referral for Hawes in Erik Cox, the former operator of their truck who had just left the municipality. The former municipal operator was delighted with the prospect and has now been with the firm for over seven years.

#### **NEVER SAY "NEVER"**

Environmental Pipe Cleaning's mindset and approach has earned it a reputation for exceptional customer service, attention to detail, and the unique ability to handle sensitive projects that require a high degree of delicacy, care and preparation.



Dave Hawes does an air-quality inspection with the EntryRAE four-gas air monitor unit from RAE Systems before workers go into the confined underground space. At right is Erik Cox as he readies to go underground.

Working in an emotionally sensitive area like Arlington National Cemetery takes great planning and understanding. When rehabilitating a 400-foot-long, 48-inch storm drain, timing was critical. Bypass pumps had to be set up on lines leading into the run, and this equipment by its nature can be quite loud.

The cemetery provided the crew with a list of the funerals that would be held each day during the project, where they would be held, and which areas the processions to the interment sites would travel through. On average, 24 to 27 funerals are held each day. For smaller projects and routine line cleaning, the crews will shut down equipment one hour before a funeral begins and make their presence discreet. They will wait for a minimum of 30 minutes after the service is complete to allow any lingering attendees to leave.

On the storm drain project, the nature of CIPP lining and the inability to shut down equipment once the relining process has begun required special arrangements allowing access to the grounds over the weekend when no services are conducted. The cemetery worked closely with Hawes and his crew to make sure the rehabilitation work could be completed successfully without disruption to the grounds or visitors.

"When it comes to the special landmarks and agencies in our nation's capital, you really need to push the envelope of trenchless technology. It means not backing down on a challenge and finding a way to make it work for the client and for your crew," says Hawes.

The Smithsonian Institute pushed Hawes and his team to extremes when they were asked to rehabilitate a series of roof leaders in the Natural History Museum. The ideal rehabilitation method was CIPP, but access and finding the right equipment tested the crew's resolve. In 2010, they rehabilitated one roof line for the museum in an unfinished crawl space attic utilizing a drum air inversion machine. Due to its size, the equipment had to be assembled, disassembled and reassembled several times as it progressed through the length of the line. "It wasn't the right piece of equipment. We had several lining contractors come and take a look at the project and they all shook their heads and told us it couldn't be done, but we weren't going to give up looking for a solution," Hawes relates.

After almost of year of searching, Hawes stumbled upon a small launching system designed for CIPP lining. The Quick Shot Launcher sold by PrimeLine Products proved to be just what was needed for the Smithsonian project. Andy Rothenberg of PrimeLine Products trained the crew, and after experimenting and performing some test runs, they were very excited about what the equipment could bring to the project.

Aside from having the right equipment, the project also required careful planning due to high temperatures from adjacent steam pipes in the attic's crawl space and nearby artifact storage rooms. Protective plastic tarps were hung in all

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work areas to completely enclose the work area and eliminate the potential of any resin or construction debris coming into contact with the artifacts.

On a few occasions, due to the intense ambient temperatures of the work area and small spaces that slowed the crew's movement, the resin began to cure too soon and the liner became impossible to work with. The crews had to sacrifice the liner and start over. Extra hands were then brought onboard to help keep the deployment of the wetted-out liner moving as rapidly as possible. The planning and staging had to be precise to limit the amount of waste and disruption to the facility. Once the right resin, liner and deployment formula was in place, Hawes and his team (Gary Cox, David Howe and Ron Wharton) were able to perform the rehabilitations systematically and successfully.

"When the final one of the 20 lines in the most difficult section went in, it was a great feeling. We had been waiting to exhale and could finally relax. However, because we did so well, the Institute decided to add onto the project and perform rehabilitation in another section of the museum. Our excitement over the added business was a bit muffled but what we learned from the initial project was a great benefit and made the second project that much easier for the crews," says Hawes.

#### WHEN YOU LOVE IT, IT SHOWS

When the recent recession brought economic challenges to Samantha and Dave's door, they began to rethink their future and the fact that another reinvention, reposition or relaunch may not be in the cards. They began to look at other avenues to create revenue, even taking the famous "Rich Dad, Poor Dad" course. The instructor told them about a book entitled, *Who Moved My Cheese*?, and they immediately picked up a copy and saw themselves as the characters, Hem and Haw, in this famous book.

"We were waiting for somebody to put things right again for us, like the cheese in the book, but it wasn't going to happen that way. We had to change our

"You have to love what you do in order to succeed. If not, you won't prosper no matter what you do. We've shared this philosophy with our employees, and it shows."

#### **Dave Hawes**

mindset if we and this business were going to survive," says Hawes.

And that's what they did. Samantha and Dave began a concentrated customer outreach program, reaching out to remind all their happy clients that they were still there and available. They kept a positive attitude even when they were told no, and eventually their positive energy and determination paid off. The phones began to ring, the projects started coming in again and it has been nonstop since.

"You have to love what you do in order to succeed. If not, you won't prosper no matter what you do. We've shared

no matter what you do. We ve shared this philosophy with our employees, and it shows," says Hawes. "We can't be at every job and our employees take pride in what they do and make it happen for us. They share our mindset in how this business should be done and giving our clients the level of service that they've come to expect from our firm. It hasn't always been easy, but the right attitude and perspective has seen us through and we're confident it always will."

more info

PrimeLine Products, Inc. 877/409-7888 www.prime-line.net (See ad page 66)

RAE Systems World Headquarters 877/723-2878 www.raesystems.com

RS Technical Services, Inc. 800/767-1974 www.rstechserv.com (See ad page 63)







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NEW REAL-TIME MONITORING EQUIPMENT MAKES IT EASIER TO MEASURE AND POSSIBLY REGULATE DIESEL PARTICULATE MATTER

#### BY DOUG DAY

ith its action to reclassify diesel exhaust as a known carcinogen, the World Health Organization has brought renewed interest to the subject of diesel particulate matter (DPM) and worker safety. Previously listed as a probable carcinogen since 1988, WHO's International Agency for Research on Cancer (IARC) changed the classification in June 2012.

"Governments and other decision-makers have a valuable evidence-base on which to consider environmental standards for diesel exhaust emissions," the agency said in announcing the move. IARC Director Dr. Christopher Wild added, "Today's conclusion sends a strong signal that public health action is warranted."

Exposure to DPM is only regulated in mining in the United States, Canada and several other countries. Larry Takiff, co-founder and president of Akita Innovations says despite the lack of regulations outside of mines, the health risk is still present. "It's probably a lower risk, but the risk is still there in other types of workplaces where diesel equipment is used, especially in confined or semi-confined spaces."

Takiff was with ICx Technologies when it developed the first commercially available, wearable monitor that provides accurate, real-time measurement of DPM exposure. The Airtec Diesel Particulate Monitor is now sold by FLIR Systems, which acquired ICx in 2010. Takiff's company works with FLIR in the sale and development of diesel monitoring technology.

"The more people learn about it, the more they realize it's a very hazardous material that can cause cancer and other acute and chronic health problems," says Takiff. Neither OSHA nor the EPA regulates exposure to DPM, though the EPA does regulate emissions from diesel engines.



Previously, the only accurate method for measuring DPM levels was a laboratory test (NIOSH 5040) which requires about three weeks of lab analysis. It generates a single number for the entire test period, and does not let the operator know exactly when and where high levels of DPM are detected. Test subjects could determine whether they were in compliance with regulations, but could not prevent exposure.

"The more people learn about it, the more they realize it's a very hazardous material that can cause cancer and other acute and chronic health problems." Larry Takiff

The Airtec is the first instrument usable in these environments to provide real-time exposure monitoring. DPM levels are displayed on a screen and recorded for later analysis. There is also an alarm to provide an immediate warning of high levels of diesel particulates. The much lower cost and ease of measuring DPM levels with Airtec as opposed to the NIOSH 5040 method facilitates using the device, and the real-time output allows immediate changes to keep worker exposure to allowed limits.

The Airtec was developed by ICx Technologies under license from the Centers for Disease Control and Prevention after the basic technology was developed by government scientists led by Dr. James Noll at the Pittsburgh Research Laboratory of the National Institute for Occupational Safety and Health. About the size of a large paperback book, the unit weighs just 1.5 pounds and can be worn by workers or placed in locations that are being monitored. It was introduced commercially in March 2011.

NIOSH has tested the Airtec and determined that it gives the same results as the established NIOSH 5040 method without the delay and at a much lower cost. The ability to get instant results could lead to better DPM regulations.

"One of the reasons it's been difficult to regulate DPM exposure is that before the Airtec, it was just very difficult to measure accurately and there was no way to measure it in real time," says Takiff. "Eventually, regulations will be implemented to take advantage of better air monitoring technologies like the Airtec. How quickly regulations will change is an open question."



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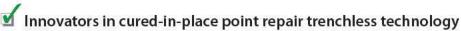


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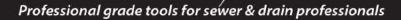
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#### BY JUDY KNEISZEL

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he Pumper & Cleaner Environmental Expo International does something to attendees and exhibitors ... it makes them hungry! Fortunately, there are numerous lunch and dinner options in Indianapolis within walking distance of the Indiana Convention Center and downtown hotels.

So check out the varied menus of these popular nearby eateries — featuring ethnic and popular local fare — then enter an address in your smartphone GPS and point your walking shoes down the street.

(Take note that price ranges are a per person estimate not including tax, tip or beverage.)

#### **THE EAGLE'S NEST AT HYATT REGENCY** 1 S. Capitol Ave.

317/632-1234 www.indianapolis.hyatt.com

The Eagle's Nest, perched high atop the Hyatt Regency, slowly revolves, giving diners stunning views of the skyline. The menu, which changes seasonally, provides elegant and creative takes on classic American continental cuisine.

Hours: 5-10 p.m. daily

Price range: \$40-\$80

Menu sampling: Dry-aged, peppercom-crusted, bone-in New York strip steak; pan-seared halibut with Parmesan potato gratin; lobster corn chowder; strawberry crème brulee.

#### **GIORGIO'S PIZZA**

9 E. Market St. 317/687-9869 www.giorgiosindy.com

If you're in a hurry, you can grab pizza by the slice. If you've got more time, settle in for a whole pie in thin or thick crust style, some pasta or a calzone. And if you're too tired to go out, Giorgio's delivers for free with a \$10 minimum order.

Hours: Monday through Thursday: 9 a.m. to 9 p.m.; Friday: 9 a.m. to 10 p.m.; Saturday: 11 a.m. to 10 p.m.

**Price range**: Slices range from \$3-\$4; whole pies from \$10.95 for a 14" thin crust cheese to \$22.95 for a stuffed 16" large. Pasta dishes are \$6.45.

Menu sampling: Meatball Parmigianino hot sub; baked lasagna; pepperoni-filled bread sticks; Giorgio's chef salad with black olives and extra cheese; Sicilian cannoli.

#### **SLIPPERY NOODLE INN**

372 S. Meridian St. 317/631-6974 www.slipperynoodle.com

Established in 1850, the Slippery Noodle is the oldest bar in Indiana, and has been called one of the nation's top blues bars by *Rolling Stone* magazine. The Noodle serves up a full menu as well as live blues seven days a week.

Hours: Full menu available till 11 p.m. nightly; late night menu offered. Opens daily at 11 a.m.

Price range: \$8-\$20

Menu sampling: Shooter of shrimp; BBQ chicken quesadillas; whiskey pepper cheeseburger; filet mignon; Southern-style pork barbeque; chicken and broccoli Alfredo; toasted turkey sub.

#### SCOTTY'S BREWHOUSE DOWNTOWN 1 Virginia Ave.

317/571-0808 www.scottysbrewhouse.com

Scotty's is perfect if you're dining with a group that can't make up its collective mind about where to go. This huge casual restaurant and bar has an enormous menu, more than 70 beers and countless sports-playing TVs. For those with special dietary needs, there's a gluten-free menu and a low-calorie menu. For those less-restricted folks, there's the "big ass brewhouse burger," which comes with a T-shirt for \$36.

Hours: Sunday through Thursday: 11 a.m. to 11 p.m.; Friday and Saturday: 11 a.m. to midnight

Price range: \$7.50-\$20

Menu sampling: Dill chips (fried pickles); Brewhouse Buffalo wings; "Macho Nachos"; spicy sirloin steak sandwich; barbeque ribs; the "Shewman Special" half-pound burger with peanut butter, jalapenos, cheddar cheese and bacon; homemade soup of the day; mile-high grilled cheese; sweet chicken club wrap; homemade German chocolate cake.

SHAPIRO'S DELICATESSEN 808 S. Meridian St. 317/631-4041 www.shapiros.com

Named one of the Top 10 delis in the country by USA Today, Shapiro's is a must for corned beef fans. Quick cafeteria-style service means more time to savor

your sandwich, contemplate dessert from their full-service bakery or simply get back to the Expo!

Hours: 6:30 a.m. to 8 p.m. daily

Price range: \$5-\$14

Menu sampling: Sandwiches including Reuben, pastrami, and smoked turkey; matzo ball soup; cabbage borscht; Shapiro's bagels; stuffed cabbage; short ribs; stuffed peppers; potato pancakes; sour cream egg noodles; hot German potato salad.

SHULA'S STEAK HOUSE AT THE WESTIN 50 S. Capitol Ave. 317/231-3900 www.donshula.com/shulas-steak-house-indianapolis

Shula's combines steak and football in elegant, fine dining style. The restaurant is themed after the 1972 Miami Dolphins' "Perfect Season." The menus are even hand-painted on an official NFL game football.

Hours: Open daily, 11:30 a.m. to 2 p.m. and 5 to 10:30 p.m.

Price range: \$60-\$80

Menu sampling: French onion soup; jumbo lump crabcakes; prime rib; 22-ounce ribeye; roasted com with bacon and shallots; truffle fries; molten lava chocolate cake.

MAXINE'S CHICKEN & WAFFLES 132 N. East St. 317/423-3300 www.maxineschicken.com

Home cooking is always on the menu at Maxine's, where their slogan is "A taste of love in every bite." This is a menu full of made-from-scratch comfort food.

Hours: Tuesday: 10:30 a.m. to 2:30 p.m.; Wednesday through Friday: 10:30 a.m. to 8:30 p.m.; Saturday: 9 a.m. to 8:30 p.m.; Sunday: 9 a.m. to 6 p.m.

Price range: \$5-\$15

Menu sampling: Jumbo fried chicken wings and waffle topped with peach butter; omelets with house potatoes; smothered chicken; catfish or tilapia with grits; half-pound burgers; fried green tomatoes; candied yams; black-eyed peas; seasonal cobbler.

#### FAST BURRITO MEXICAN GRILL

111 Monument Circle 317/917-8090 www.fastburritomexicangrill.com

If you need lunch in a hurry, but want something a bit healthier than a fast food burger, Fast Burrito offers fresh cuisine prepared using authentic Mexican recipes. Four salsas from mild to extra hot will add just the right kick.

Hours: 7:30 a.m. to 3 p.m. daily

Price range: Under \$10

Menu sampling: Burrito with choice of fillings; burrito bowl; grilled quesadilla; tacos; nachos; salad with chipotle ranch dressing. Fillings include marinated chicken, skirt steak, barbacoa (marinated beef brisket), ground sirloin, or sautéed peppers and onions.

#### LOUGHMILLER'S PUB & EATERY

301 W. Washington St. 317/638-7380 www.loughmillerspub.com

A patriotic décor welcomes diners to this casual, independently owned pub

serving up an array of burgers, sandwiches and other traditional American favorites. Choose one of their 35 beers to wash down the hearty pub grub.

Hours: 11 a.m. to midnight daily

Price range: \$8-\$15

Menu sampling: Bacon and cheese fries; Southwest nachos; homemade chili; Indiana Cobb salad; Loughmiller's Little Cuban sandwich; pulled pork sandwich; English beef sandwich with cheddar and horseradish.

#### **MCCORMICK & SCHMICK SEAFOOD RESTAURANT**

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Technician Ron McKenzie sets up a trailer jetter from US Jetting on a residential drain cleaning job. (Photos by Mark Roberts)

# FLAT-RATE PRICING AND A CUSTOMER-CENTRIC APPROACH ALLOW MR. ROOTER OF TRI-CITIES TO STRENGTHEN RELATIONSHIPS AND GROW REPEAT

BUSINESS BY LISA BALCERAK

It may seem counter-intuitive, but the key to success for Mr. Rooter of Tri-Cities in Benton City, Wash., has been to spend a lot of time with each customer. Instead of rushing through a job to move onto the next one, technicians take time to talk with customers before they start any work. Customers have responded well to the extra level of care, resulting in a 65 percent repeat business rate and \$900,000 in annual sales.

Mr. Rooter of Tri-Cities provides drain cleaning and plumbing services to residential and commercial properties. A quarter of the business is drain cleaning and hydroscrubbing, while the remainder is pipe bursting, pipe lining, and general plumbing services, such as installing water heaters and repairing toilets and faucets. The company serves five counties in southeastern Washington and northeastern Oregon that cover a 140-mile-wide area with a total population of half a million people. General manager Dan King bought the Mr. Rooter franchise in 1997 and now has 12 employees, including his wife, Jill (office manager), and son, Shaylin (operations manager).

(continued)



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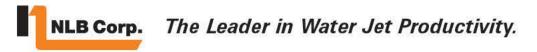
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Owner Shaylin King follows step number five of Mr. Rooter's 14-step customer introduction plan – The Entry – lay down a Mr. Rooter mat and put on shoe protectors.

#### CUSTOMER-CENTERED

In lieu of hourly billing rates, the company uses a flat-rate pricing structure that eliminates concerns about the number of hours it takes to complete a job. "It doesn't matter how long we spend with a customer," Dan says. "They know the price before we start to work and it sets their mind at ease. They don't worry about how many hours we will be there."

During a visit, technicians follow a 14-step customer service model to ensure the customer is well served and the property is protected, by giving the red carpet treatment at the door, wearing shoe covers and laying down work mats, and leaving the home cleaner than it was originally.

Education is an extremely important step to help reduce a customer's stress. "We usually like to spend 10 or 15 minutes assessing the situation, explaining what is going on, and what we can do to alleviate the symptoms or fix the problem permanently," Shaylin says. "We want to fix it once, fix it right, and fix it forever so they don't have to worry about it."



"The longer we spend with a customer before we talk about price, the less important price becomes because we are giving them value along the way and helping them realize we are concerned about their property and their issues." Dan King

Taking time to educate people about their plumbing needs allows technicians to build relationships that result in repeat business. Discussing costs for the job doesn't occur until 30 to 45 minutes into a visit.

"The longer we spend with a customer before we talk about price, the less important price becomes because we are giving them value along the way and helping them realize we are concerned about their property and their issues," Dan says. "The highest priority is to take care of the customer, which includes



making them feel comfortable having a stranger work in their home."

#### **STAFFING CHALLENGES**

Using such a different customer service philosophy sometimes creates staffing problems for Mr. Rooter Plumbing of Tri-Cities. "We struggle with retention," Shaylin says. "It's a challenge finding technicians who are dedicated to our

Inventory controller/laborer Richard Barton uses a Spartan cable machine to clear a residential line. way of doing business because it's different than how other companies do it. We are constantly looking for good-quality employees."

The company uses a three-step interview process to screen candidates. After a general initial interview, a second interview involves a more in-depth discussion about Mr. Rooter's customer service process. A third interview often (continued)

#### **GIVING BACK TO A LOCAL CHARITY**

Mr. Rooter of Tri-Cities supports its local Ronald McDonald House in Spokane, Wash., by holding donation drives and soliciting customers to donate toiletries and food.

Since 2010, the company has given thousands of dollars in donations, including three refrigerators. The charity has a particularly personal connection to Shaylin, whose son spent time in an intensive care unit when he was born prematurely in 2003. Shaylin and his wife and family all stayed in a Ronald McDonald House over the course of seven days. "We were able to be close to the hospital and be with family rather than be split up and separate. It made life a little easier," Shaylin says.

The Mr. Rooter parent company, The Dwyer Group, is a national sponsor of Ronald McDonald House Charities.





includes the candidate's spouse or partner to make sure everyone understands the dedication required for the job.

"Often the problem is with the spouse," Dan says. "They have a hard time with the hours or with being on call, so we want them to be on board and know what to expect."

To evaluate the effectiveness of its technicians, the company tracks closing rates to determine how many consulting visits resulted in a sale. "They need to give the customer a reason to do business with us," Dan adds. "If customers call to say they like their tech, we know they're taking care of the customer."

#### "We want to fix it once, fix it right, and fix it forever so they don't have to worry about it." Shaylin King

#### FOOD AND OTHER CLOGS

Several nearby food processing plants provide regular business, particularly in the summer months. Processors of potatoes, onions and other vegetables occasionally experience blockages in their product transportation lines. A blocked line results in lost profits for a processor, so Mr. Rooter technicians must respond quickly to emergency calls at any time of day or night.

One regular customer is a potato processor that experiences clogs in a 10inch, 500-foot overhead pipe transporting raw product across the plant. The blockage is often several feet deep with compacted potatoes. The technician must suit up in rain gear, get elevated with a man lift, open the pipe, and use a hydroscrubber to break up the potatoes and dislodge the clog.

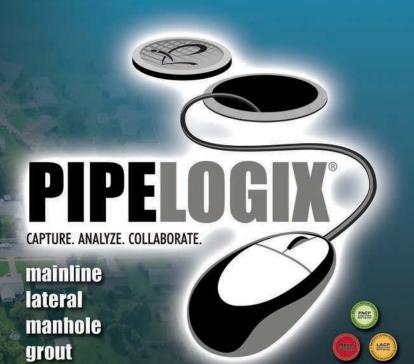
The Kings see a great opportunity to grow their commercial business by creating a division dedicated strictly to commercial customers, particularly restaurants. "A residential customer may use a plumber every three years, but a commercial business uses a plumber every couple months," Dan says. "Generally, commercial work is repeat work. We could expand our business immensely just on that volume of work." (continued)

ABOVE: Shaylin King uses a MyTana camera to inspect a drain line in a medical office building. BELOW: The Mr. Rooter team includes, front row, from left, operations manager Shaylin King, and owners Dan and Jill King; back row, technician Ron McKenzie, technician Greg Sears, inventory controller/laborer Richard Barton, customer service representative Caroline Perry and customer service representative Deann Metz.



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The company plans to hire a sales manager to call on commercial accounts and set up more preventive maintenance programs with regularly scheduled drain cleanings to avoid emergency blockages that cause downtime.

#### STATE-OF-THE-ART EQUIPMENT

Investing in the latest plumbing and rooter equipment has given Mr. Rooter of Tri-Cities an edge over its competition. For example, the company was the first in the area to have cameras installed on its trucks in the mid-1990s. Today, it's the only company in the region equipped to do pipe bursting and residential pipe lining, and one of the few with a trailer jetter. The reason for buying state-of-the-art equipment goes back to the basic idea of taking care of customers and meeting their needs.



Shaylin King uses a Spartan cable machine to clean out a kitchen sink drain

"It's not always in the best interest of the customer to tear up their yard and landscape. They have an investment in it," Dan says. "We have the technology to replace sewer lines without destroying what they've worked so hard to develop."

Recently, the company won a pipe replacement job in which the bid was a couple thousand dollars more than the competitor, but the customer saw the value in a trenchless repair instead of excavating the yard. "They went with us even though it would cost more," Shaylin says. "They looked at the cost and expense to repair their yard and decided it was worth the investment now instead of the hassle of fixing their yard later."

The company has demonstrated the value of alternative repair methods by providing free video inspections of sewer lines. The technician can better view which lines need work and can sell more repair work versus companies that don't do video inspections.

Trenchless equipment has also helped garner business for some atypical projects. In summer 2011, Mr. Rooter of Tri-Cities helped the city of Walla Walla, Wash., replace 20 lateral sewer lines in a neighborhood without damaging oldgrowth trees. Technicians used pipe bursting to upsize 4-inch pipes to 6-inch pipes without disturbing the tree roots. In 2008, the company replaced 950 feet of sewer line at a rest stop that was built on a protected ancient Indian burial ground near the Hood River in Oregon. Using pipe bursting, it took 10 days to replace the sewer line without disrupting the burial sites.

"It's not always in the best interest of the customer to tear up their yard and landscape. They have an investment in it. We have the technology to replace sewer lines without destroying what they've worked so hard to develop." Dan King

Mr. Rooter of Tri-Cities has five service vans and two trailer-mounted jetters from US Jetting and Lely Manufacturing. The equipment fleet includes cart jetters from MyTana, Spartan and Viking, as well as 3/4-inch augers and several Spartan sink machines. For pipe replacement jobs, the team uses TRIC Trenchless equipment, a Vermeer Hammerhead Mole and the Nu Flow pipe lining system. A Komatsu excavator and Kubota tractor are available for jobs that require excavation, and all service trucks are outfitted with locators and cameras for video inspections.

#### THE FUTURE IS WATER TREATMENT

Looking ahead, Mr. Rooter of Tri-Cities believes the future of the

plumbing industry will be in-home water treatment. In fact, the company plans to build a water treatment division for selling and installing water filters, conditioners and softeners.

"Many people are buying bottled water and Brita home filters because they aren't happy with the quality of their water," Shaylin says. "We have solutions they can have in their homes to have quality water everywhere."

Shaylin believes the growing displeasure with city-provided water is due to higher chlorine usage by municipalities, which can cause unpleasant odors in the water. "Most people don't know they can do anything about their water quality, so they live with it," he says. "We need to get the word out that we can take care of it with home carbon filters." e.

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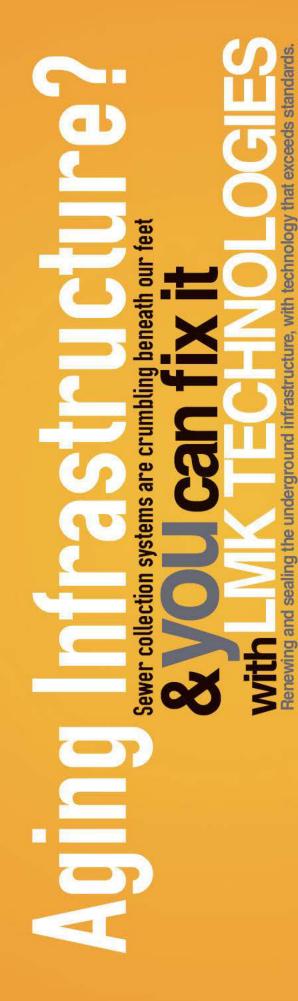
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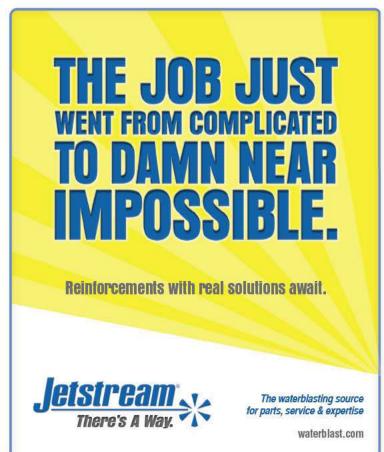
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### A Handbook for Your Business

AN EXPLANATION OF POLICIES, PRACTICES AND EXPECTATIONS WILL PUT EVERYONE ON THE SAME PAGE

BY FRED S. STEINGOLD

icrosoft, General Motors and IBM have long recognized the virtues of having an employee handbook. What works for the big-time operators can work for you as well – even if you employ just a handful of workers.

Consider some of the advantages of having an employee handbook. For starters, once you give it to an employee, you don't have to remember whether you gave the employee a list of paid days off or explained your vacation policies. It's all there in the book and all workers are get-

ting the same information.

In addition, your handbook can help protect you legally if an employee sues your company. For example, a handbook statement that sexual harassment won't be tolerated in the workplace can be crucial in a sexual harassment lawsuit.

Be aware, however, that there can be a legal downside to having an employee handbook. If you're not careful, your handbook may be treated as a contract that limits your right to fire employees. To avoid that result, state in the handbook that employees

don't have employment contracts unless they are in writing and signed by the company president. Also, make it clear that your company reserves the right to terminate employees for reasons not stated in the handbook or for no reason at all.

These precautions may not be foolproof. Courts tend to look at the handbook as a whole. If a reasonable employee would conclude that the handbook creates rights in the employee, a court might treat the handbook as a contract.

You can produce an employee handbook quickly and cheaply by using a self-help book or software program as a starting point. Modify the sample wording to fit your own needs. Then, if you have specific legal questions, see your lawyer.

Here are some topics to include in your employee handbook.

- *Introduction*. Describe your company's history and business philosophy. This helps you set the tone which can be friendly and welcoming if that's your style. But make it clear the handbook doesn't cover every possible situation.
- Hours. State the normal working hours and how overtime pay is authorized for those employees entitled to it.
- *Pay and salaries*. Be clear on how pay and salaries are set and how they're raised. In very small businesses, this may be a statement that levels of pay are established and adjusted by the company president, taking into consideration past performance, cost of living changes and the ability of the business to pay.
- · Benefits. Employee benefits typically include paid vacations, health



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

benefits, sick pay and paid leaves for extended illness, pregnancy or family matters. Since the law doesn't require you to provide paid sick days or vacation days, you're free to set the terms under which such benefits are granted. Be clear on whether the employee can carry unused sick or vacation days into the next year and what happens to such benefits if an employee quits or gets fired. Finally, describe any 401(k) or retirement benefits you offer.

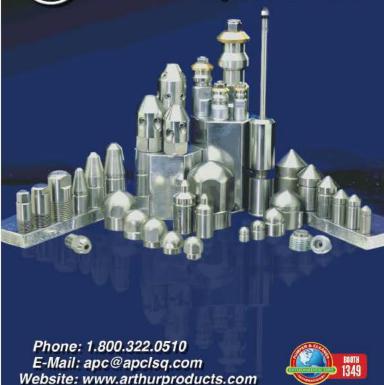
If you're not careful, your handbook may be treated as a contract that limits your right to fire employees. To avoid that result, state in the handbook that employees don't have employment contracts unless they are in writing and signed by the company president. Also, make it clear that your company reserves the right to terminate employees for reasons not stated in the handbook or for no reason at all.

- *Drug and alcohol abuse*. Most businesses prohibit employees' use of alcohol or illegal drugs in the workplace. In addition, some businesses offer help to employees in dealing with abuse of these substances often by paying for professional counseling.
- *Sexual harassment*. Remind employees that sexual harassment is illegal and violates your policies. Let them know that you won't tolerate unwelcome sexual comments or conduct, and that you'll assist those who speak up about it in ending any harassment.
- Job attendance. Emphasize the importance of good attendance and showing up on time. Tell employees the types of absence that are excused, such as illness, and perhaps a family member's death. Also, explain that piling up a load of unexcused absences or coming to work late too often can be a basis for disciplinary action or even firing.
- Discipline. List the kinds of conduct that can get employees in trouble

   for example, theft or violence. But again, let employees know this
   isn't an exclusive list and that you always reserve the right to decide to
   terminate employment.
- *Employee safety.* State that employee safety is a major concern and that employees are expected to heed the posted safety rules and to call to your attention any potentially dangerous conditions.
- *Smoking.* Most businesses need a written policy for on-the-job smoking. Many cities and some states now prohibit or restrict workplace smoking. Be sure your policy meets the requirements of state laws and local ordinances.



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- · Grievances. Let employees know the procedures for resolving grievances. Consider setting up a grievance committee consisting of employees who meet informally and make recommendations on employment issues.
- · Workplace civility. State that employees must treat each other with respect and that the success of the business depends on cooperation and teamwork.

Document that each employee received the handbook. This is another chance to let employees know that the handbook isn't a contract, that it doesn't guarantee you'll continuously employ them and that you're not obligating your company to continue the current job benefits forever.

To do this, include with your handbook two copies of an Employee Handbook Acknowledgement. Then ask each new employee to sign both copies to acknowledge that he or she has received the handbook and is familiar with its terms.

Keep one signed copy of the acknowledgment in the employee's personnel file maintained by your business. The employee can keep the other copy. Have each employee sign a similar receipt each time you distribute significant revisions or updates of your handbook. c



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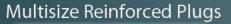


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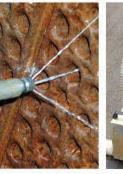






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Tech Perspective looks at technology-related issues and provides information and advice that cleaning professionals can apply to equipment selection and to their daily work in the field. Industry members are welcome to offer ideas for this column.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

### Seven Powerful Tools for Inspection Perfection

PROVIDING GOOD DATA AND A GOOD EXPERIENCE WILL GIVE YOU PLENTY OF OPPORTUNITIES FOR REPEAT BUSINESS

BY MARK HILL

s a client for over 2,500 miles of pipeline inspection work, I can tell you that I have awarded millions of dollars of work based on two primary qualities in subcontractors. Price isn't one of them.

So, what are these two primary qualities? The overall quality of the experience with the contractor, and the quality of the data received. In order to be successful, you will need both of these qualities. A great experience with poor data, or great data and a bad experience, will not generate repeat business.

I had a subcontractor who was very good at potholing with air excavation. He decided to get into the CCTV business and purchased a van. Based on our experience with his potholing services, we contracted with him for some CCTV work. He then complained about his equipment, the pricing we negotiated and the difficulty of the work ... and then he complained that we weren't giving him any more work. The inspection work he provided was top-notch, but I didn't want to work with him because he clearly had not mastered the two primary qualities.

These primary qualities are the sum total of a myriad of smaller details, the Seven Powerful Tools for Inspection Perfection outlined below.

Personal presentation prevails

Your interview for follow-on work begins at first contact and continues through the life of the relationship with the client.

We were working on a large project with multiple CCTV contractors. All but one showed up to the weekly meetings in company shirts, hats and Dickies. The other showed up in shorts, a T-shirt, a do-rag and a jacket tied around his waist. He was a fantastic data collector, but the client lost trust in him because of his appearance. From that point on, his work was under higher scrutiny than other less capable inspectors.

#### Problem solving

Maps provided by the client do not always match field conditions. Since the client is not out in the field observing and noting discrepancies, be sure to provide the alignment information. Understanding the actual alignment of the pipeline is paramount for providing good inspections. Document any discrepancies in the database, video and map to provide the client with the proper information to ensure that the inspections are complete and correct.

#### Use good business sense

Be honest and straightforward in all of your dealings. This takes effort, but beneficial, long-term relationships are built on trust. Honesty does not come naturally to many people – you have to continually work at it, but the work is worth it. As an example, one of the crews got a camera stuck in a line. Rather than Whether they are located in a backyard or an airport, there are likely obstacles between you and the manhole or clean-out you are looking for. SIMPLY NOTING "NO ACCESS" DOES NOT GIVE YOU PERMISSION TO ABANDON THE PURSUIT OF THE INSPECTION.

calling for help, they tried to use a forklift to yank it out. The result was the destruction of a \$30,000 camera and several weeks of downtime. Another inspector backed the truck into a brick mailbox structure – this thing was like the Taj Mahal of mailboxes. Rather than trying to hide the damage, he called his supervisor. They worked with the owner to repair the damage, and what could have been a public relations nightmare turned into a positive situation.

#### Be client-centric

Understand your client and what decisions will be made from these videos. Review all inspections prior to delivering them to the client. Make sure the inspections and accompanying data are complete and review the quality. Everyone is responsible for quality from top to bottom. Not all access points are easy to find or get to. Whether they are located in a backyard or an airport, there are likely obstacles between you and the manhole or clean-out you are looking for. Simply noting "no access" does not give you permission to abandon the pursuit of the inspection. Going above and beyond to find a way to access the facility displays dedication and determination to provide the best product possible. Access can always be gained through coordination with the local and/or controlling agencies.

While it is important to solve problems to help the client understand the field conditions, do not make engineering judgments for the client. One of our contractors came upon a broken section of pipe. He noted the cracks and root intrusion as he should have. He then went on to say that the pipe was "structurally ... bad." It is the client's job to make the determination of structural integrity or any other engineering-related analysis. The actual condition assessment of the facility is a problem for the client to solve, not the inspector.

#### Microphone etiquette

A clear narrative voice is another important piece of a quality inspection.

Be sure to include sufficient detail. It's also important that you're comfortable speaking into the microphone. Don't get too close to the microphone; no one wants to hear you breathing. Don't speak too softly or too loudly, and don't use inappropriate language.

#### Camera work/database work

If you stop and look at something during the inspection, explain what you're looking at. Explain your observations and include perspective and detail. Provide depth information if you are using PACP or any coding system that does not quantify sags. Take a look around at the start and finish manholes. This provides a view of the manhole that is not available above grade.

To produce quality video, it's also important that you don't move the camera with the screen text up and that you don't pan while driving.

#### Before and after inspection

Preparation prior to the inspection and preparation of the data after the inspection is vital to providing a quality product to the client. It is important to locate the upstream and downstream manholes prior to the pipe inspection to ensure that both are accessible. If one can't be located, turn off the light on the camera upon entering the structure and look for light entering through the pickhole. If there is light, the manhole is at grade and can be located and inspected. If not, the manhole is likely buried or paved over.

It's also wise to review your inspection videos prior to leaving the site. Check the beginning, middle and end of the video to make sure the sound and lighting are good.

There is far more that can be said about each of these seven tools, but this gives you a good overview of how to give your clients quality results and a quality experience. That should lead to happy customers and more business for you, which is well worth the effort. **c** 



**ABOUT THE AUTHOR** Mark Hill is a senior project manager with RBF Consulting. He will be presenting more detailed information on the Seven Powerful Tools for Inspection Perfection at the 2013 Pumper & Cleaner Environmental Expo in Indianapolis. He will be giving his presentation at 8 a.m., Monday, Feb. 25.

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# EBUCATION BAY SEMINARS MONDAY FEBRUARY 25TH

NAWT	National Association of Wastewater Technicians	
8 a.m.	Introduction to Pressure Distribution	
9:30 a.m.	Designing Systems, Boundaries and Barriers from a Soils Perspective	
<b>11 a.m.</b>	Pump Choices and Settings: Decisions for Proper Operation	
1:30 p.m.	Operation and Maintenance of Pressure Distribution Laterals	
3 p.m.	Installing with Management in Mind: How to Get the Most out of Your System	
4:30 p.m.	Design and Maintenance of Grease Interceptors	
SSESE	Southern Section Collection Systems Committee	
8 a.m.	Seven Powerful Tools for CCTV Inspection Perfection	
9:30 a.m.	Easements — A Collection System Maintenance Nightmare	
<b>11 a.m.</b>	Nozzle Science — The Next Generation of Tier 3 Nozzles and Beyond	
1:30 p.m.	Pass or Fail — Is Your Company Going To Make It? How to Ensure Success	
3 p.m.	Social Media and Web-Based Promotion: Is it Right for Your Business?	
4:30 p.m.	Pipeline Relining and Rehabilitation Solutions	
NOWRA	National Onsite Wastewater Recycling Association	
8 a.m.	Time Dosing Why? How? And How Much?	
9:30 a.m.	Loading Rates — How Much Can the Soil Take?	
<b>11 a.m.</b>	Troubleshooting Pumps, Floats and Panels	
1:30 p.m.	The Dirty Dozen — Toxins That Kill Septics	
<b>3 p.m</b> .	How Installers Can Use the Poor Economy to Increase Profits	
<b>4:30</b> p.m.	Are Seepage Pits Really Bad?	
8 a.m.	Designing Drip Dispersal Systems	
9:30 a.m.	Designing Drip Dispersal Systems         Soil Erosion Control During and After Septic System Installation         Decentralized Wastewater Collection System Maintenance	
<b>11</b> a.m.	Decentralized Wastewater Collection System Maintenance	

### NEXSTAR Independent Residential Service Contractors Association

 1:30 p.m.
 The Art and Science of Business Management

 3 p.m.
 The Business of Contracting



NEHA	National Environmental Health Association		
8 a.m.	What Makes a Professional in Onsite Wastewater Systems?		
9:30 a.m.	Part One: The Science and Engineering of Onsite Wastewater Treatment		
<b>11 a.m.</b>	Part Two: The Science and Engineering of Onsite Wastewater Treatment		
1:30 p.m.	Education and Training: Professionalization of the Practitioners		
3 p.m.	Management Models: Management and Becoming a Management Entity		
4:30 p.m.	The Future of the Onsite Wastewater Industry: How to Make it Work for You!		
NASSCO	National Association of Sewer Service Companies		
8 a.m.	Ultraviolet Manhole Rehabilitation		
9:30 a.m.	Convey Your Stormwater and Plug Your Holes!		
11 a.m.	Jet Up! Sewer and Storm Water Cleaning		
1:30 p.m.	Rethinking Collection Maintenance with Sewer Line Rapid Assessment Tool or SL-RAT		
3 p.m.	Case Study of Cleaning Large Diameter Sanitary Sewers and Siphons		
4.00			

4:30 p.m. Pipeline Assessment Certification Program (PACP) 2013 Update Workshop

### SCOTT HUNTER Business Coach

8 a.m. - 5:30 p.m. 2013 - Your Best Year Ever

WJTA/I	MCA	Waterlet Technology Association	
8 a.m. 9:30 a.m. 11 a.m.	Selectin	and Efficiency — You Don't Have to Choose! 1g the Best Jetting Tip Doesn't Have to Be Scary xcavation — The Non-Destructive Solution	
PHIL ST	EIN	Vacuum System Information	
1:30 p.m.	Underst	anding the Power: Physics of Vacuum and How it Works	
PSAI	Portal	le Sanitation Association International	
4:30 p.m.	GAP: Good Agricultural Practices		

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# FEBRUARY 25-28, 2013

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## **TUESDAY TRACKS**

**EXPO** 

FEBRUARY 26TH, 2013

### TRANSPORTATION AND LAND APPLICATION

ENVIRONMENTAL

ERNAT

8 a.m.	Driver Compliance and Certification: How to Meet DOT Requirements
9:30 a.m.	Staying in Compliance with 503 Regulations for Land Application
11 a.m.	Land Application: Case Study of a Long-Term Operation

### **INDUSTRY SAFETY**

3

8 a.m.	One Piece Nozzles Enhance Performance and Safety
9:30 a.m.	Confined Space Entry Permit and Equipment Review
11 a.m.	Utility Line Locating

# 8 a.m. Making Emergency Response Your Business 9:30 a.m. How to Protect and Maintain Sewer Hose From Mini Jetters to Combination Units 11 a.m. How to be Successful in the Cleaning/CCTV Business

### **GENERAL BUSINESS**

8 a.m.	New Untapped Techniques to Capture Today's Customers	
9:30 a.m.	10 Steps to Marketing Success	
11 a.m.	Cloud Computing for Small Business and the Field Service Industry	
8 a.m.	Don't Win the Price Game	Busi
9:30 a.m.	Make the Phone Ring with Low-Cost Marketing	Business Room
11 a.m.	Local Marketing on the World Wide Web	moom

### SEWER COLLECTION & REHABILITATION

8 a.m.	Chemical Grouts and Grouting Methods
9:30 a.m.	Watch Your Assets — Remote Monitoring Can Save You Big Bucks
11 a.m.	Lateral Connection Rehabilitation: Biggest Bang for the Rehabilitation Buck

### SPANISH/ESPANOL

8 a.m.	Floods in Mexico City
9:30 a.m.	Best Practices for Working in Confined Spaces
11 a.m.	How to Overcome the Difficulties of Doing Business in South America

## WEDNESDAY TRACKS

FEBRUARY 27TH, 2013

### SEWER COLLECTION & REHABILITATION 8 a.m. Cash for Compliance: The New Boom in Home Sewer Replacement

9:30 a.m.	Trenchless Point Repairs, a Low Cost Permanent Solution
11 a.m.	Penn State University Performs Manhole-to-Manhole Lining In-House
GAS, OI	L & MINING
8 a.m.	How to Decide What Dewatering Option is Best for You
9:30 a.m.	Blower 101: The Basic Operation of the Positive Displacement Blower
11 a.m.	Principles and Equipment of Hydro-Pneumatic Vacuum Excavation
GENERA	L BUSINESS
8 a.m.	Save Money — Move Your Business to the Cloud
9:30 a.m.	Morally Bankrupt
11 a.m.	Measuring Success Matters: Your Ads, Your Agents, Your Technicians
NUNICIF	PAL
8 a.m.	Benefits of Digital Side Scanning Inspection Camera Systems
9:30 a.m.	Application for Sewer and Storm Nozzles
11 a.m.	Grinder Pumps & Application
PORTAB	LE LIQUID WASTE
8 a.m.	A View from the Receiving End: Regulatory Challenges in FOG Programs
11 a.m.	Now You Smell Me, Now You Don't: Deodorants
EW TE	CHNOLOGY

8 a.m.	Improving Safety and Technology with Wireless Technology
9:30 a.m.	New Technology for Locating Sewer Line Leaks
11 a.m.	Solve Decentralized System Malfunction Issues and Site Challenges

### DVANCED INSTALLER COURSE

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### Your Card, Please

BUSINESS CREDIT CARDS CAN BE HELPFUL – BUT MAKE SURE YOU ACCOUNT FOR THE HAZARDS

### **BY ERIK GUNN**

f you've got even a single employee – or for that matter, if you run your business as a sole proprietor – you've probably at least considered getting a separate business credit card.

That probably sounds like a no-brainer. After all, it stands to reason that you should separate your business and your personal expenses, and a business-only credit card makes it easy to do that. And if you've got employees, issuing them credit cards for authorized expenses – such as a gas card to refill the company vehicles they drive, or a card they can use to pick up supplies directly from a vendor – may seem to be convenient at the very least.

But there are reasons to be careful when you decide to opt for a business credit card, especially if it's one that you issue to others in your business as opposed to just yourself. So if you're even considering taking this step, ask yourself these questions:

#### Do I want a business card - or just a dedicated card?

There's a difference between getting a card that's used only for your business and one that is marketed and regulated as a business credit card.

The 2009 CARD Act did a lot to improve consumer protection in the use of credit cards. It capped late fees, blocked arbitrary interest rate hikes without warning, and also for the first time required card companies to apply consumers' payments first to the highest-interest debt instead of the lowest-interest debt.

But that law didn't extend those and other protections to the specific class of business or corporate credit cards. Banks that issue business or corporate cards can choose to follow the tougher consumer rules, but many don't, according to a survey last year by the Pew Charitable Trusts' Safe Credit Card project.

While there have been calls to expand the 2009 law to cover business cards, so far that hasn't happened. And until it does, the simplest answer is to use a second, ordinary consumer card, but only put business expenses on it, while reserving your personal credit card for personal expenses. That offers the big advantage of having a dedicated card – ease of record-keeping – without incurring the downside of less consumer protection.

#### How will this affect my credit rating?

Regardless of whether the credit card for your business is marketed as a corporate card or simply a second personal card, you want to watch your use of it as carefully as you would your own card. Even if the business is separately incorporated, your use of the card – and your promptness at paying it – are going to have an impact on your personal credit report and rating.

So be sure you act prudently with it. Even if your business might be able to afford the debt, think twice before just racking up expenses on the card that will take you time to pay down. They're likely to lower your personal credit rating and credit score, too.



Erik Gunn is a magazine writer and editor In Racine, Wis, where he operates Great Lakes Editorial Services, consulting for businesses, non-profits and individuals. Readers may direct inquiries to him by contacting this publication at 800/257 7222 or emailing editor@cleaner.com.

Because of the way a business card can affect a personal credit score, some financial advisors even suggest that employees turn down a company credit card and instead try to put work expenses on their personal cards, then get reimbursed by their employer. That's not going to help a business owner, though.

#### Do my employees need this?

The other side of the equation involves how handing a business credit card to your employee will play out.

If the employee's use of the card is infrequent, it may not be worth it – unused accounts can actually generate additional fees or even be closed by the issuer. On the other hand, if a particular employee has to incur frequent expenses in working for you, there is probably an advantage to having the individual use a card instead of always having to be reimbursed.

It should be pretty obvious that to issue a credit card to someone else for which you are ultimately responsible demands a lot of trust. So before you do that with your staff, think carefully: Are they responsible enough to use it wisely?

#### Can my employees be trusted?

It should be pretty obvious that to issue a credit card to someone else for which you are ultimately responsible demands a lot of trust. So before you do that with your staff, think carefully: Are they responsible enough to use it wisely?

We all like to think we hire the smartest, most sensible people. And we're all wrong about that from time to time. So step back and evaluate your personnel to decide whether you're comfortable with the risk of putting that amount of financial power in someone else's hands.

#### What should the rules be?

Even when you decide your crew is universally trustworthy, it's still important to make some simple, sensible rules for credit card use. You can enumerate specifically permitted purchases – gas, supplies, perhaps meals or lodging when on the job out of town.

Or you can go the other way and categorize forbidden purchases – personal expenses, personal entertainment, movie channels on the hotel bill for an out-of-town business trip, whatever limits you want to set. Whichever



approach is right for your particular business will depend on the specific details of your business circumstances.

Finally, make sure the rules include provisions for clear and prompt documentation of all expenses. And make sure they are followed consistently by everyone in your organization with access to a card. Making exceptions can be a slippery slope leading to big problems – like a wrongful discharge lawsuit from a worker whom you're forced to fire for making bad use of the company credit card.

#### How do I pick a card provider?

While you might prefer a low- or no-fee card issuer, that isn't always the cheapest alternative. Will your use of the card and your business cash flow mean that you'll have to carry a balance at least sometime during the year? Then zero in on payment terms and interest rates. You may find that a modest fee on a lower-rate card will be better for you than a higher-rate card with no fee.

Also consider what perks are offered. Do travel points really help you or your business? Would straight cash back be better? Again, no one can decide these for you – it really depends on the distinctive nature of your business and, for that matter, your needs.

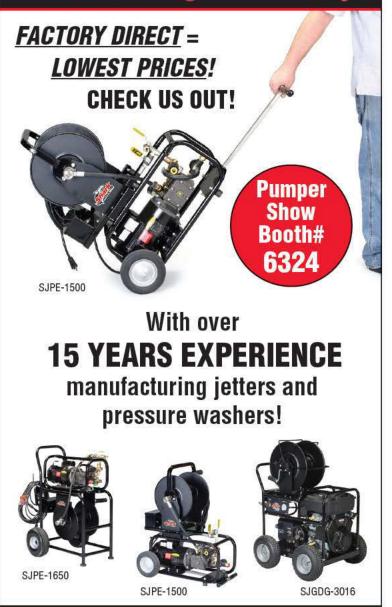
#### The bottom line

There's no question that a business credit card – whether it's a "business" card in name, or just in function – can make your life easier and your business easier to manage. But before you sign that application, think over these questions carefully, and answer them in the way you're most comfortable.

Then you'll be sure that the card is a useful tool, instead of a millstone.



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### **Tip a Frosty Mug**

WHETHER ON FOOT OR ON A GUIDED TOUR, EXPO VISITORS CAN WHET THEIR WHISTLES AT SEVERAL INDY CRAFT BREWERIES King Brewing Co. in downtown Indianapolis.

### **BY SHARON VERBETEN**

n a state that's home to more than 50 breweries, no frosty mug will go unfilled. Many of those breweries — more than a dozen — are housed in the greater Indianapolis area.

"Craft beer in Indianapolis has been a part of our city's culture for over 20 years," says Clayton Robinson, owner of Sun King Brewing Co. "Over the last four years, there has been an explosion of breweries and interest in craft beer Indiana led the 2012 Great American Beer Festival with the greatest percentage of medals to entries, so there is plenty of world-class beer to discover and enjoy."

"My husband and I started the business because a number of craft breweries were starting up in Indianapolis and there was not an easy, safe way to visit them all. We allow people the opportunity to taste great local beer and something that is uniquely Indianapolis." Megan Bulla

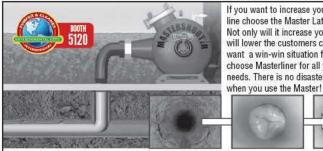
Sun King is among the largest breweries in the state, making handcrafted seasonal and specialty beers. Its house beers include Sunlight Cream Ale, Wee Mac Scottish Ale and Osiris Pale Ale. Its brews were among those honored at the Great American Beer Festival, as well as the Indiana Brewers Cup and World Beer Cup competitions. While tours and tastings are only offered at the end of each



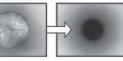
The bright green Indy Brew Bus is one way to visit several local microbreweries in one three-hour tour. Visit, taste and take in the ambience of what the city's brewing world is like — with a group of like-minded, beer-loving friends.

week, the brewery is open for retail sales all week. 135 N. College Ave.; 317/602-3702; www.sunkingbrewing.com.

With so much malt and hops abounding, it makes sense that another city attraction aims to connect the thirsty masses with these beer venues. The bright green Indy Brew Bus, which can host 14 riders, offers a three-hour tour (\$30 per person) of three to four local breweries. Samples of house, seasonal and specialty beers are provided at each stop. And a personal sampling scorecard lets you and your friends (ages 21 or older, of course) rate your favorites.



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Megan Bulla, who owns the tour bus with her husband, Andy, says, "My husband and I started the business because a number of craft breweries were starting up in Indianapolis and there was not an easy, safe way to visit them all. We allow people the opportunity to taste great local beer and something that is uniquely Indianapolis."

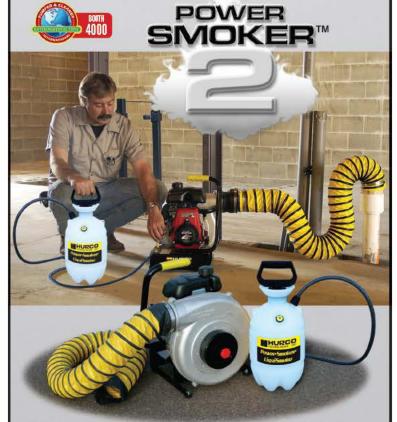
In addition to Sun King, three other breweries are part of the tour, with about 45-minute stops at each. While the Brew Bus has limited tours during the Pumper & Cleaner Expo (more info at www.indybrewbus.com.), all but the Bier Brewery and Taproom are located either a long walk or a short cab ride from the Indiana Convention Center. c

#### FOR MORE INFORMATION:

- Flat 12 Bierworks is a craft production brewery in the historic Holy Cross neighborhood. Sample their beers with most interesting names: Mustache Ride Red, Lacto-Matic Milk Stout, Upside Down Blonde and Liquid Fiction. 414 N. Dorman St.; 317/635-2337; http://flat12.me.
- Fountain Square Brewing Co. is located in the historic Fountain Square neighborhood. It started in 2011, born of the perfect storm of chemistry, microbiology, automation and a good old-fashioned love of the brew. Among their beers are Hop for Teacher, Backyard Porter, Preacher's Daughter Amber Ale and Workingman's Pilsner. 1301 Barth Ave.; 317/493-1410; www.fountainsquarebrewery.com.
- Bier Brewery and Taproom won the Indiana State Fair Champion Brewery Award in 2011 and 2012. One of the brewery's slogans is "come taste our awesomeness." Brews change frequently, and, like most microbreweries, the names don't disappoint, including Dirty Farmgal, Oranjunkle, Sanitarium, Wee Fatty and Billy Baroo. 5133 E. 65th St.; 317/253-2437; www.bierbrewery.com.

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> **David Tinius** Tinius Plumbing, Inc. Lincoln, NE









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### Smooth Under Pressure

CONTRACTOR USES BLOWN EPOXY LINING SYSTEM TO REHABILITATE WATERLINES IN A LARGE APARTMENT COMPLEX

### BY SCOTTIE DAYTON

general contractor renovating a 15-story public housing project in St. Petersburg, Fla., noticed drain stack problems in two of the three apartment towers. He called Michael Larson of Florida Pipe-Lining Solutions in Sarasota.

As Larson's crew evaluated the situation, they found fixtures from the fifth floor down with little or no water pressure, and most were gummed up after standing idle for two years. Any water sputtering out was brown with rust. The focus of the project shifted to the water pipes because they were the pertinent issue.

"The contractor had pipe samples from 18 months of remodeling and making mechanical repairs," says Larson. "The 1-inch trunk lines were up to 50 percent occluded and some half-inch branch lines were completely encrusted. My first concern was how to get air through the pipes to sandblast them."

Larson chose the ePIPE process from ACE DuraFlo Systems to rehabilitate the galvanized pipes with an epoxy lining. Instead of being one of the first contractors on-site, however, Larson's crew found themselves near the end of the project with 50 other workers from five subcontractors racing toward the finish line.

"The developer, wanting to fill residencies as soon as possible, imposed a very tight timeline," says Larson. Despite the congestion and heightened risk factors, they restored the North and East Tower water systems, including branch lines to all 348 units, in six months.



#### UNDER CONTROL

The top-fed piping system had 3- and 4-inch mains, 1- and 2-inch trunk lines, and 1/2- to 3/4-inch branch lines. Six workers transported a sandblasting unit, two air headers to regulate pressure, and an epoxy dispenser to a control room on the eighth floor. From there, they worked down to the first floor and up to the 15th floor. The Atlas Copco 1100 air

From the header in the control room, 1-inch red hoses run up and down the stairwell to all 15 floors.



Air hoses from the compressor and dryer run up the side of an apartment building to the eighth-floor control room. Clear hoses coming down from the 15th floor go to the separator and dust collector. (Photos courtesy of Florida Pipe-Lining Solutions)

### tough job

PROJECT:	Coat small-diameter galvanized water pipes on a tight deadline	
CUSTOMER:	General contractor, St. Petersburg, Fla.	
CONTRACTOR:	Florida Pipe-Lining Solutions, Sarasota, Fla.	
Equipment:	Blown epoxy lining technology, ACE DuraFlo Systems 800/359-6369 www.epipeinfo.com	
RESULTS:	Pipes coated, deadline met	

compressor (1,059 cfm/290 psi) and heated Ingersoll-Rand desiccant dryer remained outside the building.

To prevent the two heavy 2-inch air hoses and exhaust hoses from kinking or swaying along the exterior of the building, the crew fashioned brace arms with 90-degree bends from galvanized fittings. They mounted them on every third floor just inside apartment windows, with arms protruding out to restrain the hoses.

Exhaust hoses ran out a 15th floor window to the ground. Workers secured them to a six-hole flange with 4-inch Tapcon screws in the concrete roof. To hoist the air hoses, two men in the control room lowered a rope, then hauled up the attached hose while members on every other floor manually controlled sway.

#### PNEUMATIC POWER

The air-driven process used a compressor feeding air to the dryer, which reduced the dew point (moisture in air) to a range of minus 10 to minus 100 *(continued)* 





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"Penetration is always a problem when dealing with pipes this bad. Sandblasting causes holes the diameter of pencils that epoxy will not seal, and they usually occur at the back of 90-degree elbows."

#### Michael Larson

degrees. "The air must be absolutely dry for sandblasting and injecting the epoxy," says Larson.

In the control room, the air hoses connected to two air headers, each with 16 ports for 1-inch hoses connecting to individual floor manifolds with five ports. The manifold, with individual valves, fed air through 1-inch hoses to fixtures (sinks, toilet, tubs). "We had two supply hoses on each floor and 32 manifolds," says Larson. "Approximately two miles of 1-inch air hoses congested hallways and ran up and down stairwells to all 15 floors."

Another 1-inch hose supplied air from the header to the sandblaster. The air, introduced at 60 to 80 psi, mixed with 50 pounds of aluminum oxide in the hopper and was delivered to the manifold and hoses, which were hooked to connections with Chicago click-and-twist fittings. Workers cleaned from the 15th floor down.

In the closed-loop system, vacuum from the dust collector pulled debris and air into the 2-inch exhaust hoses on the 15th floor, then down to the separator. Large chunks dropped out, while air continued into the dust collector where two large commercial filters removed particles and released clean air.

#### **CLOGGED SOLID**

"Our biggest challenge was getting air into the blocked half-inch branch lines on the first to fifth floors," says Larson. The labor-intensive, slow process



The Atlas Copco 1100 air compressor pushes air through the Ingersoll-Rand desiccant dryer to remove any moisture from the pipes before lining.

involved injecting small amounts of air at the connection, then reversing the flow to suck moisture from the incrustation. Accessing the branch lines required working in tight quarters, with the crew hugging toilets and climbing into kitchen sink cabinets to reach the pipes. When the scale looked dry enough to break loose, they hit the pipe with a hammer and vacuumed out the debris.

Workers cut into finished and unfinished walls to replace the piping in cases where they couldn't establish an airflow channel for sandblasting. "We *(continued)* 



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800-231-8192 waterblast.com found the worst conditions in studios with a single bathroom and kitchen," says Larson.

To prepare the surface for the epoxy, they cleaned the pipes to bright metal. "Penetration is always a problem when dealing with pipes this bad," says Larson. "Sandblasting causes holes the diameter of pencils that epoxy will not seal, and they usually occur at the back of 90-degree elbows."

The crew rehabilitated 150-foot hot- or cold-water risers one at a time. Each fed a back-to-back bathroom or kitchen group. "Risers were usually 2 inches at the 15th floor reducing to 3/4 inch at the lower floors," says Larson. "Drying the scale and sandblasting each took three hours, then we applied the coating." They also changed out all the ball valves and sink angle stops (shut-off valves).

### RUMBLE AND ROAR

The ANSI/NSF Standard 61 certified epoxy was shot through the same hookups, except that workers disconnected the air hose from the sandblaster and hooked it to the epoxy dispenser. The machine mixed resin and catalyst from two cylinders at 50/50, then a foot pedal dispensed 100 mL per shot into a clear 1-inch tube 6 to 10 feet long.

A technician brought the tubes to a floor manifold, closed all the valves, and removed the hoses from the manifold to the connections. He connected the tubes, charged the manifold, opened the valve to a tube port, and injected the epoxy. "For a 16-mil coating, a 100 mL shot goes 15 feet in a 1/2-inch pipe and 10 feet in 3/4-inch pipe," says Larson. "Based on those distances, we calculate how much epoxy to pump into the tubes."

Lining risers began by shooting from the first to second floor, then advancing a floor at a time. "We could hear the epoxy moving through the pipe and knew when it arrived at the connection," says Larson. "After the epoxy set for 24 hours, we pressure-tested the riser at 80 to 120 psi for two hours. If we lost a lot of pressure, we injected continuous air at 120 psi and stationed guys in every unit to listen for it escaping."

With the proper apartment identified, workers pulled a shower trim plate, inserted a RIDGID mini SeeSnake into the wall, and looked for leaks. Epoxy on the wall – usually by a 90-degree elbow – was a dead giveaway. They then cut through the drywall and replaced the fitting.

#### FLOOD

Flushing the risers was the final test. As water ran through fixtures and down drains, it occa-



A 2-inch trunk line with a 16-mil ANSI/ NSF Standard 61-certified epoxy coating.

sionally flooded the room. "We knew we weren't at fault because the coating had passed the pressure test," says Larson. Cutting through the walls revealed 10-foot-long by 1/2-inch-wide cracks in drain stacks. This happened regularly, but the company didn't have the contract to repair them.

Workers completed two back-to-back bathroom and kitchen risers per week. As soon as they finished, the units were occupied. "In certain places, increased pedestrian traffic made it necessary to hang the hoses to clear hallways," says Larson.

The transformed government housing project is now home to college students, interns at nearby hospitals, and young professionals.  $\tt c$ 



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# 2013 EXPO PRODUCT PREVIEW

# THE RIGHT TOOLS FOR THE JOR

2013 Pumper & Cleaner Environmental Expo will feature the best tools and equipment to build your business

### By Ed Wodalski

Ask any regular attendee of the Pumper & Cleaner Environmental Expo International what keeps bringing them back and they'll tell you it's seeing the latest products and services in one gigantic location.

With hundreds of vendors in Indianapolis this year, it'll be a challenge to see it all. To make sure you don't miss out on any of the breakthrough industry offerings at the Indiana Convention Center, there's an interactive floor plan on the Exposition website (www.pumpershow.com) to help plan your visit. Whether you're a first-time visitor or longtime guest, we're certain the 33rd annual Expo will have all you need to build efficiency and profitability for your business.

Here's a look at some of the products and services you won't want to miss. 70 Cleaner + February 2013







### 3

### LINING SYSTEMS, PIPE BURSTING

### ACE DuraFlo Systems

ePIPE FRS high-performing epoxy resin lining from ACE DuraFlo Systems is designed for in-situ application in domestic hot and cold water piping systems down to 1/2-inch-diameter. It can repair pinhole leaks, provide corrosion control, and prevent lead leaching. 800/359-6369; www.epipeinfo.com; Booth 1460.

### **2** AMerik Engineering

The 7-minute Top Seal lateral sealing system from AMerik Engineering features a resin-impregnated fiberglass laminate cured with ultraviolet light, a cutter to reopen laterals in relined pipes from 6 to 22 inches, Fiber Spot Repair sectional steam-cured liner (45 minutes curing time) and Pipe Ferret self-propelled cutter with camera for 4- and 6-inch pipes. **770/924-2899;** www.amerikengineering.com; Booth 6148.

### 3 AP/M Permaform

The CentriPipe centrifugally cast concrete pipe system from AP/M Permaform is designed for the structural lining of culverts. Using a spin caster and PL-8000 mortar, the process provides waterproofing, sealing, structural reinforcement and corrosion protection. It contains a rust inhibitor and is abrasion resistant. **800/662-6465;** www.permaform.net; Booth 1027.

### **4** CIPP Services

Turn-key, custom-built lining equipment from CIPP Services includes wet-out conveyors, static resin mixers, air inverters and shooters, water inversion equipment, refrigerated transport trailers with hydraulic liner loading/unloading systems, hot water boiler trucks (up to 16 million Btus) and steam trucks (up to 150 hp). Equipment is available with on-site training. **815/712-8708;** www.cipp-services.com; Booth **4347.** 

### 5 Flow-Liner Systems Ltd.

The Multi-System trailer from Flow-Liner Systems Ltd. enables contractors to line 1/2- through 2-inch I.D. potable water services as well as 2- through 6-inch I.D. drains. The trailer also has a robotic cutting system for a finished installation. 800/348-0020; www.flow-liner.com; Booth 4234.

### 6 Infrastructure Repair Systems

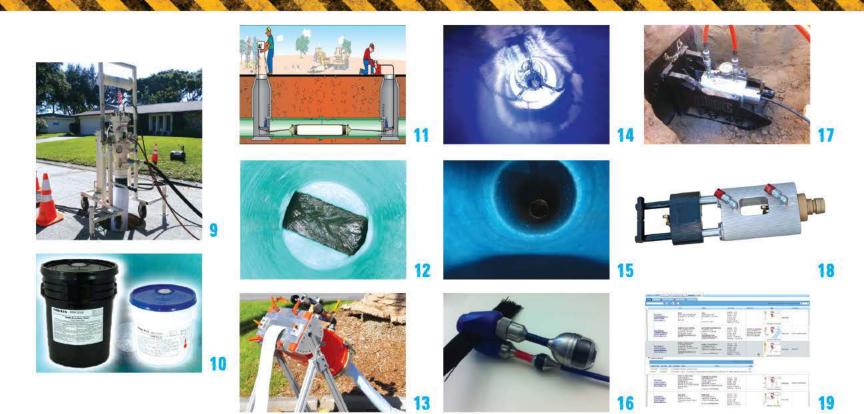
Mainline and lateral trenchless point repair from Infrastructure Repair Systems is designed for pipe from 3 to 36 inches in diameter and up to 15 feet long. The system includes no-shrink epoxy resin, custom sewn felt or fiberglass, four liner weight options, no Styrene or VOCs, flow-through mainline carrier and push or pull lateral carrier. 877/327-4216; www.irsi.net; Booths 2469, 2470.

### 7 LMK Technologies

The portable Power Cure mini steam cure unit from LMK Technologies can be maneuvered into areas too small for boiler trucks and other large equipment. It can cure lateral and sectional liners in approximately 30 minutes. The unit is compatible with all types of CIPP linings and thermoset resins. 815/433-1275; www.lmktechnologies.com; Booth 1354.

WWW.PUMPERSHOW.COM

### I-866-933-2653



### 8 MaxLiner USA

The cured-in-place pipe relining system from MaxLiner USA repairs laterals without digging up yards, sidewalks or damaging interior walls. It also repairs vertical drain pipes behind walls and beneath floors. **276/656-1225; www.maxlinerusa.com; Booth 1160.** 

### 9 Perma-Liner Industries

Perma-Main continuous lining F-10, F-18 and F-24 Top Guns from Perma-Liner Industries can invert 700 feet in one setup. The unit's design enables quick installs on 6- to 24-inch lines and rapid cure times using the portable Viper Steam Cure System. Turnkey trailers available. **866/336-2568; www.perma-liner.com; Booth 3223.** 

**10** Pipe Lining Supply Lateral lining felt from Pipe Lining Supply has a poly scrim built into the felt to minimize stretching, along with a polyurethane coating and stitched seam. The Quik-Pox epoxy resin is formulated with surfactants that make it easier to be absorbed into the felt liner and invert. A thickening agent eliminates resin migration. **714/630-6311**; www.pipeliningsupply.com; Booth 6302.

### **11** PrimeLine Products

Cured-in-place sectional lining equipment and materials from Prime-Line Products are offered ala carte and in bulk quantities. Products include plugs, manhole/wetwell rehabilitation, chemical grouting, resins, fiberglass cloth, smoke testing and cleaning nozzles. 877/409-7888; www.prime-line.net; Booth 5360.

### 12 Quadex

Interfit lateral connection rehabilitation technology from Quadex extends from the main 12 to 20 inches into the lateral, sealing the annular space between a main liner and host pipe, lateral connection and first joint. The system includes a 360-degree CIP fiberglass sock in the main that helps anchor the lateral portion of the sock. 870/758-8628; www.quadexonline.com; Booth 1071.

### 13 Quik Lining Systems

CIPP sewer lateral lining from Quik Lining Systems can be installed from the wet-out stage without transporting, storing or loading it into a launching device. Unlimited lengths of 3- through 8-inchdiameter resin-impregnated liner can be installed. The pinch roller enables precise calibration up to 10 inches in diameter and thicknesses from 2 mm to 100 mm. **714/296-5262;** www.guiklining.com; Booth 6300.

### 14 Saertex multiCom

The UV-cure Saertex-Liner from Saertex multiCom is designed for the rehabilitation of sanitary sewers and storm pipes. Features include a high flexural modulus and flexural strength for a tight fit and high strength. The liner is available in 6- through 52-inch diameters, as well as irregular shapes and transitions. 866/921-5186; www.saertex-multicom.com; Booth 2262.

### 15 Trelleborg Pipe Seals Millford

DrainPlusLiner from Trelleborg Pipe Seals Millford is designed for lateral pipe rehabilitation with bends and diameter transitions. The polyester needle fleece liner with TPU coating is able to negotiate multiple 90-degree bends with minimal wrinkles and can bridge pipe diameters up to two dimensions (4 to 6 inches, 8 to 10 inches) while retaining minimum wall thickness. 800/626-2180; www.trellborg.com/npc, Booth 1211.

### 16 Wohler USA

The re-lining adapter kit for efficient pipe repair from Wohler USA is available for VIS2xx and VIS3xx visual inspection camera systems. The kit comes with centering star to ensure the camera remains on the bottom of the lateral and three protection sleeves that prevent the camera cable from being cut by the saw during re-instatement. **978/750-9876; www.wohlerusa.com; Booth 1456.** 

### **17** RODDIE

The low-pressure lateral pipe bursting machine from Roddie slides apart into two pieces, weighing 65 pounds each, and can be re-assembled by hand in the excavation pit. The system can be powered and controlled by an on-site tractor and will pull 30 tons at 2,800 psi and 50 tons at 4,700 psi. A portable hydraulic power pack is available. **408/224-7777; www.roddieunderground.com; Booth 4237.** 

### 18 TRIC Tools

The X20 lateral bursting system from TRIC Tools features a monolithic, gun-drilled, hard aluminum cylinder body and steel pulling bridge. The 60-pound puller is designed for 4-inch residential sewer bursting. The assembly includes puller (8 by 27 by 5.25 retracted), pulley base (12 by 13 by 14) and resistance plate (24 by 24 by 1). 888/883-8742; www.trictools.com; Booth 5354.

### **MANAGEMENT, TRACKING SYSTEMS**

### **19** Clear Computing

Web browser access from Clear Computing enables drivers, sales, customers and company staff to view select information. Sales staff can edit and add notes and work orders. Drivers can see routes, work orders and stops, units and quantities. Customers can view work orders, service history, scheduled service, balances and payments. 888/332-5327; www.clearcomputing.com; Booth 2339.



### 20 Ritam Technologies

The mobile app for dynamic dispatching and route management from Ritam Technologies enables drivers and technicians to review daily schedules, rearrange stops, dial customers with a single touch, show arrival at job, indicate completion of services and flag comments or additional required follow-up. The app is available for Android smartphones and soon for iPhones. 800/662-8471; www.ritam.com; Booth 4300.

### 21 StreetEagle GPS Tracking

The Motorola wireless barcode scanner from StreetEagle GPS Tracking transmits scanned information in real time. Users scan the barcode on each asset when servicing, delivering or picking up, enabling managers to track assets (location, date/time and service verification) in the field. Automated and printable reports ensure proof of service and prevent loss. 301/866-1990; www.streeteaglegps.com; Booth 2341.

### FINANCING

### **22** Heffernan Insurance Brokers

Heffernan Insurance Brokers is a full-service independent company providing liability, property, auto and workmen's compensation coverage for the liquid waste industry. Policies may cover truck pollution, jobsite equipment and employment practices liability. 800/208-6912; www.heffins.com; Booth 5332.

### 23 Trans Lease

An independent lease and finance company, Trans Lease covers the entire United States and Canada and is dedicated to specific industry applications, such as industrial cleaning and excavation. 877/600-6423; www.transleaseinc.com; Booth 1440.

### LEAK DETECTION, LOCATORS

### **24** Superior Signal Company

The Model 25 High Output smoke blower from Superior Signal Company can be configured with smoke candles and/or smoke fluid to detect sources of inflow and other faults in sewer lines. The blower blasts 4,000 cfm of smoke at 4.0 static pressure, fits standard manholes and has a second outlet to blow into pipes and other openings. 800/945-8378; www.superiorsignal.com; Booth 2323.

### 25 Turbo Fog

The MH-75 manhole smoke blower from Turbo Fog is a selfcontained smoke tester for identifying leaks in municipal collection lines. The tester uses aerosol smoke cartridges. No additional smoke bombs or garden sprayers are required. Made of 11 gauge, powder coated steel, the blower generates 7,500 cfm and is available with Briggs & Stratton or Honda engine. 800/394-0678; www.turbo-fog.com; Booth 6116.

### 26 MyTana Mfg. Company

The MS2011 AccuCane 512 Hz analog locator from MyTana Mfg. Company is designed for simple operation. It locates in PEAK mode only. Depth is determined by signal strength. Vibrations signal the operator to turn down the gain while honing in on the transmitter. 800/328-8170; www.mytana.com; Booth 2200.

### 27 Prototek Corp.

The LineFinder LF2200 from Prototek Corp. locates any frequency sonde or transmitter box between 16 Hz and 100 Hz. Features include pre-set support of 16 Hz (steel or ductile iron, cast iron and nonmetallic), 512 Hz (cast iron, nonmetallic) and 8 Hz (nonmetallic) sondes. The locator traces underground metallic lines at four built-in industrial standard frequencies. 800/541-9123; www.prototek.net; Booth 4162.

### **28** Rausch Electronics USA

The Joint Pressure Testing system from Rausch Electronics USA is mounted to the Rausch L135 tractor and pushed through pipelines 8 to 24 inches in diameter where joints can be isolated and tested for leaks. The KS135 camera is mounted inside the JPT for positioning over the joint. 877/728-7241; www.rauschtv-usa.com; Booth 6137.

### **PIPE CLEANING**

### **29** Bowman Tool Company & Systems

The Dominator 430 reinstatement cutter from Bowman Tool Company & Systems is designed to operate in 6- to 30-inch relined pipe. The 72-pound cutter is made from a solid billet of stainless steel and features a pinion-less, quick-change design with one adjustable gib. Electric motors are isolated in a water-tight chamber. 714/432-1403: www.bowmantool.com: Booth 5251.

### **30** Chempure Products Corp.

Root Rat cutting nozzles from Chempure Products Corp., designed for use with jetters as small as 11 hp, are available in 3/8-, 1/2-, 3/4- and 1-inch sizes. Made of hardened stainless steel, the cutters come with tool box and interchangeable rotors: one with cables and one with chains. The combination kit includes extra chain, cable and bearings. 800/288-7873; www.chempure.com; Booth 4004.

### 31 Chempace Corp.

Sewer Foam from Chempace Corp. assists in removing solids buildup in sewer lines when added to jet truck water. The foaming action cleans while live bacteria left behind help prevent solids from reforming. 800/423-5350; www.chempace.com; Booth 1472.



#### **32** Duracable Manufacturina Co.

The DM162 drain cleaning machine from Duracable Manufacturing Co. features up to 80 feet of 5/8-inch cable. Equipped with a 1/3 hp motor that runs at 265 rpm, the unit has a tool box and self-aligning head bearing that allows for guick change-outs. It can be operated in both vertical and horizontal positions. 877/244-0556; www.duracable.com; Booth 5239.

#### **33** ENZ USA

Turbopuls rotating vibration nozzles from ENZ USA in 1/2- and 3/4-inch connection sizes are designed for use in recycling water. Maintenance-free ball bearings ensure optimal rotation. Vibration impulses from inside the nozzle are transferred to the working head to gently loosen hard deposits in HDPE plastic, steel and concrete pipe. 877/369-8721; www.enzusainc.com; Booths 1193, 1197.

#### **34** Gorlitz Sewer & Drain

The Model GO 68HD heavy-duty electric drain cleaning machine from Gorlitz Sewer & Drain is available with either an open steel reel or enclosed polyethylene drum that can be fitted with optional power feeder. Designed to clean 3- to 8-inch-diameter pipes, features include 150 feet of 11/16-inch hollow-core cable. Overall weight is 185 pounds. 562/944-3060; www.gorlitz.com; Booth 5064.

#### 35 Hammelmann Corp.

The XXL automatic tank cleaning head from Hammelmann Corp. is designed to remove hard scale buildup from large tanks and pipes. Using high pressure water, the nozzle arm rotates the cleaner around its vertical axis. The head can be operated with pressures up to 23,000 psi and flow rates of 150 gpm. 800/783-4935; www.hammelmann.com; Booth 3109.

#### 36 Logiball

The Lateral Cleaning Launcher from Logiball guides 1/2- or 3/8-inch hose and nozzles into the lateral connection from the mainline sewer. Winched in tandem with a CCTV camera, the 0-9 VDC motor rotates the guiding arm and nozzle into the lateral. Back jets propel the hose up to 70 feet for cleaning and cutting roots. 800/246-5988; www.logiball.com; Booth 5227.

#### 37 NozzTeq

The BL Swiper sewer nozzle from NozzTeq features stainless steel construction with green poly coating. Stainless steel tubes loop water along the air channels for increased air flow and jet stream, reducing pressure at the truck. It is designed for 12- to 30-inch lines and the small BL Swiper cleans 6- to 18-inch lines. Stainless/ceramic jets available. 866/620-5915; www.nozzteq.com; Booth 1250.

#### **38** Picote Oy Ltd.

The Smart Cutter lateral connection cutter from Picote Oy Ltd. is designed to open tee and wye branches in small diameter drains (1.18 to 5.9 inches). The cutter navigates multiple bends and diameter changes without damaging the original pipe. The cutter can be used as a stand-alone tool or as a supplement to existing robotic cutters. www.picotesolutions.com; Booth 4316.

**39 Safety Sewer Drain** The Safety Sewer Drain from Safety Sewer Drain eliminates the mess and threat of contamination when removing the cleanout on a plugged drain. Made of clear polypropylene, the device fits over a 4-inch cleanout. Sewage drains through a valve-controlled hose into a bucket for disposal. It also can be adapted to work on a 3-inch deanout. 906/753-4002; www.safetysewerdrain.com; Booth 6064.

#### 40 StoneAge

The Manhole Cleaner pipe cleaning tool from StoneAge features jets directed at the manhole walls. Conversion requires exchanging the standard WG 040 head with the Manhole Cleaner head kits, which include a head with 1/2-inch extension arms and nozzles. 866/795-1586; www.stoneagetools.com; Booth 5130.

#### **41** USB - Sewer Equipment Corp.

The Turbo III flexible chain cutter from USB - Sewer Equipment Corp. features a teardrop-shaped skid made of temperate stainless steel. The chain retainer, driven by a high-performance turbine, removes roots, grease and mineral deposits from 10- to 20-inch sewer lines (up to 30 inches with extension kit). The guide skid can be adjusted in 1/16-inch increments. 866/408-2814; www.usbsec.com; Booth 5043.

#### PIPE REPAIR

#### **42** Avanti International

Sure Lift urethane foam from Avanti International is designed for lifting concrete slabs, under-sealing and stabilizing soils in highways, foundations and industrial floors. It is available in slow and fast versions for greater control of set times. The two-component, polyurethane foam is available in 5-gallon pails, 55-gallon drums and 270-gallon tote. 800/877-2570; www.avantigrout.com; Booth 5213.

#### **43** Cretex Specialty Products

Easy Seal SG spray-applied sealant from Cretex Specialty Products is designed for the frame/chimney area of manholes. The cartridge system, loaded into a pneumatic gun with attached air hose, requires no preparation or messy cleanup. The sealant is a two-part, solvent-free polyurethane that is mixed in the disposable spray tips. 800/345-3764; www.cretexseals.com; Booth 1233.



#### 44 Formadrain

DURAPOX epoxy resin from Formadrain has a 60-day shelf life, adding flexibility to trenchless repairs. The resin remains in a precured state until steam is applied during the installation process. The resin can be used in the repair of both laterals and mains in pipe up to 48-inches in diameter. **888/337-6764;** www.formadrain.com; Booth 1244.

#### **45** Infratech Infrastructure Technologies

The Monoform ABS interior manhole forming system from Infratech Infrastructure Technologies is made for pouring new concrete walls and bases for complete rehabilitation of manholes. Designed to exceed H-20 traffic loading requirements, restoration is completed without traffic detours or disruption to adjacent utilities. Custom forms for lift station rehab or retrofit and installation are available. **763/428-6488; www.infratechonline.com; Booth 6322.** 

#### **46** Madewell Products Corp.

The PortaMortar application machine from Madewell Products Corp. mixes, pumps and sprays high-build restoration mortar and 100 percent solids epoxy coatings in difficult-to-reach areas. 800/741-8199; www.madewell.net; Booth 1446.

#### 47 Nu Flow Technologies

Nu Pipe Light Duty blown-in epoxy coating system from Nu Flow Technologies completely coats the inside of a variety of pipe systems, including copper and galvanized. The system is designed for use in 1/2- to 2-inch-diameter pipes in residential buildings with up to 40 connections. The potable epoxies are UL certified for drinking water. 800/834-9597; www.nuflowtech.com; Booth 4109.

#### **48** Parson Environmental Products

The Pro50 Starter Manhole Rehabilitation Equipment system portable pump and mixer from Parson Environmental Products are separate units powered by a 110-volt circuit. An on-board computer balances the spray rate with the pumping volume to prevent dogging. The accessory diaphragm compressor delivers high-volume output with low pressure to ensure complete and even application. 800/356-9023; www.parsonenvironmental.com; Booths 4320, 4321.

#### 49 Savatech Corp.

Large, multi-size pillow-shaped pneumatic blocking and bypass plugs for 24- to 1 20-inch diameter pipes from Savatech Corp. are made from Kevlar-reinforced rubber to resist wear and age while providing extra strength. Plugs can be used in large round, oval or elliptical pipelines, (concrete, plastic and iron) and folded lengthwise and inserted through tight access points. 888/436-9778; www.savatech.com: Booth 5453.

#### 50 Reed Manufacturing

DM2100 drilling machines from Reed Manufacturing can cut or drill through cast iron, ductile iron, C900 PVC and PE water mains while under pressure. The machines use Reed D series drill bits or hole cutters. A variety of kits are available for drilling 3/4- to 2-inch pipe. 800/666-3691; www.reedmfgco.com; Booth 1083.

#### 51 Savereisen

SewerGard No. 210X standalone, high-strength 100-percent solids epoxy polymer lining from Sauereisen exceeds 15,000 psi and 12.9 percent elongation. Designed to protect concrete, masonry, brick and steel substrates, the coating resists hydrogen sulfide and sulfuric acid. It contains no VOCs. One gallon covers 20 square feet at 80 mils. 412/963-0303; www.sauereisen.com; Booth 6140.

#### 52 Sewer Seal Technologies

CureLight, a single component, UV-curable resin from Sewer Seal Technologies, is designed for underground structure repairs. Featuring fiberglass reinforcement, the resin bonds to concrete, block and brick. Hand-applied, it cures in seconds with UV light and can be used in the repair of precast manhole joints and chimneys. 513/253-8461, Booth 4348.

#### **HOSE REELS, HOSES**

#### 53 Coxreels

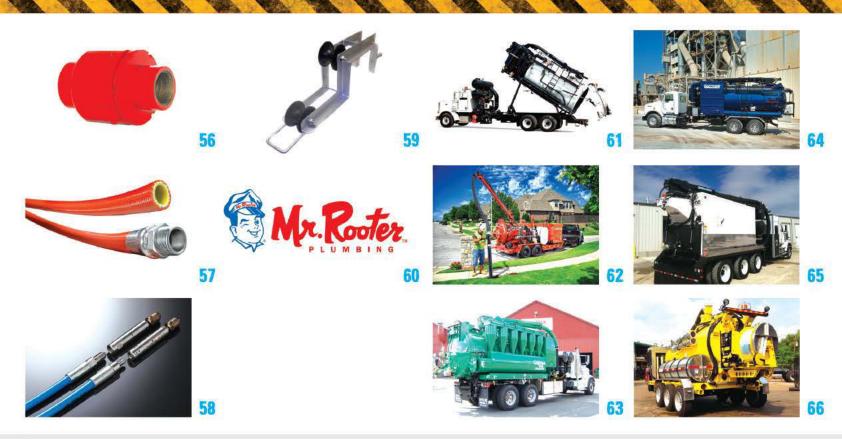
The Brawny reel upgrade from Coxreels is available for any hand crank and motorized 1125 Series hose reel. The upgrade features an option that strengthens the discs and drum. Reels are made from 10-gauge steel plates welded into each disc to keep them from bowing. The center drum is thickened and upgraded from 16-gauge to 14-gauge steel. 800/269-7335; www.coxreels.com; Booth 4122.

#### 54 Hannay Reels (Hannay Swivel PC Reel)

The HDD6200 series jetting hose reel from Hannay Reels has a heavy-duty swivel base, guide arm and operator handle for precise payout. Rotating ball bearings enable the swivel base to move freely in any mounting position. The reel handles high-pressure liquids through a single 3/4-inch to 1-inch 1.D. hose. 877/467-3357; www.hannay.com; Booth 5027.

#### **55** Reelcraft Industries

Series SD10000 low-profile, spring retractable hose reels from Reelcraft Industries are designed to hold up to 50 feet of 3/4- and 1-inch hose for air, water, oil, fuel and vacuum recovery. Features include external drive spring and all-bolted frame. The low profile is suited for mounting in truck cabinets and limited-space areas. 800/444-3134; www.reelcraft.com; Booth 1373.



#### 56 UEMSI

RAM hose reel swivels from UEMSI are available in straight and 90-degree configurations in 3/4-, 1- and 1 1/4-inch sizes. The steel-cast swivels feature heat-treated rotary sleeves and gland nuts, nickel-plated backup ring and zerk fitting. 800/666-0766; www.uemsi.com; Booth 1264.

#### 57 Piranha Hose Products

The 1 1/2-inch, 2,500 psi sewer deaning hose from Piranha Hose Products features a yellow, polyolefin tube, double layer of hightensile synthetic braid reinforcement and abrasion-resistant orange cover. Temperate range is -40 to 150 degrees F. The Slither cover is available for tough sewer bends. 800/250-5132; www.piranhahose.com; Booth 3017.

#### 58 SPIR STAR

The 3/6 Blast-Pro flex lance from SPIR STAR has a 0.50-inch 0.D. end fitting and 40,000 psi working pressure. It is available with 1/4-inch 28 and 3/8-inch 24 male nipple ends and can be used in 40,000 psi tube cleaning with the StoneAge Banshee BN13 nozzle. 800/890-7827; www.spirstar.com; Booth 2002.

#### 59 Southland Tool Mfg.

The Jersey Roller sewer hose protector from Southland Tool Mfg. fits over the top of concrete highway barriers and locks into place with two 3/4-inch bolts. **714/632-8198;** www.southlandtool.com; Booth 3001.

#### **CLEANING FRANCHISES**

#### 60 Mr. Rooter Corp.

A franchised, full-service plumbing and drain company, Mr. Rooter Corp. offers business systems and solutions for finding new customers and gaining market share. 800/298-6855; www.leadingtheserviceindustry.com; Booth 4028.

### **EXCAVATION, INDUSTRIAL VACUUM**

#### 61 Cusco

The Mastervac 5327 DC (dump chute) vacuum truck from Cusco features a self-dean cyclone/baghouse filtration system. Designed to handle wet and dry materials, including heavy sludge and fly ash in hazardous and non-hazardous applications, the unit is equipped with pressurized air for offloading and vibration offloading assistance. 800/490-3541; www.wastequip-cusco.com; Booth 2062.

#### 62 Ditch Witch

The FX50 vacuum excavation system from Ditch Witch delivers 49 hp and is available with a variety of tank sizes, trailer configurations, hydraulic booms, water heaters and hydraulic valve exercisers. The system comes with a choice of four spoils tanks (300 to 1,200 gallons) and four water tanks (80 to 500 gallons). 800/654-6481; www.ditchwitch.com; Booth 5216.

#### 63 GapVax

The HV Series of wet/dry hydroexcavators from GapVax features various lift axle combinations, tri-drive and twin-steer chassis, debris bodies from 8 to 15 cubic yards, water tanks from 400 to 1,400 gallons, vacuum pumps from 3,500 to 6,600 cfm, water pumps from 2,000 to 5,800 psi, water heaters from 400,000 to 880,000 Btus and body pressurization off-load. 888/442-7829; www.gapvax.com; Booth 6004.

#### 64 Guzzler Mfg.

The upgraded Classic industrial vacuum loader from Guzzler Mfg. features enhanced operator ergonomics and improved air routing, filtration and maintenance. A longer body provides improved material separation. Enlarged bag house and cyclone cleanout access doors provide easier access. Transition to the dump tubes has been widened for more effective dumping. 800/627-3171; www.guzzler.com; Booth 8076.

#### 65 Innovative Hydrovac Trucks

The IHT2512 Smart Truck hydrovac from Innovative Hydrovac Trucks features built-in interlocks with PLC and software to eliminate most operator-caused truck breakage. The truck has a 50-degree slope debris floor, full-width rear door and high-pressure wash system for offloading and cleaning. It can carry 2,500 gallons of freshwater and 12.5 yards of debris. 970/441-0148; www.hydrovactrucks.us; Booths 1320, 1324, 1422.

#### 66 PipeHunter

The VacHunter sewer vacuum combination unit from PipeHunter features positive displacement blowers with up to 6-inch vacuum, debris tanks up to 1,250 gallons and water systems to 80 gpm. The unit has a hydraulic-powered boom that works in conjunction with the rear-mounted hose reel for maneuverability and safe working conditions. 800/373-1318; www.pipehunter.com; Booth 6052. 2013 EXPOPRODUCT PREVIEW























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67 Ring-O-Matic

The 550 Hi cfm vacuum excavator from Ring-O-Matic has a 550-gallon spoils tank, 1,000-cfm displacement Gardner Denver blower, 6 gpm at 4,000 psi water pump, full-lifting tank, full-opening rear door and Cyclo-Jet pothole excavator gun. 800/544-2518; www.ring-o-matic.com; Booths 5308, 5309.

#### **68** Super Products

The Mud Dog 1200 hydroexcavator from Super Products has 12-cubic-yard debris capacity, 1,000-gallon water tank with pump rated at 14 gpm at 3,000 psi. Features include on-board boiler for breaking up frozen ground, and positive displacement vacuum pump with airflow rated at 5,800 cfm at 28 inches Hg. The rear-mounted telescoping boom can reach 19 to 27 feet. 800/837-9711; www.superproductsllc.com; Booth 6238.

#### 69 Supervac 2000

The 6400 hydroexcavator from Supervac 2000 has a 4,200-gallon debris tank, 6,400-cfm vacuum pump with 72 inches Hg. The unit features a 1,250-gallon water tank, two cyclones and cartridge filter, 6,000-psi water pump and 26-foot radius hydraulic boom. Other features include hydraulic door locks, insulated enclosure (less than 85 dBA) and 100-foot hose reel capacity. **866/839-5702;** www.supervac2000.com; Booth 6036.

#### 70 Vacall Industries

The AllExcavate hydroexcavator from Vacall Industries delivers waterjetting pressure and vacuum forces for cleaning frac tanks, underground utility lines and dirt from drilling rigs and trucks. The 8-foot, 6-inch telescoping boom has a 180-degree radius, enabling the unit to perform multiple jobs without repositioning. Features include single-engine operation, aluminum water tanks and AllSmart Flow control system (wired or wireless). 800/382-8302; www.vacallindustries.com; Booth 5230.

#### 71 Vac-Con

The Power Flex telescoping boom from Vac-Con rotates up to 315 degrees, articulates up to 110 degrees and lifts up to 34 feet. Top-mounted on the debris tank, the boom telescopes out 8 feet for a reach of 28.5 feet from the truck. The boom can be outfitted on combination sewer cleaners, industrial machines and the X-Cavator product line. 904/493-4969; www.vac-con.com; Booth 1190.

#### 72 Vermeer

The AXIS laser guided boring system from Vermeer is a pit-launched tool designed to install 10- to 14-inch pipe. The system consists of four main components (power unit, rack, vacuum pump and vacuum tank), offers pinpoint, on-grade accuracy and has the ability to install up to 350 feet of steel, clay and HDPE or PVC pipe in one bore. 888/837-6337; www.vermeer.com; Booth 2417.

## PUMPS

#### 73 A.R. North America

The Annovi Reverberi RTP30.60 wet end triplex plunger pump from A.R. North America delivers up to 7.9 gpm and 8,700 psi. Designed to pump water as well as liquids of similar viscosity, features include hardened, heat-treated SST plungers with long-life coating, forged brass manifold for better flow and no porosity. 800/893-4235; www.arnorthamerica.com; Booth 4145.

#### 74 Gorman-Rupp Co.

The Prime Aire Plus line of pumps from Gorman-Rupp Co. features up to 8-inch flanged discharge sizes, flows to 4,950 gpm and heads to 475 feet. Designed for clear liquids and large solids, pumps are coupled to the latest EPA Tier-compliant engines or energy efficient electric motors. 419/755-1251; www.grpumps.com; Booth 1239.

#### 75 Liberty Pumps

The Ascent II macerating toilet from Liberty Pumps installs without gravity sewer lines, eliminating the need for major construction or breaking up concrete floors in basements. The unit features a 1.28 gpf toilet that macerates sewage waste and other debris and discharges through a 1-inch diameter line 25 feet high and 150 feet horizontally. 800/543-2550; www.libertypumps.com; Booth 2434.

#### 76 Moro USA

Bolt & Go diesel-driven pump packages from Moro USA are selfcontained vacuum systems for industrial-duty vacuum trailers, trucks or stationary applications. Packages come fully assembled and include a 42 hp Duetz engine, 18-gallon fuel tank and battery. The package weighs 1,900 pounds and is 63 inches long and 36 inches wide. 800/383-6304; www.morousa.com; Booth 3122.

#### 77 Rain for Rent

The Total Dynamic Head Calculator app for iOS devices from Rain for Rent is based on Hazen-Williams equations. Users enter the hydraulic parameters of their pumping system and the app returns TDH. It estimates both suction side and discharge side hydraulic losses, features NPSH estimation, and suggests combinations of standard pipe materials and pipe sizes. 800/742-7246; www.rainforrent.com; Booth 1227.

#### **78** Septic Services

The STA80AL Whirlwind pump from Septic Services has an integrated audible alarm and warning lights. It has an open flow rate of 2.9 cfm at 2.18 psi, weighs 16 pounds, measures 10 by 7 by 7 1/2 inches and can accommodate tanks up to 750 gpd, 80 liters/minute. 800/536-5564; www.septicserv.com; Booth 3118.

WWW.PUMPERSHOW.COM



#### 79 Thompson Pump & Manufacturing Company

The HT trash pump from Thompson Pump & Manufacturing Company is designed to handle large solids and abrasive materials. Pumps can handle up to 3-inch solids and are available in 4-, 6- and 8-inch sizes with performance up to 2,600 gpm and 168 feet of head. 800/767-7310; www.thompsonpump.com; Booth 4014.

#### 80 Vogelsang

IQ Series rotary lobe pumps from Vogelsang eliminate 50 percent of the parts that make up a typical rotary lobe pump wet end. Features include an integrated flange design that enables a flange to be used in a 90-degree or gooseneck arrangement. The pump remains flooded to ensure a strong prime and extended dry run. 800/984-9400; www.vogelsangusa.com; Booth 1048.

#### 81 Westmoor Ltd.

The Conde ProVac industrial liquid waste pumping system from Westmoor Ltd. is designed for grease trap and other industrial pumping. Pumping 120 gpm, a flip of the switch starts the vacuum mode. A built-in exhaust deodorizer keeps odor at a minimum. A flip of the switch turns on the pressure mode for offloading. 800/367-0972; www.westmoorlrd.com; Booth 5124.

### INSPECTION SYSTEMS

#### 82 Allan J. Coleman Co.

The Gvision S/3000 monitor from EPL Solutions, distributed by Allan J. Coleman Co., records video directly onto the photo app of an iPhone, iPad or iPod. Weighing 8.5 pounds, it also records onto a USB thumb drive or hard drive. The monitor pivots on its cover/ stand and can be mounted on camera reels for eye-level viewing. 773/728-2400; www.allanjcoleman.com; Booth 3136.

#### **83** Aries Industries

The LETS (lateral evaluation television system) wheeled tractor from Aries Industries can inspect mainline sewers 36 inches in diameter and launch into and televise laterals 3 inches in diameter. Mainline video is viewed through a fixed-mounted camera on the crawler. Lateral video is produced by a pan-and-tilt push camera with selfdeaning wiper. 800/234-7205; www.ariesindustries.com; Booth 5158.

#### 84 Cobra Technologies

The Portable Inspection System from Cobra Technologies offers the functionality of a truck-mounted system in a go-anywhere package. Features include full Cobra data collection capabilities, including MPEG video that operates with any Cobra 6- and 8-inch crawler/ camera. The system weighs 130 pounds and can be mounted to ATVs or trailers. 800/443-3761; www.cobratec.com; Booth 3212.

#### 85 C-Tec

AADIOS asset manager software from C-Tec enables users to process laser profiling data on the jobsite, read the matrix code from the CoolVision laser profiler and TV-Laser Mandrel inspection tools, manage field conditions and verify work in a step-by-step procedure before generating reports that meet DOT and municipal specifications. 866/993-0366; www.ctecworld.com; Booth 3033

#### 86 CUES

The semi-autonomous, high-resolution, digital universal camera (DUC) from CUES is designed for rapid and detailed condition assessment. The side-scanning camera, when used with CUES asset-based Granite XP decision support software, can inspect 5,000 feet of pipe per day. The system produces a continuous hemispherical scan in 6to 60-inch pipe. 800/327-7791; www.cuesinc.com; Booth 5016

#### 87 Electric Eel

The eCAM Pro 2 pipeline inspection camera system from Electric Eel features a stainless steel-housed, 1.68-inch self-leveling camera with sapphire lens, 20-LED light ring and high-resolution CCD element. A flexible camera spring is designed to navigate 3-inch P-traps. The system includes 200 feet of 1/2-inch push rod and 512 Hz sonde. 800/833-1212; www.electriceel.com; Booth 4156.

#### 88 Envirosight

**ROVVER** Measurement Suite image-analysis software for the ROVVER X pipe inspection crawler from Envirosight enables the operator to measure a variety of pipe attributes from the system's touch-screen control pendant. Using adjustable overlays, the software calculates flow level; pipe diameter, bend and offset; branch angle; clock position, and diameter of service connections. 866/936-8476; www.envirosight.com; Booth 6018.

## 89 General Pipe Cleaners/General Wire Spring The Gen-Eye Micro-Scope handheld inspection tool from General

Pipe Cleaners/General Wire Spring is designed to inspect small drain lines, toilet traps and hard-to-reach places. The monitor connects to the reel with an adjustable mount. Features include 100 feet of micro push rod, 39-inch probe rod, and three attachments to improve viewing angle or retrieve objects. 800/245-6200; www.drainbrain.com; Booth 6412.

#### 90 MTech

The combination CCTV/Electro Scan truck accessory from MTech automatically identifies and quantifies cracks, joints and service connection defects in sewer mains and laterals. Model ES-38 is designed for 3- to 8-inch-diameter sewer laterals and Model ES-620 for 6- to 20-inch sewer mains. 800/362-0240;

www.mtechcompany.com; Booth 2215.



#### **91** Pipeline Analytics

WinCan ProTouch pipe inspection software from Pipeline Analytics is designed for touch-screen data entry on a table PC. Fully compatible with WinCan v8, the software generates basic manhole-to-manhole reports that include schematics and captured images. Data uploads to WinCan v8 for advanced reporting, filtering/querying and GIOS integration. The software works with common video inspection hardware. 877/626-8386; www.pipelineanalytics.com; Booth 6018.

#### 92 RapidView IBAK North America

The Polaris camera system from RapidView IBAK North America is designed for inspecting smaller diameter pipelines. Features include a 3-axis range of movement that enables the unit to choose the direction of travel when encountering tees or wyes. Other features include upright picture control, pan, tilt and angle control, wide-angle view (120 degrees) and built-in laser measurement. 800/656-4225; www.rapidview.com; Booth 2207.

#### 93 Ratech Electronics Ltd.

The integrated cellphone interface from Ratech Electronics Ltd. records directly to an iPhone, iPad or iPod, enabling users to upload pipe inspection video from the jobsite to YouTube for customer viewing. The interface is adaptable to any Ratech system. Included is an on-screen display overlay, providing distance counter, time, date and eight pages of memory. 800/461-9200; www.ratech-electronics.com: Booth 5140.

#### 94 RIDGID

The SeeSnake Max rM200 camera system from RIDGID is made for inspecting lines up to 200 feet in length and 1.5 to 6 inches in diameter. Features include improved reel mechanics for easier passage through tight turns, compact camera and abrasion-resistant cable. The system is compatible with SeeSnake monitors, including CS10 and CS1000 digital recording machines. 800/769-7743; www.ridgid.com; Booth 1243.

#### **95** Rothenberger USA

The Roscope 1000 video scope self-leveling color inspection camera from Rothenberger USA is designed for duct, drain and pipe inspection. The camera head keeps the picture upright and prevents loss of orientation. Features include zoom, scroll, picture and video recording, and ergonomic shape for single-hand operation. 800/545-7698; www.rothenberger-usa.com; Booth 1321.

#### **96** RS Technical Services

The TranSTAR II tractor and TrakSTAR II camera combination for video pipeline inspection from RS Technical Services has a pan-tiltzoom camera for sanitary or storm lines 6 inches in diameter and larger and up to 3,000 feet in length. The 14-inch-long tractor has dual 90-watt motors and can achieve speeds up to 70 feet per minute. 800/767-1974; www.rstechserv.com; Booth 2431.

#### 97 RVI Pro

The minil 3 pipe inspection system from RVI Pro features a 13 mm by 6 mm camera head with 15 meters of push/pull cable (30 meter cable and sonde transmitter available), integrated 3.5-inch LCD monitor with image capture and video recording and AC/DC operation contained in a shatter-proof housing with reel. **219/395-1963, Booth 6247.** 

#### 98 Spartan Tool

The iPad sewer lateral inspection camera from Spartan Tool uses an iPad as a viewing screen and processor. Self-contained and weighing 28 pounds, the system has 200 feet of push rod, self-leveling camera head, 512 Hz beacon and full iPad touch-screen capabilities. Users can record or take snapshots at any time, edit video or photos, and record voice. 800/435-3866; www.spartantool.com; Booth 5024.

#### 99 Vivax-Metrotech Corp.

The vCam-5 inspection system from Vivax-Metrotech Corp. features a lightweight, compact control module with 8-inch color LCD, dual frequency transmitting sonde, digital recording to the internal 300 GB hard drive, USB thumb drive or SD card. The system can inspect pipe 3 to 12 inches in diameter and distances from 100 to 400 feet. 800/446-3392; www.vxmt.com; Booth 4233.

#### **100** Western Mule Cranes

The P-5A 1,000-pound capacity telescoping boom crane from Western Mule Cranes is designed for CCTV pipeline inspection applications. Operated with a 10-foot, handheld pendent control, the crane with boom folds and stores parallel to the mast, requiring 14 by 14 inches of floor space. A positive rotation-lock secures the boom at 12 fixed points of rotation. 800/288-6853; www.westernmule.com; Booths 4338, 4339.

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### JETTERS

#### **101** Bull Frog Industries

The Crap Shooter sewer jetter from Bull Frog Industries weighs less than 25 pounds and delivers 1,500 psi and 1.65 gpm. The jetter runs off a 15-amp circuit, drawing 11 amps. The unit includes 25foot power cord, two jetter nozzles (flusher and thruster), two faucet quick-connects, 50-foot high-pressure hose and 25-foot coil feed hose. **303/338-0805; www.bullfrogind.com; Booth 4324.** 

#### 102 Cam Spray

The RCJ skid-mount jetter series from Cam Spray is available in flows and pressures of 12 gpm at 2,700 psi, 8 gpm at 3,500 psi and 7 gpm at 4,000 psi. Features include a three-plunger industrial pump powered by a 688cc Honda engine and 200 feet of jetter hose. 800/648-5011; www.camspray.com; Booth 2300.

#### **103** Draincables Direct

The Model PJ-3000 portable jetter from Draincables Direct has a 13 hp Honda gasoline engine, delivering 3,000 psi and 4 gpm. Designed for cleaning lines from 1 1/4 to 6 inches in diameter, the jetter includes 200 feet of 3/8-inch hose and 75 feet of 1/8-inch trap hose. 800/421-4580; www.draincables.com; Booth 4110.

#### 104 GPM Pump and Truck Parts & Service

The Sewer Duck jetter from GPM Pump and Truck Parts & Service can be custom built to needed specifications. Options include Myers E80-25 and D65-20 pumps, choice of Cummins engines and cold weather systems. 630/543-7373; www.gpmpumptruckparts.com; Booth 2100.

#### 105 Hot Jet USA

The Hot Jet II hot-cold waterjetter from Hot Jet USA cleans lines from 2 to 12 inches in diameter. The steel-deck trailer is engineered to haul a 330-gallon water tank. Features include General Pump Emperor Series (8.5 gpm at 3,600 psi) pump and Vanguard engine. The oil-fired system heats water to 110 to 140 degrees F. 800/213-3272; www.hotjetusa.com; Booth 5444.

#### 106 Shark Pressure Washers & Jetters

The SJPE-1500 portable jetter from Shark Pressure Washers & Jetters operates on 115-volt electricity and delivers 1.7 gpm at 1,500 psi. Features include 35-foot power cord, detachable hose reel and slide-in handle to accommodate loading and unloading. Designed for 2- to 4-inch pipes, the jetter has a steel roll cage chassis, triplex pump and Baldor motor. 800/771-1881; www.sharkpw.com; Booth 6324.

### SAFETY

#### **107** Milwaukee Rubber Products

The GasAlertQuattro gas detector from Milwaukee Rubber Products features one-button operation. The graphic LCD displays information icons, including bump test and calibration status for on-site auditing. IntelliFlash provides continuous visual confirmation of detector operation and compliance. The unit is fully compatible with BW Technologies by Honeywell's MicroDock II automatic test and calibration system. 800/325-3730; www.milwaukeerubber.com; Booth 3032.

#### 108 PowerTrack International

The Safety Shroud from PowerTrack International is designed to add operator protection from hose or end fitting failure. Available in 6- and 10-foot lengths, the shroud has two layers of high-strength stainless steel braiding and red outer cover made from Nitrile rubber for oil and abrasion resistance. Adapters are available in 3/8- or 1/2-inch female NPT configurations. 800/365-1577; www.powertrackhose.com; Booth 1108.

#### 109 US Jetting

Safety clothing and gloves from US Jetting offer protection up to 7,250 psi, including hose bursts and nozzles coming out of pipes. The waterproof gloves with Dyneema fiber have a rough, sand-patterned surface for a solid grip and inner glove for comfort. 800/538-8464; www.usjetting.com; Booths 5333, 5334.

#### 110 WJTA - IMCA

Recommended Practices for the Use of High Pressure Waterjetting Equipment from WJTA - IMCA features a section on the operation of automated equipment and a color coding scheme for pressure hoses and applicable working conditions. It also has revised information about goals, responsibilities, dealing with accidents, pre-service and operational checklists and procedures. **314/241-1445**; www.wjta.org; Booth 4200.

### TRUCKS, ACCESSORIES

#### 111 Fabco Automotive Corp.

The model 500 R. Cushman & Associates split-shaft PTO from Fabco Automotive Corp. features FEA optimized cast iron housing, 3-inch bottom shaft for increased torque and high overlap gears for quiet performance. Options include five gear ratios and a variety of pump mount output configurations. 800/967-8838; www.fabcoautomotive.com; Booth 4014. **2013 EXPO PRODUCT PREVIEW** 









115



#### 112 Hackney

The P/2000 Supertruck from Hackney has an aluminum body with rear drop-floor, three-step entrance, double swing-out barn-style rear doors and pull-out walk ramp. The custom-built body features a flexible interior with adjustable aluminum shelves. The interior can be configured for general plumbing, drain cleaning or other applications. 800/763-0700; www.hackneyservice.com;

800/763-0700; www.hackneyservice.com Booths 6306, 6309.

#### **113** Lodar Wireless Solutions

Wireless remote systems from Lodar range from two functions for operating winches up to 40 functions. Hard-wired controls with 10-foot cable (longer lengths available) can be added to existing remote controls, offering backup should the radio fail or if the transmitter is lost or damaged. Controls attach directly to the RS232 connection on the receiver and will operate the relays. 877/257-1581; www.lodar.com; Booth 1055.

#### 114 Pelican Worldwide

The solid brass lever valve for vacuum trucks from Pelican Worldwide is available in 2-, 3-, 4- and 6-inch sizes. The easy-opening, lever-action slider valve is made of brass with threaded connections. 713/862-5557; www.pelicanww.com; Booth 1112.

#### 115 Oceanquip

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Adhesive-lined black polyolefin shrinkable tubing from Oceanquip is available in kits and poly necks. Kits include six sizes of tubing, from 1/8-inch I.D. to 3/4-inch I.D. Each piece is 6 inches long. 504/738-7833; www.oceanquipllc.com; Booth 5225.

#### 116 SVE Portable Roadway Systems

The TRAKMAT ground cover mat system from SVE Portable Roadway Systems, made from high-density polyethylene, is designed to move work vehicles across lawns, fields or sandy areas, prevent surface damage and keep the vehicle from getting stuck. Custom colors available. Logo can be added for on-site advertising. 800/762-8267; www.mudtraks.com; Booth 6334.

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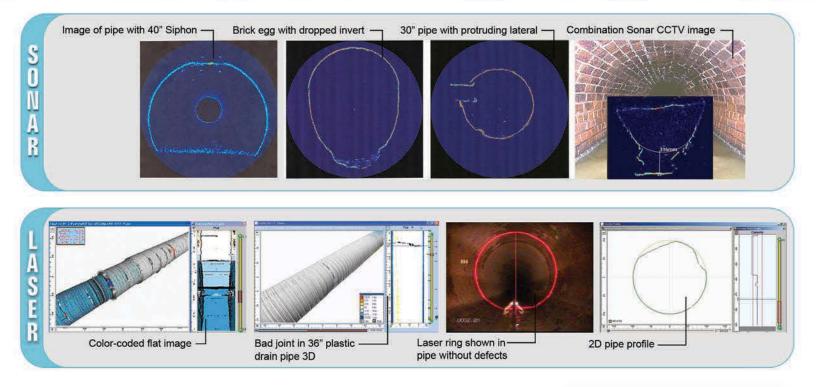




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# Thinking Inside the Box

THERE'S A LOT MORE TO THIS MARYLAND CONTRACTOR'S JETTER TRUCK THAN MEETS THE EYE – LIKE INCREASED PRODUCTIVITY AND SAFER OPERATION, FOR STARTERS

#### BY KEN WYSOCKY

rom outward appearances, the nicely lettered, 14-foot Isuzu box truck owned by B. Frank Joy LLC in Hyattsville, Md., may not look like a productivity-boosting powerhouse. But a look inside reveals why it's an integral part of the company's sewer division, helping it rack up impressive productivity gains in prepping residential sewer laterals for relining.

"This jetter truck is very valuable to us," says John Brady, a foreman in the sewer division. "It helps us perform prep work for three lateral relining crews, and saves us a lot of time. I'd say our production has increased about 50 percent since we put it into service in June of 2010.

"Our crew used to prep seven to 10 laterals a day, but now we can do 15 a day – and sometimes even up to 25 on a really good day," he notes.

The truck's central component is a customized, skid-mounted jetter made by Sewer Equipment Company of America. It features a more powerful pump (4,000 psi at 23 gpm versus 4,000 psi at 18 gpm) and a larger-than-normal water tank (600 gallons compared to 400 gallons).

The higher water pressure enables operators to flush out root-cutting debris from laterals faster by eliminating two to three post-cutting passes through the line, which can save up to 30 minutes per line. To cut tree roots,

the company uses Warthog nozzles, made by StoneAge, Inc., or Lumberjack cutting heads, made by NozzTeq Inc. For relining, the company uses a system made by LMK Technologies, Brady says.

Moreover, the bigger water tank minimizes the time required for refills – about 20 minutes – as well as the time required to drive around and find a

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OWNER:	B. Frank Joy LLC, Hyattsville, Md.
	Customized Sewer Equipment Company of America water jetter, skid-mounted inside an Isuzu box truck 800/323-1604 www.sewerequipment.com
FUNCTION:	Cleaning residential lateral pipelines for relining
FEATURES:	4,000 psi at 23 gpm, 600-gallon water tank, hydraulic slide-out reel, 600 feet of 1/2-inch-diameter hose
COST:	About \$91,000 for the jetter and truck





LEFT: An Isuzu box truck carries B. Frank Joy LLC's customized, skidmounted jetter from Sewer Equipment Company of America. The truck also includes a 600-gallon water tank, hydraulic retractable hose reel and an electric jib crane, among other safety- and productivity-enhancing features. ABOVE: Crew leader Santos Romero uses the jetter truck to clean a line. (Photos courtesy of B. Frank Joy LLC)

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water source. Brady says the extra 200 gallons of capacity eliminates at least one refill stop every day, which depending on circumstances, such as water source proximity, can translate into 45 minutes to an hour saved daily.

"This jetter truck is very valuable to us. It helps us perform prep work for three lateral relining crews, and saves us a lot of time. I'd say our production has increased about 50 percent since we put it into service in June of 2010."

#### John Brady

Along with 600 feet of 1/2-inch-diameter hose and a hydraulic retractable hose reel that swivels 180 degrees, the truck offers other productivity enhancements. In the congested, densely populated Washington, D.C., area in which crews work, the truck's compact, cab-over chassis is easier to drive, park and maneuver than a pickup truck towing a trailer-mounted jetter. The interior skid-mount configuration protects critical equipment and employees from harsh weather.

In addition, a custom side door provides easier access to tools and equipment than the rear door, which is blocked by the jetter and water tank. The truck carries a RIDGID SeeSnake pipeline inspection camera and a Spartan Tool 1065 cable drain-cleaning machine. An electric jib crane with a 2,000-pound lifting capacity, made by Vestil Manufacturing, makes it safer and easier for workers to remove and load heavier equipment through the side door.

"It's a big deal to have everything within easy reach for the crew," Brady says. "It's faster and safer. We've had a couple close calls with strained backs and what not, which we like to avoid."

General manager Desi Hannon notes that the slide-out reel allows operators to work on the ground and in back of the truck. "Along with the lowprofile chassis, this provides better visibility," he says. "And by working on the ground, there's less potential risk of injury from walking up and down steps or working on an elevated surface."

The truck's features also helped the company better deploy manpower by reducing the on-site crew from three to two people. That, in turn, allows the company to price jobs more competitively, and enabled it to use the third employee to build another relining crew, Brady says.

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# Just an 'Ole Boy'

CRAIG MORGAN BRINGS HIS HUMBLE APPROACH TO CHART-TOPPING COUNTRY MUSIC TO THE EXPO'S INDUSTRY APPRECIATION PARTY STAGE

BY TED J. RULSEH

ountry star Craig Morgan rolls into Indianapolis and the Pumper & Cleaner Environmental Expo a year removed from his latest CD, "This Ole Boy," which peaked at No. 5 on the *Billboard* Top Country Albums chart.

"When you go out and buy an album, and I've done it myself, you sometimes feel, 'Well the songs on the radio were great but the rest was just OK,' " says Morgan, a member of the Grand Ole Opry since 2008. "When they play this record, I want them to say, 'Man, I like the songs on the radio but I love this other song even better!' That's what's rewarding about an album."



Reviewers seem to think Morgan's latest meets that standard. A review on the Taste of Country website says, " 'This Ole Boy' is an easy listen. Morgan includes 12 wholesome, folksy country songs, most sung with a crooked grin but no lack of sincerity. You find yourself charmed by his good-natured, every-man character on songs like 'More Trucks Than Cars,' 'Being Alive and Living' and 'Better Stories.' "

Great American Country says the album is "full of easygoing charm. Songs like the sexy 'Love Loves A Long Night' and 'Fish Weren't Bitin' fill out a solid collection that feels like a warm conversation. Craig's music and voice have

always been engaging and accessible, and it's no different here."

#### A SUCCESSFUL DECADE

Expo attendees will sample tracks from that album when Morgan performs on Tuesday, Feb. 26, at the annual Industry Appreciation Party at the JW Marriott Hotel, connected to the Indiana Convention Center. They'll also hear some of his 14 Top Ten hits, which include "Redneck Yacht Club," "Almost Home" (Music Row song of the year in 2003), and "That's What I Love About Sunday" (Billboard's most played country song of 2005 with five weeks in the No. 1 spot).

Morgan's songwriting and recording career goes back 13 years. He made his first appearance on the Grand Ole Opry stage on April 21, 2000, and was invited to become an Opry member during a special concert for troops at Fort Bragg in Fayetteville, N.C., on Sept. 18, 2008. The setting was fitting, since Morgan himself was stationed at Fort Bragg for two of his 10 years (continued)



"People ask me how I stay grounded. Man, I go home and I still mow my own grass. I clean my own pool. I have kids that I play with and love the same as everybody else. I will always be that same guy." Craig Morgan



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of active duty tenure in the U.S. Army's 82nd Airborne Division.

His Grand Ole Opry profile ascribes his appeal to honesty, work ethic and humility. "We grew up tough – dirt road, single-wide trailer," he says. He never saw himself in a music career, even though his father was a bass player in Nashville. He spent time as an emergency medical technician, a contractor, a sheriff's deputy, and an assistant dairy manager at a Walmart store, in addition to his nearly two decades of military service, which include nine years in the Army Reserve.

He remains a big supporter of service members, travelling even to dangerous places to entertain. "I was one of the first artists to go into Afghanistan," says Morgan, who received the 2006 USO Merit Award. "Right after the invasion, they were still sweeping up glass in Kandahar in the airport. I get to give those men and women a little piece of home. It really does make a difference."

#### HARD AT WORK

Success in the music business doesn't seem to have changed him. "After most gigs, he is right there with his band and road crew loading up the truck," according to his Opry profile. Morgan adds, "Something in my genes and my blood requires that I work – right or wrong, it makes me feel like a man."

His Opry appearances number more than 130, and he plays some 200 sold-out concerts per year. He has toured with the likes of Carrie Underwood, Keith Urban, LeAnn Rimes, Brad Paisley and Trace Adkins. He is also a competitive dirt bike racer in the Mid-South Hare Scramble Series.

In June 2010, he launched the "Craig Morgan: All Access Outdoors" TV program on the Outdoor Channel. It follows his lifestyle at home, touring and outdoors: hunting, aerial bow fishing, bungee jumping and skydiving. In its first season, it became the network's top-rated Saturday morning hunting show.

#### **STAYING GROUNDED**

Amid all the activity, family comes first with Morgan. "I love the music. I love singing and writing songs and producing records," he says. "But ultimately, I do what I have to do to take care of my family. People ask me how I stay grounded. Man, I go home and I still mow my own grass. I clean my own pool. I have kids that I play with and love the same as everybody else. I will always be that same guy.

"Whether I was working at Walmart or as a police officer, I enjoyed what I did. And I could go right back to that today. I'm going to make whatever I do interesting and fun. I've always tried to look at this like, 'It's a job, and I'm blessed to have it.' "

Reflecting on his latest album, he observes, "No matter what level of an artist you are, you choose songs based on who you are at that time and how you feel. I'm at a point in my life where I'm extremely comfortable, extremely confident. I feel good about my family, my children, my friends, my career. I think the songs that I picked, looking back now, kind of reflect that."

#### FIVE QUESTIONS WITH CRAIG MORGAN

**Q.** How does your long experience in the military inform your approach to life? And does that inform your songwriting in any way?

**Morgan:** My time serving in the Army helped shape who I am today. It reinforced the values I learned at home – discipline, hard work, loyalty and sacrifice. I like to write from experience, and so I recently wrote a song called "What Matters Most," about our military men and women and the spouses and families they leave behind to serve our country. We recorded it and then donated it to Folds Of Honor to help raise money to support the families of fallen soldiers.

Q. What would you say is your signature song, and why?

**Morgan:** We've had a lot of hits, but to name one signature song is tough. I'd say, though, that everything we cut for my newest record, "This Ole Boy," is me to a T, especially "Being Alive And Living," and our newest single, "More Trucks Than Cars."

**Q.** Are there any lessons you feel small-business owners like Pumper & Cleaner Expo attendees could learn from your experiences working your way into the music business?

**Morgan:** There are two big things I've learned as an artist and entrepreneur in the music business and outdoor world. First, surround yourself with talented people. I like to joke and give everyone a hard time, but all my guys on the road with me and everyone back at home in Nashville keeping the machine running are top-notch. And second, never give up. You have to want it more than the next person and you have to be willing to work really hard to build your business, whether as an artist or in any career field.

**Q.** What is the single most important thing you would like the Pumper & Cleaner Expo audience to know about you before your performance?

**Morgan:** I'm a hard working guy just like everyone out there. I like to dream big and live big, whether it's through my music, in the outdoors, or at home with my family.

**Q.** What should the Pumper & Cleaner Expo crowd expect from a Craig Morgan concert?

**Morgan:** Expect to be on your feet the whole time! I approach my shows like I approach my life – with a LOT of energy.



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Manageit from Ituran USA is designed for fleet management and dispatchers, and contains instant and accurate GPS fleet tracking, personalized reporting, recovery services, geofencing technology, real-time notifications via email/SMS, landmark report, Driver ID capabilities, and PTO alerts, along with other features. The software provides customers with 24/7/365 live recovery assistance for emergency and technical support. 866/543-5433; www.ituranusa.com.

#### 5. MANAGED SCADA SYSTEM

The complete monitoring and controls Managed SCADA System from Mission Communications allows municipalities to manage, operate and maintain collection systems. Real-time alarms are delivered by a combination of voice phone calls, text messages, emails, faxes and pagers, and each alarm is logged on the Web portal. Because the system is Web-based, enhancements and new features are available at no extra cost. Users can compare pump station flow with local rainfall, analyze pump runtimes for anomalies, or track site access with reports tailored to the water and wastewater industry. Reports assist with preventing noncompliant events from occurring, and the portal can be accessed from any Web-enabled device. The price stability guarantee establishes a predictable cost of ownership. 877/993-1911; www.123mc.com. (continued)













#### 6. WASTE MANAGEMENT SOFTWARE

Designed with best practices in mind, Waste Management Software from Operasoft is an online solution to run every aspect of waste management operations. The software requires no onsite installation and handles all types of service requests, real-time dispatching, GPS tracking, supplier/contract management, invoicing and more. The new Android terminal (optional onboard touch screen) displays job lists for the drivers/operators along with comments/instructions that pop up per location. The dispatcher can track progress in real-time and can easily view work completion on open/closed service calls on Google Earth. The system is modular, and users can import every available serviceable entity from various databases (including GPS coordinates) and track all maintenance that is due, has been performed and still pending. Preventive fleet maintenance can be managed by creating and tracking vehicle repair work orders; end of day vehicle inspections are entered on the Android terminal before the driver parks and exits their service vehicle, automatically creating new repair work orders for the garage as needed. 888/986-7372; www.operasoft.ca.

#### 7. GIS INFRASTRUCTURE MANAGEMENT SOFTWARE

The WinCan GIS module for WinCan v8 from Pipeline Analytics enables users to manage water, stormwater and sewer infrastructure using GIS data. A user can click-and-drag or query a map to create entire WinCan projects with prepopulated section data, automatically create linked map elements from observations, dispatch inspection and rehab crews with unprecedented ease, and augment GIS data with greater infrastructure detail. Users can filter, report, browse media, track progress and create work orders through an intuitive map interface. They can also plot observations into a GIS as point features, with links to video and photos. The software also highlights any disparities between a GIS and WinCan data so they can be corrected. The program includes tools that allow users to generate reports, export data, utilize observation data to create pipe-specific repair strategies, and create subsets of data for pipes to be inspected. 877/626-8386; www.pipelineanalytics.com.

#### 8. SCHEDULING PROGRAM

With SAFE Software, technicians with basic computer skills can enter, organize, route and schedule pumping and service for customers. Other features include invoicing, work orders, contracts, inspections, vehicle

maintenance, expense tracking, customer inventory, rental tracking and alarm monitoring. Users can email documents (invoices, contracts, work orders, etc.) using Outlook or Windows Live Mail and their current email account. They can also create an online map of customers by importing them into a mapping site. The map can be saved and viewed from a smartphone or laptop with Internet access. Reminders and follow-up emails can be sent to customers, along with a personalized message. 800/604-7351; www. thesafeprogram.com.

#### 9. SERVICE MANAGEMENT SOFTWARE

Service management software from ServiceTitan helps businesses generate leads, book appointments and close sales. In addition to scheduling and dispatch features, the software measures the success of marketing campaigns and customer service representatives. Business owners can review unbooked calls and recordings to identify missed revenue opportunities and retrain CSRs to improve performance and prevent future losses. Canceled or unsold opportunities can also be reviewed. The cloud-based software is accessible from any device (desktop, laptop, tablet, phone) and does not require download, installation or remote desktop. Each 30-day free trial includes training and best practices consulting. 888/966-9493; www. servicetitan.com.

#### **10. BARCODE SCANNING SOFTWARE**

Barcode Scanning Software from StreetEagle GPS provides fleet owners and operators the ability to manage assets and equipment in the field. By integrating with wireless barcode scanners from Motorola, the software transmits all scanned information in real time. The vehicle operator quickly scans the barcode on each asset when servicing, delivering or picking up. Managers then track assets in the field, with each scan providing location, date/time and service verification. The software provides visibility into the actual location of each vehicle/asset and the ability to track pickup, delivery and servicing of mobile assets. Managers can verify that all assigned assets were serviced on the most optimized route for fuel and time savings. Automated and printable reports will ensure customer proof of service and inventory management to schedule deliveries, prevent loss and allocate resources. 301/866-1990; www.streeteaglegps.com. ©

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#### SUPER PRODUCTS PRODUCES CAPABILITY GUIDE

Super Products is offering a capability guide for its Mud Dog hydroexcavator line. The guide provides a side-by-side comparison chart and detailed information on its 6.5-, 10-, 12- and 16-yard debris capacity units, as well as available options. A version of the guide can be viewed at www.superproductsllc.com.



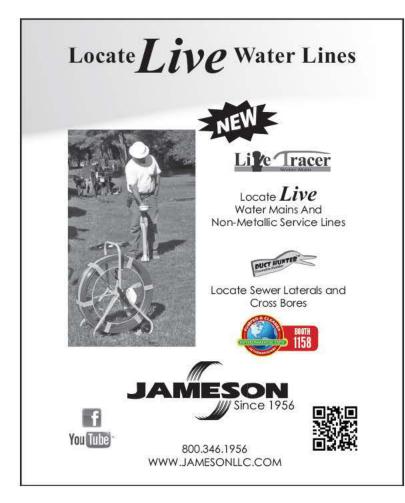
## ELECTRIC EEL OFFERS CABLE, TOOL SELECTION GUIDE

Electric Eel Mfg. Co. is offering a two-page guide matching cable and cleaning tools for its line of drain and sewer cleaning machines. The guide is available at www.electriceel.com or by email at info@electriceel.com.

#### CUES OPENS MIDWEST SERVICE BRANCH

CUES opened a Midwest service branch at 2325 Parklawn Drive, Suite K, Waukesha, Wis. The facility includes drive-in service and loaner equipment inventory.





#### **XYLEM ACQUIRES HEARTLAND PUMP**

Xylem acquired privately-held Heartland Pump Rental and Sales. Heartland, based in Carterville, Ill., has been a business partner with Godwin in dewatering pump rental, services and systems design since 1995. Godwin is part of the Xylem group. Heartland has 100 employees with branches in Indiana, Mississippi and Tennessee. Terms of the transaction were not disclosed.

#### HINO APPROVED FOR CALIFORNIA HYBRID INCENTIVE

The 2013MY Class 5 195h diesel electric cab-over from Hino Trucks is approved by the California Air Resources Board as eligible for the California Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project (HVIP). The program is designed to accelerate deployment of hybrid and zero-emission medium- and heavy-duty vehicles and vehicle technologies.

#### TRIMBLE, BENTLEY FORM STRATEGIC ALLIANCE

Bentley Systems, an infrastructure software company, and Trimble, provider of connection construction for building contractors, formed a strategic alliance to further the connection between the virtual and physical environments for infrastructure projects.

#### NLB EXPANDS PRODUCT WEBSITE

NLB expanded its website (www.nlbcorp.com), enabling users to search for specific equipment or by application. It includes application information, video demos and downloadable catalogs, spec sheets and application bulletins.



#### IPR HIRES BUSINESS DEVELOPMENT MANAGER

Inland Pipe Rehabilitation hired Scott Pannell as business development manager for its southeast region, including the Carolinas, eastern Tennessee and southern Virginia. He has 20 years experience in sales, marketing and management within the civil engineering products industry.

#### TRIC TOOLS HIRES MUNICIPAL SALES DIRECTOR

TRIC Tools hired Bob Greiner as director of municipal sales. He has 20 years of engineering, sales and management experience.

#### PERMA-LINER EPOXY PASSES CHLORINE TEST

Perma-Liner's formulated epoxy passed testing for chlorine resistance. Conducted by HTS Pipe Consultants, tests were performed in accordance with ASTM F1216, ASTM D543, ASTM D2122 and ASTM D770 methods.

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#### COMPUTER SOFTWARE

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#### **DRAIN/SEWER CLEANING EQUIPMENT**

Used and rebuilt cable machines in stock: RIDGID K-7500, K-40, K-60, K-1500, Roto-Rooter #55, WXL #C, Spartan #1064, #300, #100, Electric Eel model #C machines. The Cable Center: 800-257-7209. (CBM)

General Wire models J-3055, J-3080, and J-2000; Spartan #717; Electric Eel gas jetters. The Cable Center: 800-257-7209. (CBM)

#### HAND TOOLS

Manhole grout gun, used once, with 40 foot hoses, all in new condition. \$600. Contact Steve, 970-731-9262, Southwest Colorado. (C02)

## HAND TOOLS

Air drill, Unitec/Spitznas, Model 2 2404 0010, no. 07687, 21 cfm, air requirement, used once! With case. \$400 (paid twice that). 970-731-9262, southwest Colorado. (C02)

#### **HAZARDOUS WASTE UNITS**

1995 International 4900 with a 2.300 U.S. gallon Presvac, carbon steel, DOT certified 412, vacuum pressure tank. (Stock #6004C) www.VacuumSalesInc.com, (888) VAC-UNIT (822-8648). (CBM)

Presvac 2,300 U.S. gallon, carbon steel with a Masport H15W vacuum pump installed on a 1993 GMC Kodiak cab and chassis. (Stock www.VacuumSalesInc.com. #6615V) (888) VAC-UNIT (822-8648). (CBM)

New 3,200 U.S. gallon, carbon steel, DOT certified 407/412 vacuum tank; dump type with full open rear door and a Presvac PVB-750 vacuum-pressure pump installed on a 2012 Peterbilt, 348 cab and chassis. (Stock #13526V) www.VacuumSalesInc. com, (888) VAC-UNIT (822-8648). (CBM)

Pre-owned 3,200 U.S. gallon, carbon steel, DOT certified 407/412 vacuum tank, dump type with full open rear door, and a Presvac PVB 750 vacuum-pressure pump installed on a 2011 Peterbilt 348 cab and chassis. (Stock #0200C) www.VacuumSalesInc. com, (888) VAC-UNIT (822-8648). (CBM)

#### **JETTERS-TRAILER**

2002 SECA model 747-FR2000 trailer mounted high pressure jetter, 700 gallon, dual reel, 40 gpm @ 3,000 psi water pump. \$14,950. 561-340-1495, FL. (C02)

US Jet 4018, 600 gallon with HATZ silent pack, 18 gpm @ 4,000 psi, on a Ford F450 diesel, 4x4 chassis, only 19k original miles, work ready. \$ 23,988. 1-800-627-0788. (C02)

### JETTERS-TRAILER



2009 American Sewer Jetter: 25 gpm, 4,000 psi, 300 gallons, 500 foot hose, includes additional line, sizes and heads. Original private owner bought for one job, 67 hours on the machine, 50 hp, dual gas. Paid 22k, sell for ......\$7,500 Office 818-951-6100 Cell 310-420-3525 C02

2008 American Jetter 1640; 4,000 psi, 300 gallon tank, 500 foot line, 60 hp, 25 gpm, owner retiring, paid 20k, less than 80 hours. Will sell for \$6,000. 310-420-3525. Email pipeline forensics@ca.rr.com for pictures. (C02)



Xtreme Flow Hot/Cold Jetter! Model #HJ2TA8536, tandem axle trailer, 35 hp Vanguard 8.5 gpm @ 3,600 psi, 325 gallon water tank, 300' hose, General Pump. List \$34,995. On sale for \$29,995. Fully loaded!

800-213-3272 www.hotjetusa.com CPBM

#### JETTERS-TRUCK

2006 GMC TC6500 cab and chassis with Pipe Hunter trunk mounted jetting unit, 3,000 psi @ 50 gpm with a 1,000 gallon water tank, rear mounted hose reel with Jet Eye Camera System, 6,800 original miles, like new. \$99,000 sale price. (Stock #13234V) www.VacuumSalesInc.com, (888) VAC-UNIT (822-8648). (CBM)





1989 Ford with Camel water jet, 1,500 gal-Ion stainless steel water tank. Myers 80 gpm. 2,000 psi water pump. Truck and jet in good working condition. \$12,500. Pictures at www. empireequip.com. Call Greg, 559-284-0401. (CPBM)

Jack Doheny Supplies Inc. offers a full range of late model combo units and DOT industrial vacuum loaders. Call us @1-800-3DOHENY. (CPBM)

#### JET VACS



2009 Vactor 2115-824-RCS-18": 3,500 cfm, 15 cubic yard debris body, ......8 0 gpm @ 2,500 psi, 18" positive displacement blower, 1,500 gallon water tank capacity, 32,876 miles, 1,184 hours, accumulator, multi-flow, winter recirculation, hydro-excavation handgun package, 8 extendable rotating boom, remote pendant control, 800' x 1" hose reel capacity w/wind guide, rear mounted strobe light, 2009 International 7600 6x4, 380 hp., Eaton Fuller transmission, tandem axles. (Stock #1791) 312-829-1919 C02

Standardequipment.com



#### **JET VACS**



2006 Vactor HXX PD mounted on a 2006 Sterling: 12 cubic yard debris body, 10 gpm @ 2,500 psi, Hibon 8702 blower, 1,300 gallon water tank capacity, 227,665 miles, 10 gpm winter recirculation/air purge, dual cyclone separators, remote pendant, 400k btu/extreme pkg. water heater, debris body vibrator, 2006 IH7600 w/430 hp, manual transmission, tandem axles. (Stock #1810) 312-829-1919 Standardequipment.com C02

1991 Vactor 2100 series with PD blower, new water pump, 8' ext. boom, 1,300 gallon water cap, 12-yd. debris tank, mounted on L8000 with auto transmission, municipal trade, well maintained and ready to work. \$33,900. Call 262-951-8979, WI. (C02)

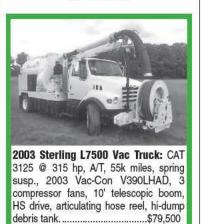


2007 Sterling Vactor 2100, 100 gpm at 2,000 psi, manual transmission, 3 axle truck with drop axle, 15-yd. debris tank., 18" PD blower......\$185,000 Contact Dave 916-442-5400 cc2

5 Vac-Con trucks, 4 single, 1 tandem axle, 4 ready to work, lots of new parts. \$10,000 -\$45,000. Alan 603-387-4111, ruelsweeping@ myfairpoint.net, NH. (C02)

Vac-Con industrial machine mounted on a pre-owned 1999 International cab and chassis. (Stock #3918C) www.VacuumSalesInc. com, (888) VAC-UNIT (822-8648). (CBM)

#### JET VACS



2006 Sterling with a VacAll AJV 1215: 12 yard debris body, 1,500 gallon water, combination vacuum/jetting unit. (Stock #5673C) www. VacuumSalesInc.com, (888) VAC-UNIT (822-8648). (CBM)

715-546-2680 WI

CBM

1994 Vac-Con, 16-yd. debris tank, 1,250 gallon water tanks. Telescoping boom with articulating hose reel, 3-stage vacuum. L8000 Ford chassis, 127,545 miles. \$45,000. Call 601-373-3736. (CPBM)

#### LEASE/FINANCING

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#### **PARTS & COMPONENTS**

Vac-Con parts for sale: 1) Scissor lift for 12yard debris tank, 2) Hydraulic oil cooler, 3) Aux. engine (John Deere), 4) 8" extendable vacuum boom, 5) Hose reel on bumper. For more info call 970-653-8588, email freedom drain@hotmail.com. (C03)

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New Top Gun mainline system from Perma Liner (complete), new Bowman cutter and a complete 1997 CUES cutting van. \$120,000. 916-416-1001, California. (C02)

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2006 Vactor HXX PD Mounted on a 2006 International, 12 cubic yard debris body, 10 gpm @ 2,500 psi, Hibon 8702 blower, 1300 gallon water tank capacity, 227,665 miles, 10 gpm winter recirculation/air purge, dual Cyclone separators, remote pendant, 400k btu/extreme pkg water heater, debris body vibrator, 2006 IH7600 w/430 HP, manual transmission, tandem axles



2009 Vactor 2115 18" PD International 7600 6X4, 3500 CFM, 15 cubic yard debris body, 80 GPM @ 2,500 PSI, 18" positive displacement blower, 1500 gallon water tank capacity, 32,876 miles, 1,184 hours, accumulator, multi-flow, winter recirculation, hydro-excavation handgun package, 8' extendable rotating boom, remote pendant control, 800' x 1" hose reel capacity w/wind guide, rear mounted strobe light [IH 380 HP, Eaton Fuller transmission, tandem axles



#### POSITIVE DISPLACEMENT BLOWERS

(2) New Sutorbilt PD blower, model GAFMBPA catalog no., 6 mp. \$2,500/each or \$4,500 for both. 714-381-4141. Pictures at www.empire equip.com. (CPBM)

#### PUMPS

Honda model WP40X, 8 hp, 4" with hoses. Honda 4 hp, 2" pump with hoses. The Cable Center: 800-257-7209. (CBM)

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RIDGID model #300 with stand, RIDGID tristand vises, RP 330 ProPress kit. The Cable Center: 800-257-7209. (CBM)

Ritchie Yellow Jacket Recovery System & BULLET 7 cfm pump. The Cable Center: 800-257-7209. (CBM)

#### TOOLS

Bosch Brute hammer drill with cart irons. The Cable Center: 800-257-7209. (CBM)

#### **TV INSPECTION**



1991 GMC 3500, 1-ton Vandura sewer camera / pipe inspection van. This van has 15,000 original miles. It has been stored inside and fleet maintained since new. This van has an Onan Emerald III 6.5 kw generator with 1,376 hours on it. Coleman rooftop, air conditioning unit for the rear as well as factory air in the front. This van has been outfitted with an Aries camera system. This system can pan, tilt, zoom and displays a great color picture. Beyond the camera this van has all the extras that make the job easier. It has plenty of video cable that is remote controlled. A wash down system to keep your equipment clean. A PA system for clear communication and comes with various spare parts. \$19.950 719-494-4927 CO CP02

New top-of-the-line Cyclops Electronics Sewer Inspection System mounted in good running 2005 Ford E-250 Van. P&T color camera, HD transporter, 1,000' TV/tow cable, front and read color LCD monitors, 1,000 watt inverter, DVD rec/player, powered cable reel with auto level wind and dell laptop with PACP certified software. All for only \$61,000. Call 830-249-9756 and talk to the guys that build 'em. (C02)



**1989 Chevrolet 3500:** This setup is 100% complete and 100% operational. This van is equipped with an Omni 2 camera, with pan and tilt head. The equipment was designed and manufactured by R.S. Technical Services Inc. This is a one owner fleet maintained vehicle from a municipality in Colorado. It has been stored inside its entire life. It has only 39,000 miles and is 4 WHEEL DRIVE. \$29,950 719-494-4927 C0

#### TV INSPECTION

Ratech Inspection System: 1995 Ford E350 cargo van, new computer and data program, pan-and-tilts camera on crawler (with 1-yearold motor and transmission) 1,000' cable (1year-old). \$35,000/OBO. Call 519-294-6500. (C02)



FOR SALE: Aries CCTV inspection truck, 2008 GMC C4500 4x4, excellent condition & low miles, with laser profiler. Please call 612-210-5524, FL. (C02)

2006 Aries Mainline televising system mounted in a step van. Complete turn key system with two tractors, computer and software. \$26,000. Call 608-575-7060 for more information. (C02)

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### TV INSPECTION

New Cyclops Electronics Valu-Pac IV Standard P&T color camera, heavy duty transporter, all-in-one controller for camera, lights, reel and transporter, 15" LCD monitor, DVD rec/player, keyboard data system with onscreen footage, motorized reel with 500' TV/ tow cable. All for only \$32,700. Call 830-249-9756 and talk to the guys that build 'em. (C02)

1998 CUES Mainline TV System: GMC Savanna 3500, CUES with Pro-Data on-screen titler, Honda generator, Sony combo DVD/ VHS, 1.700' of M/C cable, pan & tilt camera with shorty transporter. \$29,500. 608-835-7767, WI. (CBM)

Used and rebuilt camera kits in stock: RIDGID Mini Compact, Mini Color, Standard Self-Leveling, General Gen-Eye I, II and III, Aries Seeker, and SRECO kits. The Cable Center: 800-257-7209. (CBM)

#### VACUUM LOADERS

2012 Western Star cab and chassis, Power Vac 5300, 3,250 U.S. gallon, carbon steel DOT 407/412 regulations vacuum tanker with a Hibon PD blower, 5300 SCFM with vacuum to 28" mercury, dump type with full open rear door, and a Presvac PVB 750 vacuum-pressure pump. (Stock #13518V www.VacuumSalesInc.com, (888) VAC-UNIT (822-8648). (CBM)

#### WANTED

WANTED: I'll buy your sewer truck running or not. Any brand and any make. PH 305-509-0467. Juan. Email trucksofmiami@gmail.com. (C02)

Wanted to Buy: Vactor 2100's and late model Guzzlers. Cash. 800-336-4369. (CPBM)

#### WATERBLASTING

Gardner Denver T-375M: 21 gpm @ 10,000 psi. Gardner Denver T-450M: 52 gpm @ 10,000 psi. NLB 10-200: 34 gpm @ 10,000 psi. NLB 20-600: 44 gpm @ 20,000 psi. Gardner Denver LC-1500: 390 gpm max, 15,000 psi max. NLB 10-200: 10k max, 34 gpm max. NLB 36-200 6 gpm @ 36,000 psi. Jetstream 4220: 20k psi @ 17 gpm, Allis-Chalmers 10x8x22, 700 hp Wheatley 125: 15 gpm @ 10,000 psi, Wheatley 165: 30 gpm @ 10,000 psi, Wheatley 165: 17 gpm @ 20,000 psi. Boatman Ind. 713-641-6006. View @ www.boatmanind.com. (CPBM)

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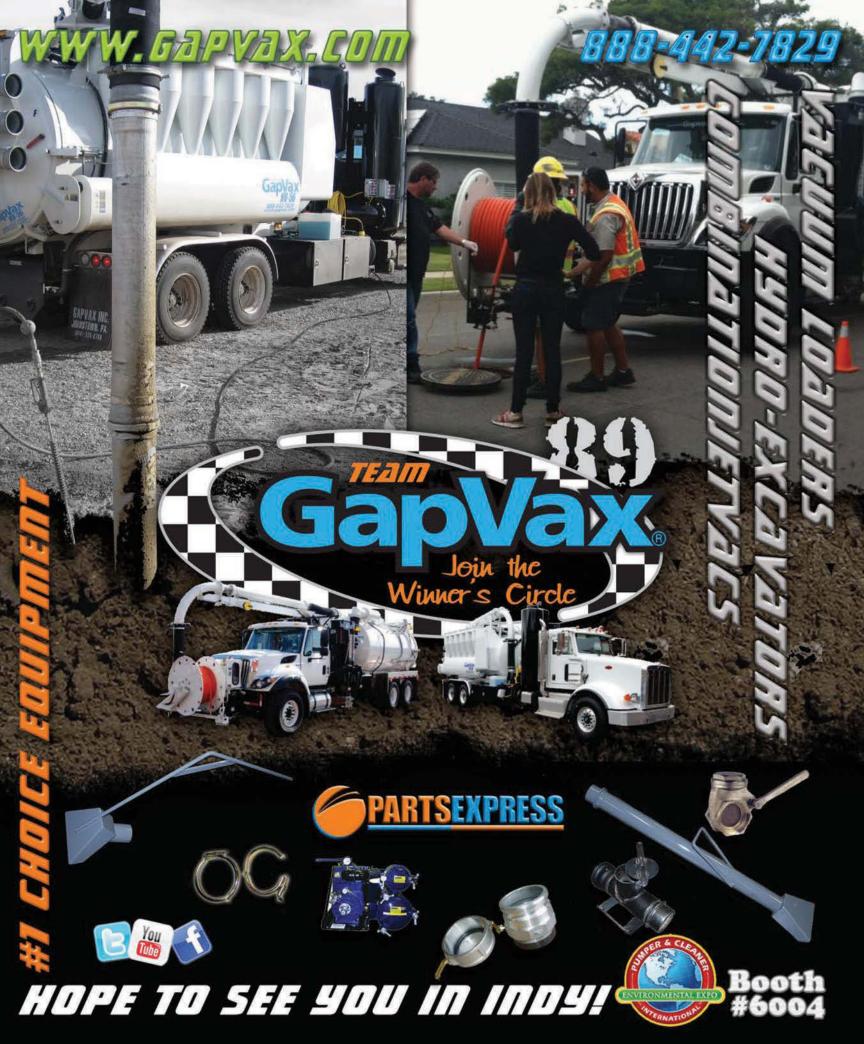
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