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Doing the JOB RIGHT

TIGHT SEAL PLUMBING TAKES A PERSONAL
APPROACH TO BUILDING ITS BUSINESS **PAGE 38**

**WATERBLASTING AND WATERJET
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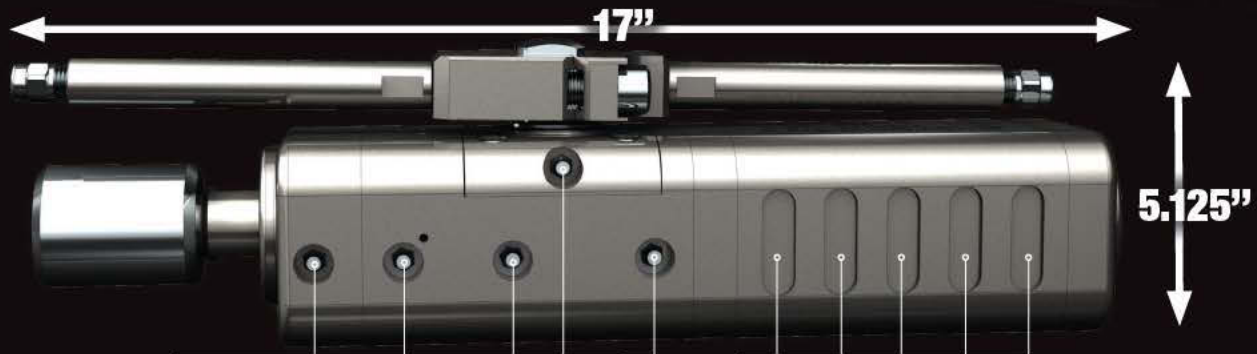
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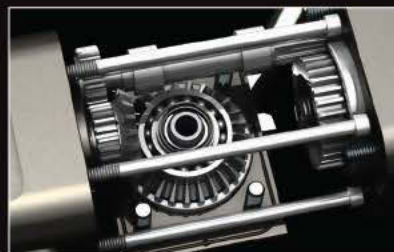
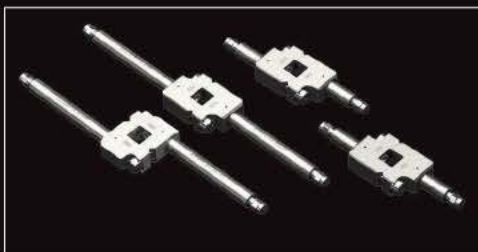
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features

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By Marian Bond



On the cover: Tight Seal Plumbing owner Daniel Baker stands on the rooftop of an 18-story building in Chattanooga, Tenn., while crew member Danzel Owens sets up for an inspection. Tight Seal has been in business since 2004 and specializes in drain cleaning, jetting, CCTV inspection, plumbing service and repair. (Photos by Dan Reynolds)

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Mainline Sewer Inspection

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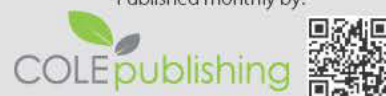
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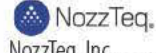
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Luke Laggis
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Different Sizes of Success

THE DRAIN CLEANING INDUSTRY PRESENTS OPPORTUNITIES FOR ANYONE WHO DOES GOOD WORK AND TREATS PEOPLE FAIRLY

BY LUKE LAGGIS

Some people dream of building a big company and dominating their industry. Others simply want to be in business for themselves, doing the work the way they want it done with no one looking over their shoulder. One of the great things about this industry is there's plenty of room for both to be successful.

The two feature profiles in this month's issue of *Cleaner* are a testament to that. North American Pipeline Services is a great example of a company with a wealth of resources branching out to gain greater market share. Owner Tom Mullen had been in the excavation and pipe installation business for many years before purchasing the company. After the acquisition, one of his first initiatives was going after larger municipal jobs. North American had taken on very little of this type of work under the previous owner, but Mullen saw it as a huge opportunity for growth. The effects of Superstorm Sandy in their local area of New Jersey made municipal work an even greater opportunity.

is also looking at other upgrades. Three jet-vac combination trucks along with air-testing gear, mandrels and vacuum-testing equipment add to the resources available.

It's all part of Mullen's long-term vision: to combine North American Pipeline with his excavation business and create a full-service underground utility contractor that can compete directly with larger firms in New Jersey and adjacent areas of New York and Pennsylvania.

Tight Seal Plumbing in Chattanooga, Tenn., takes the same approach to doing quality work, but it's a small company and owner Daniel Baker only has one full-time employee. He may add to the staff in the future, but right now he's building the company name and customer base so he has a solid footing for whatever the future brings.

Baker prefers to be out on every job himself, and he's seen the value in focusing his business on drain cleaning. By carefully acquiring the right equipment,

Both of these entrepreneurs are successful by their own standards, even though they occupy very different places in their markets. They are on different tracks, but both are meeting the needs of their customers and doing well enough to meet the needs of their families.

So, nearly from scratch, Mullen began building capacity to take on those projects through training, networking and marketing.

Instead of waiting for existing customers to call, they're trying to grow relationships with a bigger, broader customer base. Mullen is making plans to expand into pipeline rehabilitation using slip lining and other forms of trenchless pipe repair. The company has several CUES cameras and support vans, and

he's been able to expand his capabilities and carve out a profitable niche.

He was able to learn from other experienced inspection technicians before he purchased his own equipment, and he spent a lot of time learning the full extent of the equipment's capabilities once he purchased his own.

Baker also pays close attention to detail and has been able to build his business through referrals from satisfied customers. "I'm going to give the best I possibly can," he says. "The customer has entrusted me to do that. We need to strive in the industry for that excellence."

Both of these entrepreneurs are successful by their own standards, even though they occupy very different places in their markets. They are on different tracks, but both are meeting the needs of their customers and doing well enough to meet the needs of their families. That's a success by anyone's standards and a great example of why this industry is great: If you do good work and treat people fairly, you'll find success.

Enjoy this month's issue. 



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BY LUKE LAGGIS

We're posting valuable new content every day at Cleaner.com. In addition to everything you see on these pages, the site features a wealth of product and industry information, as well as original features you won't find in print. The following are just a few of the items you're missing if you're not visiting the website.

Choosing the Best Inspection Camera for Your Business

Inspection cameras are one of the most valuable tools for any drain cleaner. Whether you're checking a line to diagnose a problem before beginning a job or you need to locate a blockage to determine how to clear the line, the inspection camera is a must-have.

"The typical use for your everyday plumber for an inspection camera is to locate a blockage or a break in the line," says Justin King, vice president at Amazing Machinery Inc. "They want to see the condition of the pipe, understanding if any service or repairs are needed to that line."

11 Management Tips to Increase Employee Performance

Many business owners and managers wonder how to keep employees motivated. They say, "I want employees excited to come to work; we have too many clock-punchers. How can I get them to do more and be more for our customers?" or "I feel like as soon as I put out one fire, another one erupts among employees. I'm tired of being a referee. They don't work as a team."

Reader Pipelines: Customers Make Business Worthwhile

Drain cleaning contractors all have a story to tell, whether it's about the ring you recovered from a drainline or the pro bono work you do in your community. This exclusive online Cleaner feature gives you a chance to tell your story, in your words, in a Q-and-A format that reaches beyond the confines of your business. Frank King, the owner of Action King Services of Lowell, Mass., is one of those with a story to tell.

How To Market Emergency Drain Cleaning Services

It doesn't matter what type of business you're in; people will call you with problems, looking for solutions. Your top marketing person should answer the phone when these calls come in. The ideal salesperson will make your services accessible to the caller and be expeditious in offering help. Make sure you've listened to, recorded and trained your phone person. Your business probably doesn't generate much money on emergency work, but the goal is to convert the emergency client into a long-term, loyal customer.

3 CIPP Products Every Pipe Rehabilitation Contractor Needs

When you are called on to rehabilitate storm drains, sanitary sewers and pipelines, your customers need to feel confident that you have the tools to get the job done quickly and efficiently. Cured-in-place lining has come a long way in the years since its development and the equipment and methodologies have also evolved.

Check out all these stories at www.cleaner.com/ec/2013/August

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BORN AGAIN

NORTH AMERICAN PIPELINE SERVICES DELVES DEEPER INTO PUBLIC PROJECTS TO EXPAND ITS BUSINESS AND RESTORE THE SHORE **BY ERIK GUNN**

When Fred Choppy decided to sell his sewer cleaning and inspection company, North American Pipeline, last year, he didn't have to look far for a buyer.

The 39-year-old business, based in Freehold, N.J., was operating primarily as a subcontractor in the commercial markets with some limited municipal work. Last year, Tom Mullen IV, an excavating contractor and old friend of the Choppy family, bought the firm.

Now, working with Fred's son, Mullen is positioning the operation to expand beyond its original portfolio. He's going after larger public-sector contracts and seeking to build a reputation all over the Garden State.

NAP is making its bid for growth at an especially propitious time. Last fall's devastating Superstorm Sandy hit just as Mullen was getting ready to close on his purchase of the company. In the weeks and months since the storm paralyzed so much of the Northeast and wrought billions of dollars in damage, NAP has been busier than ever, taking on bigger and bigger projects.

It's all part of Mullen's long-term vision: to combine North American Pipeline with his excavation business and create a full-service underground utility contractor that can compete directly with larger firms in New Jersey and adjacent areas of New York and Pennsylvania, instead of just being a subcontractor. He's even added "Services" to the company's name.

"A major amount of the tri-state area infrastructure is past its useful life expectancy and will have to be serviced, repaired or replaced," Mullen says.

FAMILY TRADITION

Contracting is in Mullen's blood. He's the fourth generation in his family to be in the excavation and utility business in some manner. Back in high school he worked summers for his father, Thomas Mullen III, who owned an excavation business, and then full time for the company after graduating.

The younger Mullen moved on to the real estate development business, working for Renaissance Properties in the 1990s. After housing sales sagged in 2000, Renaissance owner Bob McDaid decided to branch out. Mullen and

profile

NORTH AMERICAN PIPELINE SERVICES, LLC, FREEHOLD, NJ



OWNER:	Tom Mullen IV
FOUNDED:	1974 as a small plumbing firm; acquired 1984 by Fred Choppy, who built a pipeline service business; acquired 2012 by Tom Mullen IV
SPECIALTIES:	Cleaning (storm and sanitary sewer), inspection, testing (sewer, manholes, potable water systems), hydroexcavation, replacement and repair (sanitary sewer, storm drain, potable water systems)
SERVICE AREA/TERRITORY:	New Jersey
EMPLOYEES:	10
ANNUAL REVENUE:	\$1 million (includes Mullen's affiliated excavation company)
WEBSITE:	www.napllc.com

McDaid formed an excavating company to do utility pipe installations and repairs as well as site work for construction projects. With his own background so close to the industry, Mullen asked McDaid to put him in charge of the excavation business, and McDaid agreed.

The Choppy and Mullen families were friends. Mullen's father's excavating company had subcontracted sewer inspection and cleaning work to Choppy's business, and now the younger Mullen did, too.

"NAP has always been around for as long as I can remember," Mullen says. "All the time, I always said to Fred, 'When you're ready to sell, I would love the opportunity,'" Mullen says.

That opportunity finally came in 2012 when Fred Choppy decided to retire. With McDaid's assistance and the vision of combining the two businesses, Mullen jumped at the chance, closing the deal a week before Christmas 2012. Choppy's son, Brad Choppy, came along with the company, and has the day-to-day responsibility of managing projects as vice president at NAP.

"A major amount of the tri-state area infrastructure is past its useful life expectancy and will have to be serviced, repaired or replaced."

Tom Mullen



Richard Szabo, of North American Pipeline, works the vacuum truck during post-Sandy cleanup at Ocean Beach III in Chadwick Beach, N.J., in early April. The company has been conducting clean-up work in the area since Hurricane Sandy hit in 2012. (Photos contributed by North American Pipeline)

Brad Choppy, supervisor of field operations with North American Pipeline, operates one of the company's jet-vac trucks at a job site along the Garden State Parkway. (Photo by Jerry Wolkowitz)



PUBLIC WORKS EXPANSION

Public works is a big part of Mullen's plan for the business. Before he bought it, "Fred never really went after any public work unless it was through another contractor," Mullen says.

He understands why. "There's a huge amount of paperwork," Mullen notes. "It's almost as demanding, if not more demanding, as the actual physical work, which is the enjoyable part."

Companies taking on public projects must get bonding. Office employees need to meet strict documentation rules for bonding and for bidding work, which requires training. And workers in the field need certification that they've been properly trained in safety standards required by public works projects.

"If a private contractor is driving along the Parkway and they see all of our trucks out there, they're going to have that kind of reassurance that you're a company to reckon with and that's capable of performing jobs."

Tom Mullen

But Mullen sees some big benefits in the arena. "There's definitely a good-sized market," he says of public works, and the need to repair and upgrade infrastructure is only growing.

And while there are hoops to jump through, he sees public work as potentially more secure. "You're guaranteed to get paid when you do public work," Mullen says. "You're not chasing your money."

Win or lose, bidding projects is getting the company's name out, and lately he's begun to win.

And the high profile of public work, he believes, may help market in the private sector, too — one reason that NAP has made sure its trucks are decorated in bold colors with engaging graphics. "If a private contractor is driving along the Parkway and they see all of our trucks out there, they're going to have that kind of reassurance that you're a company to reckon with and that's capable of performing jobs," Mullen says.

BUILDING CAPACITY

So, nearly from scratch, Mullen began building capacity to take on those projects through training, networking and marketing.

Safety training for National Association of Sewer Service Companies (NASSCO) certification is under way now. Employees have also been trained in the Hazardous Waste Operations and Emergency Response Standard (HAZWOPER).

"When you get into the public sector it's

(continued)

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Brad Choppy pulls tools from a storage compartment on a jet-vac truck while working along the Garden State Parkway.

imperative that your personnel are trained for occupational safety," Mullen says.

And while there's plenty of work, it doesn't just come by itself. "Instead of just sitting there, waiting for the phone to ring, based on past relationships, we're trying to grow our relationships to a bigger, broader customer base," Mullen says.

NAP has joined the Utility Transportation Contractors Association (UTCA) and other regional groups to help get the word out about its capabilities, and also get the word in on work opportunities, such as information providers who track when communities are getting ready to bid work.

Another tool was putting the company on the Web in a big way. Mullen says that before the change in direction, NAP didn't have or need a significant Web presence.

CLEANING UP

All that work has begun to pay off. Recently the New Jersey Turnpike Authority embarked on a project to reline storm drain culverts on the Garden State Parkway — the main highway that hugs the New Jersey shoreline from Cape May to the New York state line in the far northeast corner of the state. The general contractors tapped North American to do the pre-cleaning prior to culvert installation.

"That will be our first, real official highway job," Mullen says.

In the meantime though, Superstorm Sandy has made a lot of work for NAP, some of it months after the late October storm.

In mid-April, the company was hired by the community of Chadwick Beach, located on a spit of land in the Atlantic Ocean, to clean up storm drains that had been silted and covered over by the storm. For that they were again

EXPANDING THE FAMILY

Fred Choppy owned North American Pipeline before Tom Mullen IV bought it. And Choppy also had a son, Brad, working for the company. In fact, Brad Choppy still works for the company, and thus for Mullen.

"We've known Tom for a long time," Brad Choppy says. Mullen, he adds, was far and away better positioned to buy the company than he would have been.

"Tom's got a significant amount of contacts and clients. His pockets are a little bit deeper than mine."

And he liked Mullen's plan to marry his excavation business with the pipe company. "I thought it would be a great idea," Choppy says, and he and Mullen agreed that Choppy would stay on to run the pipeline business day to day.

"He does everything from bidding to procurement to actually running the trucks," Mullen says. "That's the best guy to have on your side."

hired by another contractor who figured that North American might know the site better because it had cleaned storm drains there in the past.

"It was so silted over they really didn't have a good idea where the lines run," Mullen explains.

That wasn't the first Sandy job. In the weeks after the storm, North American was called in by the borough of Deal, just north of Asbury Park, to clean up a sewage pumping station that had been overwhelmed by ocean waves whipped up by Sandy.

(continued)

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Brad Choppy, left, supervisor of field operations for North American Pipeline, and company owner Thomas E. Mullen stand by their state-of-the-art jet-vac truck in the Monroe Township, N.J., yard. In the background Richard Szabo, (left) a field technician and operator, and George Schneider, a maintenance and logistics foreman, attach a tube to the vacuum hose.

The building is 30 by 30 feet and three stories tall. Waves had roared over the building with such force that they destroyed the roof and flooded out a backup generator on site.

Choppy, who headed up the operation, says they could see the sun bright as day through where the roof had once been. "Everything was all shut down. It had knocked down the walls of the bathroom."

An office on the top floor – the building's entry floor – was all but demolished. "The computer, the desk, everything was destroyed," Choppy says.

Cleaning required vacuuming out the pit at the bottom level of the structure, while other debris was too big even for the vacuum truck and had to be hauled out.

FIFTEEN TONS

At another sewage station that NAP was called to clean, in Lake Como, crews found a door ripped off, an exhaust fan destroyed by a log that was stuck in it, even a piece of a handicapped-parking sign from the community's boardwalk that had been ripped up by waves and washed over to the facility.

"We had to clean that entire facility," says Choppy. "There was 15 tons of material in there, from sewage to whatever else."

While North American was experienced in sewer and storm cleaning, this was something else, he says, both because of the amount of sand and the amount of debris – everything from cans and bottles to logs and more. "We found a car one time," Choppy says.

Choppy, right, confers with representatives from consulting engineers J. Fletcher Creamer & Son about the locations of the basins they are to clean along the Garden State Parkway, in Clifton, N.J.



EYEING NEW AREAS

Looking ahead, Mullen is making plans to expand into pipeline rehabilitation using slip lining and other forms of trenchless pipe repair. The company has two CUES sewer cameras and their support vans (one a Ford, one a Chevy). It also has three CUES mini-cameras and is looking at upgrades. NAP recently acquired a camera that can go into pipe as small as 1.5 inches, and also has a built-in locator.

"Instead of just sitting there, waiting for the phone to ring, based on past relationships, we're trying to grow our relationships to a bigger, broader customer base."

Tom Mullen

Three Jet-Vac combination trucks along with air-testing gear, mandrels and vacuum testing equipment add to the resources available.

Mullen is also watching the many new technologies proliferating in the market.

Eventually he sees the excavation company and the pipeline services business coming under the same umbrella, "to become a one-stop shop offering full pipeline service," says Mullen. "Hopefully being under one roof will give us a competitive edge."

North American Pipeline may be four decades old, but that's still young. Mullen points out, however, that it has deep experience even as it's being, in some respects, reborn.

And it's got another key asset, he adds: "Now what's here is a massive amount of drive." ☐

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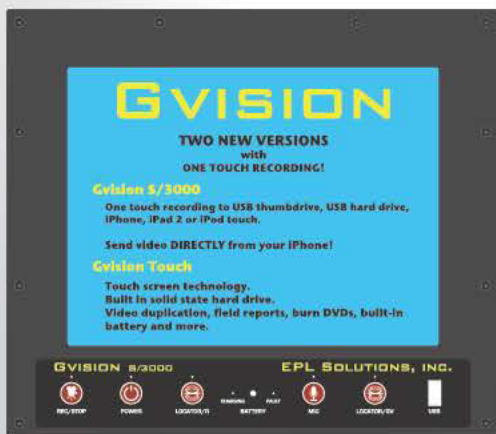
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Brute Force

CART-MOUNTED WATER JETTER OPENS UP A NEW MARKET FOR ILLINOIS DRAIN CLEANER WHILE IMPROVING PRODUCTIVITY AND PROFITS

BY KEN WYSOCKY

When Chad Andersen decided last summer to take a step up to more powerful drain-cleaning equipment, he sought a machine that could seal the deal in terms of customer satisfaction and improved efficiency. He found what he was looking for in a cart-mounted Brute Series water jetter from JETTERS NORTHWEST.

Along with a RIDGID SeeSnake pipeline-inspection camera, the portable Brute gives Andersen, the owner of Andersen Plumbing and Drain Cleaning in Aurora, Ill., the confidence that he can unclog any drainline, quickly and profitably. And in doing so, he helps customers avoid expensive sewer lateral repairs, which in turn generates word-of-mouth referrals, as well as repeat business for maintenance and line cleanings.

“I didn’t want to be that guy who pokes a hole in it [an obstruction] and then comes back six months later to fix the same problem, or tells someone they need a new line when they really don’t,” Andersen says. “The camera and the Brute help us do our work with honesty and integrity.”

To underscore his confidence in the Brute, he relates a story about a customer who hired another contractor that couldn’t clear out a lateral with a sectional cable machine. The customer was leery about hiring another

contractor, so Andersen told her he wouldn’t charge her anything if he couldn’t determine the cause and resolve the problem.

“She thought I was nuts,” he recalls. “I strapped my camera head to the Brute’s hose and found tree roots about 85 feet out. The other contractor went out 160 feet, even into the mainline sewer, but still didn’t clear out the roots. But the Brute did. We were done in two hours. The other guy had been there for the better part of a day.”

money machines

OWNER:	Andersen Plumbing and Drain Cleaning, Aurora, Ill.
MACHINE:	Brute Series cart-mounted water jetter, made by JETTERS NORTHWEST
FUNCTION:	Primarily residential drain cleaning
FEATURES:	12-gallon water tank; 25 hp Subaru propane-fueled engine; UDOR U.S.A. pump (8-1/2 gpm at 3,600 psi); 200-foot remote reel
COST:	About \$10,000, with accessories

The Brute water jetter by JETTERS NORTHWEST has given Andersen Plumbing and Drain Cleaning the ability to unclog any drainline, quickly and efficiently. (Photo courtesy of Chad Andersen)



The Brute features a 12-gallon water tank (which Andersen supplements with a 65-gallon cart-mounted tank when needed); a 25 hp Subaru engine that runs on propane fuel; a UDOR U.S.A. pump that produces 8-1/2 gpm at 3,600 psi; a 200-foot remote reel with a shut-off valve; a Warthog rotating jetter head from StoneAge Inc.; and 300 feet of 3/8-inch-diameter hose.

Andersen also owns a large, trailer-mounted jetter made by Harben Inc. (300-gallon water tank/18 gpm at 4,000 psi), used for larger commercial and municipal jobs; and three smaller drain-cleaning machines made by Spartan Tool LLC. By gradually accumulating an array of drain-cleaning tools, he's been able to shift the primary focus of his business from plumbing repairs and installations to more lucrative drain-cleaning jobs.

"We are able to net more profit on these jobs because we charge extra to run this equipment," he points out. "In the first half of this year, I've already made more gross income than what I earned during my first year in business in 2011.

"Any machine that you can bring in and make what you paid for it in five months is worth having."

Chad Andersen

"The average invoice for a drain-cleaning job is much higher than one for, say, a toilet repair, which is why I decided to focus more on drain cleaning," he adds. "Our growth has been unbelievable, and I attribute most of it to adding drain-cleaning services."

Andersen says the Brute – which he uses primarily for cleaning out residential sewer laterals, as well as commercial work – basically paid for itself in about five months. "Any machine that you can bring in and make what you paid for it in five months is worth having," he notes.

The Brute's portability and its propane-powered engine allows Andersen to use it indoors on commercial jobs. That gives him an edge over companies that own only larger, trailer-mounted jetters that require long hose runs that can disrupt business operations.

"That means the company has to shut down traffic in an area, or maybe leave doors open that should be secured," Andersen points out. "But with the Brute, I can wheel it right in, which you can't do with gasoline-powered units. I just bring along a water hose, or use my cart-mounted water tank, and work without snaking a hose all over the place. Customers love it ... it's all about making things easy for them.

"Another thing that makes the Brute shine is that its pressure flow is pretty close to that of a small trailer jetter," he added. Moreover, for jobs that require working several stories high, the portable Brute doesn't lose water pressure the way a trailer jetter does on jobs that require a long vertical hose run.

Along with accessories, Andersen paid about \$10,000 for the Brute. But he says it's a small price to pay for a machine that seals the deal in terms of customer satisfaction and increased productivity and profitability. **c**

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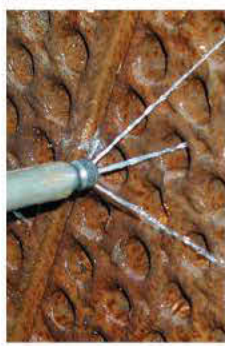
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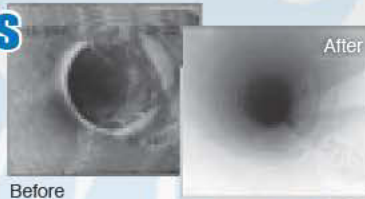
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BY ED WODALSKI

Without a closer look, visitors at this year's Pumper & Cleaner Environmental Expo International might have mistaken Freedom's WBT-3015B enclosed water blaster for a new type of water jetter, but that's hardly the case, says Titus Larson, superintendent designer/builder for Freedom Enterprises.

"This truck can go from 0 to 40,000 psi with a quick change of some plungers in a couple of minutes," he says.

Featuring an insulated (R-19 walls and roof) and heated 14-foot box with workbench and tool boxes mounted on a 2011 Peterbilt 337 Class B chassis, the water blaster is designed for extreme use in the coldest temperatures.

"We've got it running at about 12,000 feet and sometimes higher in extremely, extremely cold weather – down to 60 and 80 degrees below zero," Larson says.

"I talked to people throughout the course of the day [at the Expo]. Most of them liked the fact that it was hydrostatic; everything was in one unit and there was space for all of your tools and equipment."

Titus Larson

Featuring a convertible 150 hp triplex water pump, the waterblasting unit delivers 12 gpm at 15,000 psi or 23 gpm at 8,000 psi. Convertible up to 20,000, 30,000 and 40,000 psi, conversions can be made in the field. That translates into long-range pipe cleaning, he says. "This unit is capable of producing enough pressure and flow – we've gone as far as 1,800 to 2,000 feet in a single run."

The water blaster truck has a 925-gallon water tank with internal baffles, two 18-inch lid access doors, curbside 2-inch fill, copper coils inside the tank for heating water and a water level gauge. Other features include a hydrostatic pump drive system, high-pressure blow-off and burst disks for safety.

"I talked to people throughout the course of the day [at the Expo]," Larson says. "Most of them liked the fact that it was hydrostatic; everything was in one unit and there was space for all of your tools and equipment."

The cold weather package includes an air purge and antifreeze injection system, 45,000 Btu diesel-fired heater with programmable timer/controller and adjustable water temperature shutoff.

"That will do any type of heating while you're away or driving to the job,"



The WBT-3015B water blaster truck from Freedom Enterprises delivers 12 gpm at 15,000 psi or 23 gpm at 8,000 psi. It can also be converted in the field to operate at up to 40,000 psi.

he says. "While you're on the job you can use the truck engine to heat the water. It uses the extra engine heat and puts it through the tank. There's about 75 feet of coiling inside the tank. It takes about a couple of hours to heat 925 gallons."

The water feed and filtration system includes a hydraulic-powered, low-pressure pump (50 gpm at 25 psi), 220 gpm filter housing with quick-change filter bags, instant-off automatic protection, 1.5-inch inlet for hydrant water feed and 1.5-inch outlet for supplying water to multiple water blasters or trucks.

Primarily used in industrial applications – power plants and surface preparation, as well as cleaning oilrigs – the truck can be used on 2-inch residential up to 24-inch municipal sewer lines.

Storage includes 7,500-pound capacity wire rack shelving, flammable materials cabinet, above tank storage, workbench, vise and roller bearing mechanics tool box under the workbench.

"We've got a 5,000-watt inverter, air, water to wash hands; we've got any kind of tooling you might need," Larson says. "We try to stay warm in there, too. We've got the cab well heated."

The hydraulic-powered slide-out reel offers 1,800 feet of 1/2-inch hose capacity with variable drum speed and multi-position swivel for 320-degree rotation.

The truck is powered by a 300 hp (2,000 rpm) PACCAR PX8 engine with 12,350-pound front axle, 20,000-pound rear axle, air-ride suspension and 3,000-pound fold-up hydraulic lift gate.

"All of our controls are variable. You don't have to adjust it. We try to put ease of use into this piece of equipment while still being green," Larson says. "It's a one-of-a-kind. You won't see another one like it." 970/653-8588; www.freedomseweranddrain.com. c

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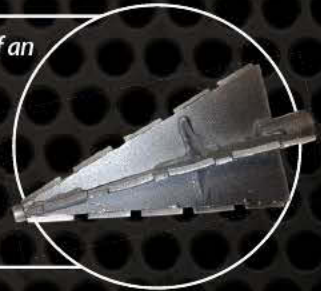


Counters: 229-3
100 (Deposit Attached Other)
Sawer: 1147
Flow: 42
10"
Remarks: GRIND PRIOR TO CUTTING



Counters: 229-5
100 (General Observation)
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10"
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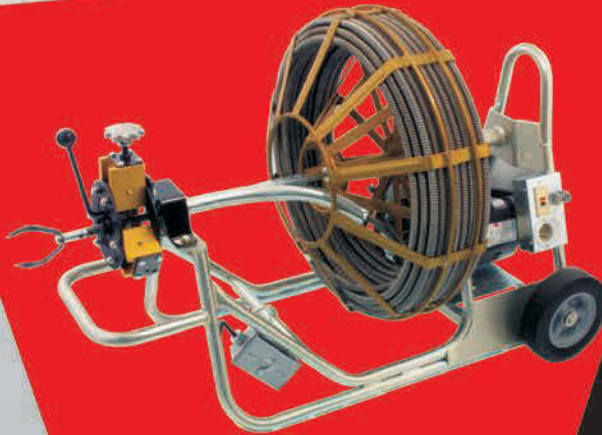
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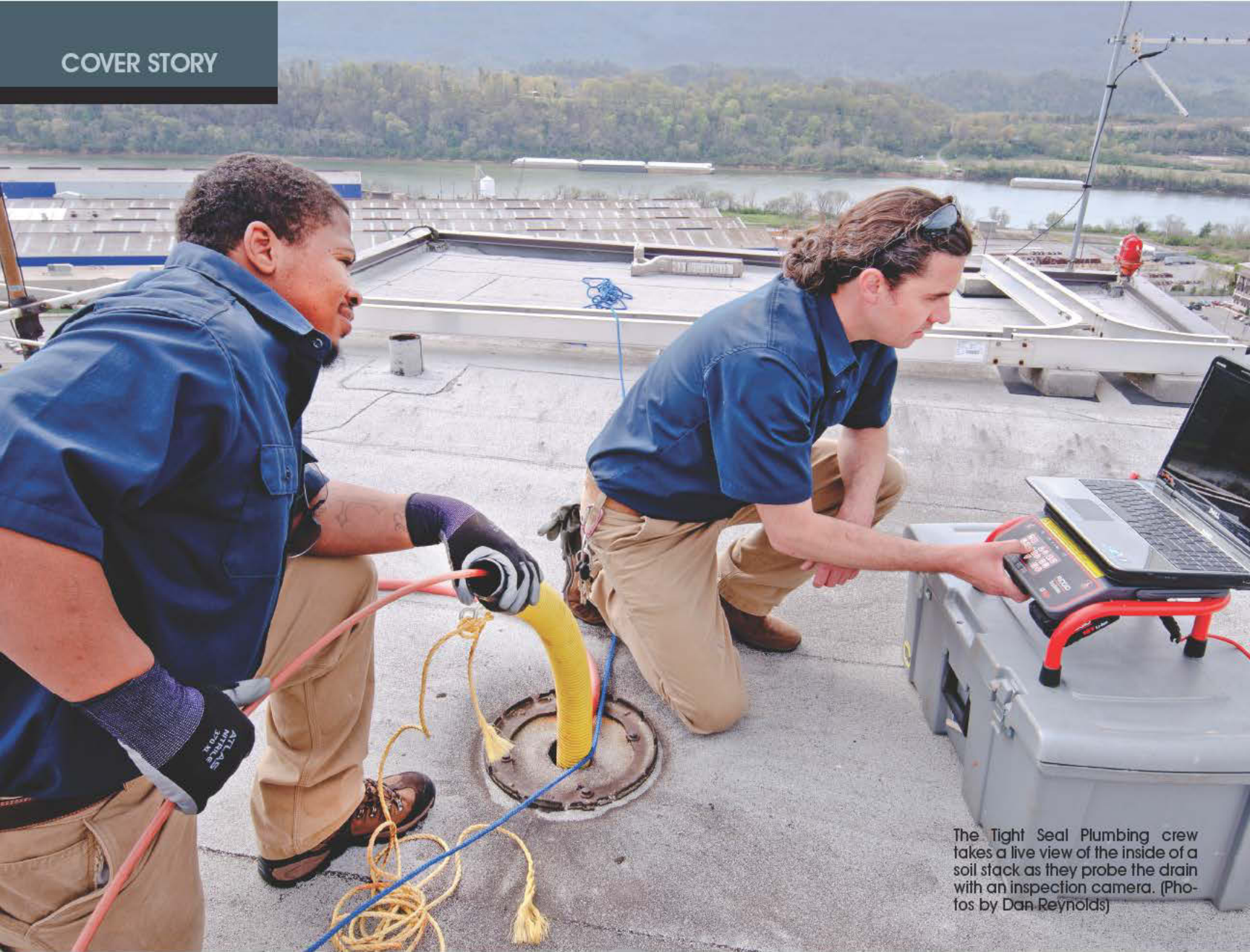
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The Tight Seal Plumbing crew takes a live view of the inside of a soil stack as they probe the drain with an inspection camera. (Photos by Dan Reynolds)

Doing the JOB RIGHT

HANDS-ON POLICY HELPS TIGHT SEAL PLUMBING
ESTABLISH A SOLID REPUTATION WHILE STEADILY
GROWING ITS CUSTOMER BASE BY MARIAN BOND

In 2004, master plumber Daniel Baker opened Tight Seal Plumbing in Chattanooga, Tenn., intent on providing high quality plumbing repair and service, but he soon learned there were a myriad of management responsibilities that demanded his attention.

"In those early instances when I brought in another company to do video inspection, I had a chance to view a skilled technician running the camera, and I learned quite a bit. I knew what I wanted to accomplish for my own business."

Daniel Baker

For assistance Baker sought professional help, including a CPA firm to manage accounting, bookkeeping and payroll. There were other growing pains in those first years as well, and Baker hired a licensed master plumber and several plumbing technicians to handle the workload.

"I soon found my strength was not in management, but in serving and interacting with my customers," Baker says. "This means being personally on the job, being present and working on the job. I am able to establish relationships with my customers and ensure they are provided with high quality service and attention to detail."

Currently he works with one full-time employee, an apprentice. He is considering adding more personnel in the future, but for the time being he has quality people available who help on the larger projects. His wife, Brooke, who is co-owner and equal partner, provides regular counsel on the business, and most important, care for their 27-month-old son, Jude Patrick Baker.



Daniel Baker and crew members Danzel Owens and Terry Turner unload equipment for a drain inspection job on the roof of Dogwood Manor, an 18-story high-rise in Chattanooga, Tenn.



Daniel Baker and his wife, Brooke, stand near a Tight Seal service vehicle on location as Daniel and his crew prepare for their next job. A RIDGID JK 3100 Drain Jet and other drain cleaning tools are at the ready in the truck.

profile

TIGHT SEAL PLUMBING, LLC, CHATTANOOGA, TENN.

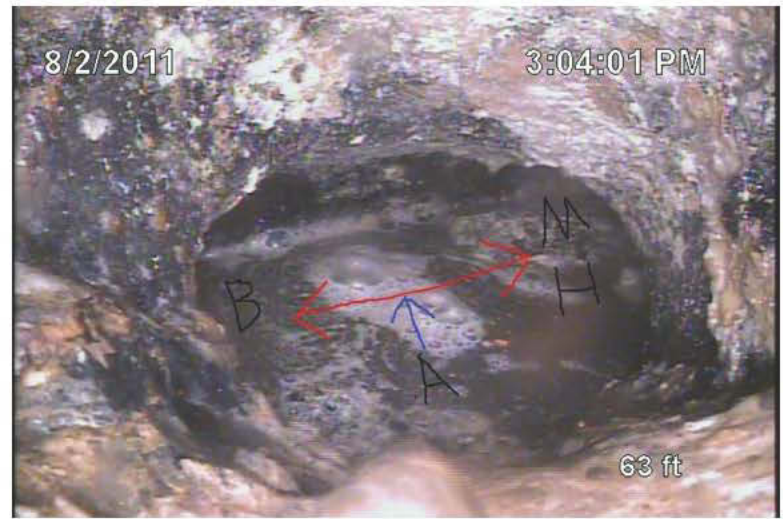
OWNERS: Daniel and Brooke Baker
 FOUNDED: 2004
 SERVICES: Drain cleaning, jetting, CCTV, plumbing service and repair
 CUSTOMER BASE: Residential, commercial, Industrial

As a small operator, Baker adheres to a schedule that provides time for networking with the accountant, checking inventory and returning phone calls, and he's always available for solving problems. He credits much of his success to a mentor, Terry Turner, a licensed master plumber who is available as a consultant, as well as Edward Combs, Ph.D, his father-in-law, who acts as safety manager in some instances. Combs is also highly skilled with computer technology.

CATCHING THE BIG BREAK

Tight Seal was moving along successfully, contracting out (Baker supervising) whenever a customer required a CCTV inspection, when along came an opportunity in 2011 to take on a major project that would basically pay for advanced CCTV and software equipment. That's when Baker began the research that would steer his small operation in an entirely different direction.

"In 2010 I received a telephone call from CTI Engineers, Inc., a Chattanooga firm," Baker says. "I was referred by the Chattanooga Housing Authority.



ABOVE LEFT: This image shows a 10-inch concrete storm drain. It is broken, collapsed and appears to have roots, rocks and other debris in it. The drain was over 6 feet deep and lies outside the building foundation. ABOVE RIGHT: The HQ software allows Tight Seal to draw on the still images, among other things. Letters A and B indicate two sewer connections. MH indicates the nearest downstream connection, a manhole serving the sewer main. This image shows a badly corroded 4-inch cast iron sewer pipe connecting with a 6-inch pipe. The larger pipe is holding wastewater due to grease build-up and improper slope. The connection was approximately 7 feet deep. LEFT: Tight Seal set up equipment on top of the 18-story Dogwood Manor and conducted work on the main vent stack. This image is 142 feet from the rooftop, between the fifth and fourth floors. This 4-inch cast iron stack is completely clogged with rust that has flaked off from the pipe walls and dropped below. The vent pipe was no longer venting, and water bugs and roaches had taken up residence. (Photos courtesy Daniel Baker/Tight Seal)

I had previously worked on a project for them. It was an inspection where I had an outside company come in and do the video survey as I did not have the proper equipment, but I managed the job, told them how I wanted it handled. The work made a good impression, and thus the referral.

“In those early instances when I brought in another company to do video inspection, I had a chance to view a skilled technician running the camera, and I learned quite a bit,” Baker says. “I knew what I wanted to accomplish for my own business. I had owned a camera for a while but it had shut down on me in 2009. It was obsolete and it made no sense to have it repaired. So I had to depend on others to service my customers.”

to know what the cost would be and how to budget for it. They required a lot of detail. That was where I came in, to help assess the needs.”

LEARNING THE SYSTEM

The project provided Baker the opportunity to upgrade his own equipment and have it paid off as soon as the job was done. But before he made any decisions, he consulted with Turner. More important, he did his own research.

Baker purchased RIDGID SeeSnake HQ software, a SeeSnake Plus 325-foot Color Reel and continued to learn the many facets of the system, finding it more powerful than he imagined, even as the project was underway.

“Working with their engineer was an experience. We were learning as we were feeling our way through the process of the project. It was exciting to see what [the software] would do and we wanted to push it to the max.”

Daniel Baker

The job CTI was dealing with, Boynton Terrace, was a community of four buildings that provided housing for low-income seniors. There were three 10-story buildings and a two-story community center, all built in the late ‘60s and early ‘70s. The cast iron plumbing was in rough shape.

“They were having consistent problems with sewer backups,” Baker notes. “We were going to figure out what was going on and what was needed. They wanted to do a significant upgrade to all four buildings and needed something concrete to work with when putting their numbers together in order to plan accordingly. The housing authority needed to renovate and/or remodel and needed

“My wife Brooke was at the time working toward her master’s in occupational therapy, and going to Nashville frequently on the weekend to study and I would go with her,” Baker says. “While there I would use my computer to do research on the system. I would take care of my service business and the project during the week, and spend my time there editing and learning about the software, plus reviewing the videos taken the previous week.

“I was able to do much more and in greater detail than we had agreed to in the contract,” Baker continues. “Working with their engineer was an experience. We were learning as we were feeling our way through the process of the project.

It was exciting to see what [the software] would do and we wanted to push it to the max.”

Baker also added a RIDGID KJ-3100 gas-powered cart jetter (3,000 psi/5.5 gpm) to clean the drains on this project.

“Having the jetter I found is almost always the best way to clean the pipe,” he says. “You can get PVC pipe pristine – like a brand new drain. It is amazing. With the older cast iron or clay pipe you can only do so much, but you can get a better idea as to what is going on. You run the camera first, send in the jetter, then run the camera again.”

They had one month to complete the survey for CHA, but time-wise it took about two weeks, working with Turner and Combs (who basically helped muscle equipment for him) and his apprentice, Danzel Owen.

Baker says the finished product provided detailed plans showing location of the lines, condition in certain areas, and problem spots that needed the most attention. They started out with very rough drawings, all the housing authority had on hand. They finished with a full set of detailed plans, and the project went forward with appropriate contractors.

NO EASY CALL

Making the decision to purchase advanced CCTV equipment in order to secure a contract with a major engineering firm was not a simple call for Daniel Baker and his wife, Brooke.

“We thought about it for weeks, and we prayed about it,” Baker says. “I was reticent about jumping in with both feet. There was always the possibility somebody would change their mind, that someone would say ‘We won’t move forward with this.’ I had never worked with the engineering firm before. On a previous job for Chattanooga Housing Authority I had been paid within a week. With the proposed job, we would be investing a lot of money and not be paid that promptly. We would have a lot of money tied up. My wife and I were very concerned.”

The couple, with their small operation, decided they would go forward with the purchase, including a cart jetter, hoping all would work out.

“I did hold off buying the equipment until the last minute,” Baker says. “Until we were signing the contract – I gave them plenty of opportunity to back out.”

While the camera equipment performed beyond expectations, it was the addition of the cart jetter and how it benefitted the overall business that surprised Baker.

“I had never owned a jetter before,” he says. “It’s been awesome for us. This is mobile, great for small drains. I find that jetting a line with the right nozzle is the best way to have a clean pipe.”

“In my business I’m going to do the very best I can for my customer, and having the right equipment is basic. That is my goal – to find the tools that allow me to strive for excellence.”

ANOTHER OPPORTUNITY

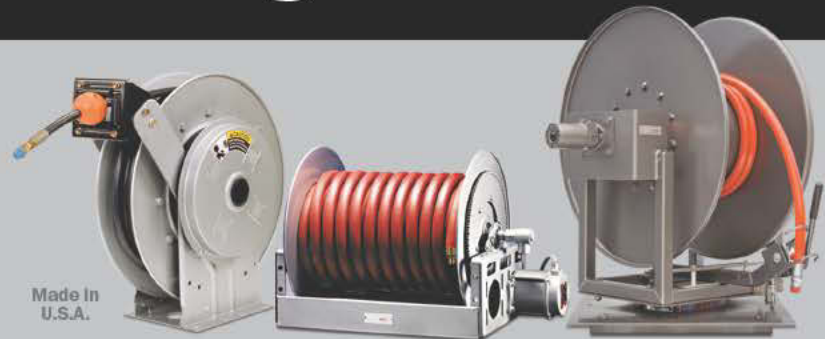
When CTI once again had a project with low-income housing in Chattanooga, Baker got the nod and put his equipment to work. The project was Dogwood Manor, an 18-story building also built in the late ‘60s and early ‘70s.

This project offered an entirely different scenario, as the majority of the work was done from the rooftop of the building going down the vent and full stacks. The customer was looking for a general assessment in nine different cast iron stacks, highlighting problems they found and the level of urgency. The 4-inch cast iron pipes on the rooftop transition at the sixth floor and get larger as other services tie in. By the time they are underneath the building and running to the exterior they are 12 to 15 inches and carry both sewage and stormwater.

Baker says they spent five days meeting with housing authority supervisors and the building’s maintenance people and completing the initial inspection.

(continued)

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Danzel Owens sets up a SeeSnake reel for the rooftop inspection.

They spent one more day jetting and providing additional assessments to get an idea about the viability of the existing pipes, as well as if and how they should be replaced. Owen and Combs were both on hand for the project.

THE VALUE ADVANTAGE

Baker admits that he is still working through a learning curve with the software and discovering new applications. “My interaction with the computer still does not feel 100 percent natural to me. I use it because it is a critical tool that empowers me and allows me to do more in less time. I still use my iPad as much as possible for exterior photos, but the software does not run on the iPad.

“The more I use the new equipment the more comfortable I get with it,” he says.

“Having the jetter I found is almost always the best way to clean the pipe. You can get PVC pipe pristine – like a brand new drain. It is amazing.”

Daniel Baker

Currently his customer base is 60 percent residential and 40 percent commercial/industrial, but he hopes that with the added capabilities this may shift eventually toward a 50/50 ratio.

“With commercial and industrial, the work sells itself,” Baker says. “There is little involved in sales. They call. I show up and do the job. I don’t have to talk it up. I’m getting referrals. That is how it goes.”

He continues to value the residential customer, but those relationships can be much more personal and emotional. “I can appreciate their concerns. We are working on their home. It is a different experience. Plus the residential work is much more physical. Basically though I enjoy the commercial/industrial – it is often more mentally challenging.”

PROPERLY EQUIPPED

Tight Seal operates with a 2005 Chevrolet 3500 box van, which is their workhorse, and a light duty 2006 Chevrolet 2500 Express Van for estimating and small service jobs.

For locating, Baker turns to his Spartan Tool locating wand. He also relies on his time-tested RIDGID K-60 sectional drain cleaning machine in many situations.

The cart jetter has benefitted far beyond expectation, and Baker has no hesitation in presenting this option to his residential customers as well as the commercial and industrial. He doesn’t sell the idea of using the jetter, which does increase costs, but instead explains the problem and what needs to be done. There is a certain comfort level and rapport with customers because most come as referrals.

“I’m going to do whatever needs to be done to correct the situation,” Baker explains. “I’m going to give the best I possibly can. The customer has entrusted me to do that. We need to strive in the industry for that excellence.”

For every job, he encourages video inspections before and after drain cleaning to identify the nature of the problem and con-

firm the success of the cleaning, and if necessary to identify the need for additional work.

TURNING IT AROUND

“Having the SeeSnake HQ capability has enhanced my response time, which is essential for a small company,” Baker says. “I had a phone call recently from a restaurant late in the day. They needed an assessment as they had a problem. I get to the job, and the drain is collapsed. I sent the camera in to inspect, found the problem, came home, edited the video and sent three 10-second clips to the client showing three different problem areas, plus some videos of the locating results. By the time I was done that evening they had everything they needed pertaining to the work and what needed to be done. I did not have to meet with them to hand them a disc. The next morning we had an intelligent and full conversation about the project. With new technology and the right software you can do that.”

With the addition of the new software and capabilities, and opportunities for even a small company to advance into lofty fields, Baker has realized the significance and benefit of providing highly specialized technology. He also sees the value it has added to his business.

“These tools have created a new niche in the sewer inspection market,” Baker says. “I’ve learned I can set myself apart from the competition with the depth of detail the customer needs. I’ve also found ways to better utilize my God-given ability to think critically, problem solve, investigate and trouble shoot.”

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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 Nolo. Legal strategies may vary depending on the state in which you live and the specifics of your situation. See your lawyer for legal advice.

Legal disputes can cost you money, create ill will, try your patience, and gobble up tons of your time. Fortunately, you can resolve most disputes without the hassle of a lawsuit. You can use mediation in which a neutral third party helps both sides reach a voluntary solution.

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Ideally, you and the other side can come to terms on your own. But maybe, despite your best efforts, you and the other person or company can't amicably settle the matter.

When that happens, either mediation or arbitration may be successful. Both methods use a neutral third party in finding a solution. There's a major difference, however: In arbitration, an arbitrator imposes a binding solution on the parties – one that can be legally enforced. By contrast, in mediation, a mediator helps the parties come up with their own solution.

And here's an amazing statistic: Mediation succeeds in over 80 percent of the disputes in which it's used.

CONSIDER THE ADVANTAGES

Let's look at the advantages that mediation offers, courtesy of Peter Lovenheim, a mediation pioneer:

- *You control the outcome.* If you reach a settlement through mediation, it's because you and the other party have agreed on the terms. A judge, jury, or arbitrator hasn't dictated the outcome.
- *You control the process.* The parties select the mediator and decide which issues will be covered and how costs will be allocated.
- *You save on legal fees.* In a court case, you typically need a lawyer – in part because lawsuit procedures are complicated. Legal fees can mount up rapidly. In mediation, if you use a lawyer at all, you'll be billed for a relatively small number of hours.
- *You can intelligently address technical issues.* In a courtroom, the judge or jury may not understand some technical issues. In mediation, you can call in a mediator who has the technical background to properly analyze your dispute.
- *You control the timing.* Rather than being at the mercy of court dockets and lengthy adjournments, the parties who choose to mediate can work out a speedy time schedule. Your dispute needn't drag on endlessly.
- *You avoid unwanted publicity.* A lawsuit is public. Mediation is private. The world won't learn about business mistakes, internal problems or trade secrets. Explosive allegations by an employee, for example, can hurt any business – but not if these allegations are confined to the privacy of the mediation room.

- *You can preserve relationships.* Going to court tends to harden people's attitudes. Not so with mediation. There's a good chance that the relationship – whether with a customer, supplier or employee – will outlast the dispute. This may be the biggest benefit of all.

In arbitration, an arbitrator imposes a binding solution on the parties – one that can be legally enforced. By contrast, in mediation, a mediator helps the parties come up with their own solution.

GETTING STARTED

If your dispute grew out of a written contract, perhaps the contract says that you'll mediate any dispute before going to court or to an arbitrator. But even if you haven't agreed to mediation in the contract – or if there is no contract – you and the other party can agree to mediate. In fact, even if the case is already in court, you can still try mediation.

You can find a mediator through organizations such as the American Arbitration Association or through a dispute resolution center in your community. You may want a mediator with specialized knowledge. For example, if you have a construction dispute, you may want to find a mediator who understands construction issues.

But generally, special knowledge isn't essential for a successful mediation. Most mediators are quick studies who can easily come up to speed on technical issues.

HOW MEDIATION WORKS

The mediator starts by outlining the procedures you'll be following. Then each party makes an opening statement. You'll explain your position and how you'd like to see the dispute resolved.

Next, you and the other party will discuss the dispute face-to-face. The mediator will ask questions and offer comments. At some point, the mediator will meet separately with each party and may carry settlement proposals back and forth between the opposing camps – a sort of shuttle diplomacy.

As needed, the mediator gets everyone back together in one room for face-to-face discussions. When the parties agree on settlement terms, the mediator drafts a settlement agreement reflecting those terms, and both parties sign it.

For more information, consult Peter Lovenheim's excellent book, *How to Mediate Your Dispute*. **c**



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ESTABLISHING A SUCCESSFUL CCTV INSPECTION PROGRAM TAKES CAREFUL PLANNING, ATTENTION TO DETAIL AND PLENTY OF HARD WORK

BY JIM AANDERUD



Pipeline inspection programs vary from contractor to contractor. Some are very dynamic and achieve remarkable productivity, while others are mired in mediocrity. By understanding the characteristics that make up a successful CCTV inspection program, you can identify critical points that can help serve as a guide.

Let's begin by establishing the definition of a successful CCTV inspection program. It is first and foremost based on the quality of the recorded videos and on the accuracy and usefulness of the information gathered. Since critical and costly decisions are based on these factors, it is imperative that the video and data be of the highest possible standard.

Another critical component of a successful CCTV inspection program is the quantity of video inspections produced within a stated period of time. This measurement is most commonly defined by the total number of feet inspected in a day, month or year. It is generally referred to as production.

Most contractors justify the purchase of their CCTV inspection unit(s) based upon projected production. The outlay of capital was deemed reasonable because of the anticipated footage that crews would be able to inspect. Achieving these daily footage goals would justify the expense of the vehicle.

The outcomes of these decisions aren't usually realized until much later. While most inspection programs reach their stated goals and achieve success, many struggle and eventually fail. For those who fall short, the justification to purchase a CCTV inspection van was flawed. Testaments to this fact are the numerous inspection vehicles being offered for sale by contractors. Most of these vehicles operated for only a short period of time, and most all of them failed because of a lack of production.

For a contractor, a pipeline inspection van must be able to make enough money to pay its expenses and to also generate a reasonable profit. Since its income is directly linked to the number of feet it inspects, a priority must be placed on production. If footage goals are not met, the unit will lose money and eventually fail.

WHY DO CCTV PROGRAMS FAIL?

The number one reason CCTV inspection programs fail is because an unqualified individual is selected as the CCTV inspection operator. The skills required to succeed as an operator are very important and must be thoroughly evaluated during the hiring process. Finding an individual with strong computer and mechanical ability is key. Leadership and organizational skills are indispensable, as is dedication and a can-do attitude. Anyone short of an ideal candidate will doom the inspection program from the onset.

Inspection programs also fail due to a lack of training. Operators must be given the tools to succeed. A few days of factory training and a few days of NASSCO PACP training may not be sufficient. Having a qualified trainer to thoroughly prepare a pipeline inspection operator will increase the chances of success.

HOW CAN WE ENSURE HIGH PRODUCTION LEVELS?

CCTV inspection operators will not succeed without good time management skills. Each day must be a process of planning and exercising conscious control over the amount of time spent on specific activities in an effort to increase effectiveness, efficiency and productivity.

<< Using time effectively and being ready to inspect the next section of pipe as quickly as possible after getting to the site is one of the keys to an effective inspection program.

I once had the opportunity to observe a low production crew. Even though they arrived at work at 7 a.m., the first pipeline wasn't inspected until well after 10 a.m. To begin with, there was absolutely no hurry to leave the yard. Once mobilized, there was a rendezvous at the local donut shop that lasted much longer than necessary. The crew finally headed to the job site, arriving at 9 a.m. After taking their time to set up traffic control, there was the realization that the manhole hook was missing, so they returned to the yard to get one. That morning, they inspected two sections of pipe. The crew then went on to exceed their allotted time for lunch and wound up with the same dismal numbers for the afternoon. With a miserable amount of pipeline inspected that day, it was clear that this inspection program was doomed.

CCTV inspection operators will not succeed without good time management skills. Each day must be a process of planning and exercising conscious control over the amount of time spent on specific activities in an effort to increase effectiveness, efficiency and productivity.

Success in any job comes from a sense of urgency in performing the work. This is certainly the case in the field of pipeline inspection. An operator must constantly push ahead in an effort to accomplish as much as possible. Tasks that can be done right away should never be left for later. Ultimately, an effort must be made to fit as much as possible into each moment of the day.

From the moment you clock in to the moment you clock out, you are being paid to perform your work. As a pipeline inspection operator, you are expected to spend as much time as possible inspecting pipe. Any time that is directed elsewhere is unproductive.



One way to increase efficiency is to identify and set up the next inspection while the crawler is being brought back to the access manhole.

Time is often deliberately wasted in order to minimize actual work. The term I like to use for someone who intentionally milks the clock is a "time thief." As harsh as this may sound, this is exactly what is happening when an employee is avoiding work for which he is being paid.

Using time productively starts at the beginning of each day and must be

carried through to the last minute. We must ensure that non-productivity is held to an absolute minimum. It begins with getting out to the job site as expediently as possible. It means planning ahead to ensure everything you need is on the vehicle. It means carrying out your plan in the most efficient manner possible. It means leaving nothing to chance. The bottom line is you must work as methodically as possible in order to maximize production.

You must eliminate non-productive actions. Aimless chatter, private phone calls, texting and Internet surfing are all examples of lost opportunities. Anytime work comes to a standstill takes away from your production potential. Operating a CCTV inspection unit is not physically demanding, so there is absolutely no reason to stop and rest or sit with nothing going on.

Being proactive is the key to a productive day. By planning ahead, you can take deliberate actions to ensure all time is used to its fullest. A lack of planning results in wasted time as work comes to a halt while the next step is deliberated.

TIME BETWEEN INSPECTIONS

In order to maximize production, you must reduce the time spent in between inspections. Whether you are working alone or with a crew, the more effective system you have for getting from manhole to manhole, the higher the production rate will be.


When a survey is completed and the crawler has returned to the access manhole, it must be retrieved, washed down and placed into the van as quickly as possible. At the next location, manhole lid removal and crawler insertion must be done cautiously but urgently. Every action must be performed as expediently as possible in order to maximize inspection time.

Multi-tasking is a very useful way of capitalizing on our time. By performing more than one task at a time, production can be accelerated significantly. For example, while the crawler is being brought back to the access manhole, the next survey can be identified and set up on the computer. This will ensure that the next inspection begins the moment the crawler hits the bottom of the next manhole.

If not managed properly, traffic control can affect a crew's productivity as well. When support staff is available, crew members should move ahead and place traffic control devices ahead of time. This will allow the inspection van to move right in, drop the camera and begin recording immediately. When long continuous stretches of pipeline are encountered, laying out the traffic control devices over multiple setups can help increase productivity.

Your time in the field is limited, so managing it effectively is the key to maximizing the number of pipeline inspections you perform. Achieving high production levels will ensure that your inspection programs are successful and that your companies run profitably for many years to come. ©

ABOUT THE AUTHOR Jim Aanderud is owner of Innerline Engineering, a video pipeline inspection company based in Corona, Calif.



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Two workers are killed every month, on average, in trench collapses in the U.S., according to OSHA. The agency cites "economic pressures, a belief that compliance is unnecessary or an expectation that these short-term operations will go undetected" as key reasons why regulations are not followed, even after years of emphasis.

Any trench 5 feet or deeper requires a protective system: benching, sloping, shoring, or shielding. If the trench is less than 5 feet deep, a "competent person" could determine that a protective system is not needed. A competent person is one who has been trained in such things as soil classification, water content of the soil, and other matters that could pose a risk to trench integrity. Protective

Imagine having to deal with that: the fines, civil liability, bad publicity – having to notify the worker's family that they will never see their loved one again.

systems in trenches of 20 feet deep or greater must be designed by a registered professional engineer or be based on data prepared or approved by one. (A trench wider than 15 feet falls under excavation regulations)

Workers must also be provided safe access methods. Such ladders, steps, and ramps must be within 25 feet of all workers in any trench of 4 feet or deeper. The regulations include several other provisions, such as regular inspection (by a competent person), keeping heavy equipment away from trenches, storing spoils at least 2 feet from the edge, atmospheric testing, and suspended/raised loads safety.

Beyond safety of workers, there are practical business reasons for proper trenching practices. A Philadelphia plumbing company was hit with more than \$40,000 in fines in April for excavation violations while installing a residential sewer line. The OSHA violations included the lack of a protective system, no barrier for the spoil pile, inadequate training, and failure to have a hazard communication program.

Making matters worse, three of the violations were repeat events, escalating the enforcement action and accounting for \$36,960 in fines. Four were ranked as serious, which added another \$3,520 for a total fine of \$40,480. That's an expensive bill for shaving a few minutes off a job.

The violations could also have resulted in serious harm, or death, for the workers. Imagine having to deal with that: the fines, civil liability, bad publicity – having to notify the worker's family that they will never see their loved one again.

Besides posing the greatest risk, cave-ins are the most common accident involving trenches. One cubic yard of soil weighs as much as a car (a 1-ton dump truck carries roughly five cubic yards). Other risks include falls, falling loads, accidents with moving equipment, underground utilities, and even hazardous atmospheres.

While the onus for safety falls on the employer, workers are their own best protection. As an OSHA trench safety poster states, "An unprotected trench is an early grave."

ONLINE RESOURCES

Half of the states are covered by OSHA's regulations, 25 others have adopted their own standards (as have Puerto Rico and the Virgin Islands). Most state standards are identical to OSHA's, but some have other standards. Learn more at www.osha.gov/SLTC/trenchingexcavation/index.html.

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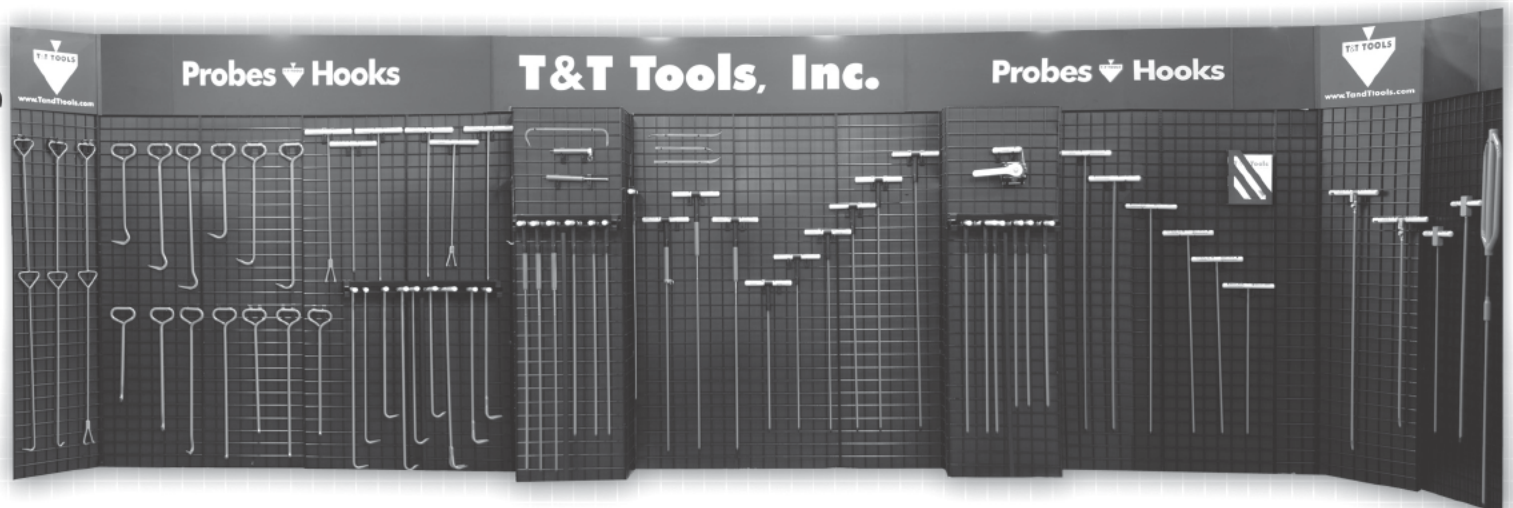
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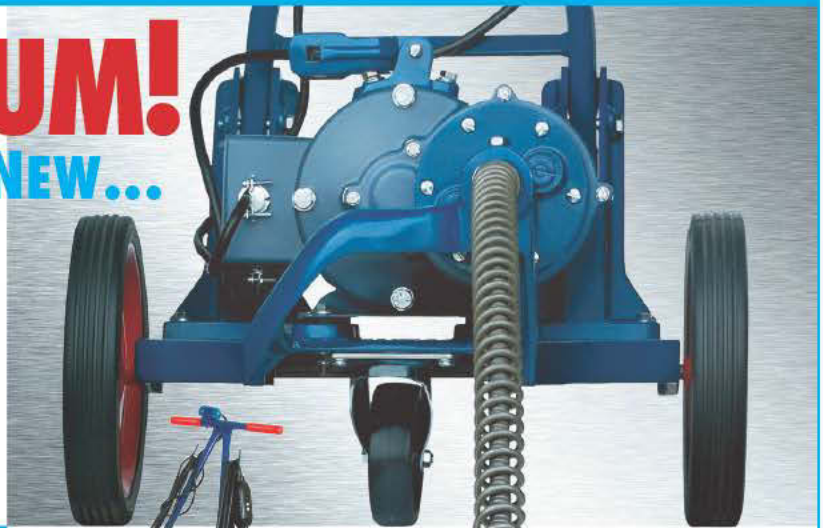
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CURED-IN-PLACE LINING SOLVES A RESTAURANT'S BACKUP PROBLEMS OVERNIGHT WHILE PROTECTING A HISTORIC VICTORIAN MANSION

BY SCOTTIE DAYTON

The mechanical contractor for Forepaugh's Restaurant hired a plumber to clean the drains, but the attempts only enabled the restaurant to limp along until the next episode. The contractor then called Grant Utilities, a local water and sewer utility contractor specializing in cured-in-place pipe rehabilitations.

Grant Utilities' owner Grant Engen used a MyTana camera system to inspect the 4-inch cast iron lateral from a kitchen cleanout. At 11 feet, the camera revealed the problem. "The joint had failed where the lateral connected to the 6-inch clay tile sewer," he says. "Wastewater hitting the debris backed straight into the kitchen."

Although 12 feet of rocky soil separated the joint from the enormous heating, ventilation, and air conditioning units above it, Engen speculated that vibrations from the machinery sifted material into the opening. The only feasible, economical solution was lining the lateral.

"We measured the distance to the joint three times with the camera," says Engen. "The short distance made calculations easier, but accuracy was still key. If we messed up, we were out of options, as there was no way to open-cut the line."

Working mostly at night in sub-zero temperatures and wind chills, Engen and three technicians repaired the joint with a transition liner from Perma-Liner Industries, enabling patrons to again enjoy refined culinary dining experiences.

Brandon Hedlund of Grant Utilities makes a dry run with the inversion unit to guarantee that the delivery hose lines up with the host pipe. (Photos courtesy of Grant Utilities)

tough job

PROJECT: Rehabilitate clogged lateral in restaurant kitchen

CUSTOMER: Forepaugh's Restaurant, St. Paul, Minn.

CONTRACTOR: Grant Utilities, St. Paul

EQUIPMENT: Transition Liner, Perma-Liner Industries, LLC, 866/366-2568; www.perma-liner.com

RESULTS: Flow restored, restaurant reopened

PREPARING THE WAY

During the week, Forepaugh's opened at 5 p.m. Engen staged his equipment near the restaurant's trash receptacles and HVAC enclosure. "Our plan was to access the lateral as it left the enclosure, then clean upstream," he says.

After breakers on the Case 590 Super M excavator bucket broke through the 42 inches of frozen ground, operator Mike Boston dug an 8- by 10- by 12-foot-deep pit and lowered a metal trench box. The unstable bottom of the pit made it necessary for Boston to suspend the box by chains. Workers then exposed the

(continued)

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In mid-January, historical Forepaugh's Restaurant in St. Paul, Minn., had sewage backing up through the floor drains in the food preparation area.

"With the drains sealed, air vents out the stack instead of making a mess," says Engen. "We tried to minimize the time the staff would have to spend sanitizing the kitchen after we left."

BABY, IT'S COLD OUTSIDE!

Inside the trailer, the team measured and cut the 20-foot-long 3-mil transition liner with 4- and 6-inch lengths sewn together. Because Perma-Liner doesn't have a resin applicable for sub-zero temperatures, Engen chose the closest match: the company's cold weather resin with chemical reaction beginning at 137 degrees F.

"Cold weather stresses everything," says Engen. "When resins are shocked by the introduction of minus 2 degree air, it takes time for the chemicals to recover. Our biggest concern, however, was condensation developing in the air compressor, then freezing in the hoses."

Before wetting out the liner, they started the compressor, blew it out, and kept it running to prevent moisture buildup. "That way, when we hook the hoses to the inversion unit, we're getting a full flow of air," says Engen.

After wetting out the liner and lubricating it with vegetable oil, the crew rolled it inside the inversion machine. "We work inside the trailer as long as possible to keep everything warm," says Engen. "I wasn't worried about shortening working time because it was so cold outside."

After stationing the air hoses by the hole, the crew rolled the inversion unit down the trailer ramp and wrestled it to the pit. Because of its depth, Hedlund tilted the unit downward, enabling Boston to line up the hose and pipe in the hole. They inverted the liner at 9 psi, stopping 6 inches short of the cleanouts.

Despite the cold, the yellow calibration tube rolled easily into the inverter, then inflated at 10 psi. The pressure was maintained while the resins cured. "Everything done outdoors in winter takes twice as much time as in summer, because the guys are wearing bulky clothes and can't move as fast," says Engen. "They also were unaccustomed to working off hours and at night."

"Cold weather stresses everything. When resins are shocked by the introduction of minus 2 degree air, it takes time for the chemicals to recover. Our biggest concern, however, was condensate developing in the air compressor, then freezing in the hoses."

Grant Engen

line and Brandon Hedlund made a dry run with the inversion unit to guarantee that the delivery hose lined up with the host pipe.

"We couldn't jet the line until after the restaurant staff finished cleaning up for the night," says Engen. The crew returned at 11 p.m. with a portable MyTana jetter delivering 3,200 psi/12 gpm and a 32-foot heated trailer with Perma-Liner equipment. "We custom-built the trailer because we needed more room to work," says Engen.

To illuminate the area, they used the lights on the excavator, mounted a light to the arm so it shined into the trench box, and lowered a trouble light into the hole. A generator mounted next to the trailer supplied power.

Upon opening the lateral, Hedlund found the pipe in good shape after its two recent cleanings. He touched it up using a standard jetting nozzle. Meanwhile, Stan Odger covered the kitchen floor with tarps to protect it from the snow and dirt on their boots, while Engen taped down the floor and sink drains to prevent the traps from spitting water when air was introduced into the pipe.



Stan Odger (background) assists Brandon Hedlund as they prepare the calibration tube for the inversion unit.

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Over the seven hours the liner remained inflated, the team took turns going into the pit to monitor the gauges and make sure everything was holding pressure. "Although the liner can feel firm where it is exposed, I don't know what's happening with the rest of it," says Engen. "I erred on the side of caution and always cure liners longer than the manufacturer's recommended time."

In the morning, they removed the calibration tube and connected the liner to the sewer with a length of PVC pipe and Femco rubber couplings. To fulfill the city's requirement for a post-inspection DVD, Hedlund inspected the liner from the kitchen where the cold could not affect the electronics. "It was a good effort," says Engen. "We got them up and running without any further issues." c

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Saving For a Rainy Day

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BY ERIK GUNN



Erik Gunn is a business writer in Racine, Wis. Readers may direct inquiries to him by contacting this publication at 800/257-7222 or emailing editor@cleaner.com.

“Save for a rainy day!” How many of us heard that advice as kids when we got that first bank account or perhaps learned elementary financial management in school? Now that we’re adults, we may appreciate the advice even more – and even better, follow it.

It’s advice that’s just as important for a business as for an individual or household. And for a small business entrepreneur, it can be especially hard to follow – as financial advisor Alan Moore knows well.

“We tend to be risk takers,” says Moore, who operates Serenity Financial Consulting LLC with offices in Milwaukee, Wis. “Many of us had to put absolutely everything we own into a single pot to start the business.” As the business grows and revenues build, there’s a temptation to use it to buy new

“We tend to be risk takers. Many of us had to put absolutely everything we own into a single pot to start the business ... As a risk taker it can be so hard to just see cash sitting in an account and not doing anything.”

Alan Moore

equipment, expand the business, or even just invest it in something with a high yield: “As a risk taker it can be so hard to just see cash sitting in an account and not doing anything.”

However difficult it may be, putting away cash is critical to the long-term survival of your business. No matter how well you’re doing now, a business downturn is inevitable. Whether you survive can depend on how substantial your rainy day fund turns out to be. That will be when you find out for yourself what Moore says: “The cash reserve is the single most important investment that a business can make.”

HOW MUCH?

For an individual or household, the standard rainy-day-fund advice is to save three to six months’ salary to tide you over to cover bills and expenses if you lose your job. For business, that might be a starting point, but the principles are more complex. “It’s more about, what will it take to survive?” Moore points out. Ask yourself:

How steady is your monthly cash flow? Does it go up and down sharply, perhaps because of seasonal factors that influence the demands for your business? Or are you pulling in roughly the same amount of revenue each month? The more volatile your cash flow, the larger reserves you are likely to need.

What is the nature of your expenses, and are there easy ways to cut back if money gets tight? Are your personal reserves strong enough that you don’t need to keep paying your own salary? Will you try to find a new complementary line of business for which you’ll need to spend money marketing and buying equipment?

How large and diverse is your client base? “The larger and more diverse the income streams and client base, the less risk you potentially have in bad times,” Moore says. If a large part of your income comes from one client that suddenly closes or switches to a competitor, your revenues and profits will take a big hit.

The same is true if you have several clients, but they’re all in a niche vulnerable to common disaster. Imagine the plight of a septic pumper in a resort region who has all the contracts to pump out systems for area campgrounds – and then a massive forest fire closes the camps for months until they can make repairs.

If you have a wide variety of customers and no single one represents a big chunk of your business, you may be able to get by with smaller reserves.

And what about your supplier base? If you count on one equipment or consumables supplier who suddenly goes out of business, your company might suffer, too, until you find a new vendor, or even if you just have to pay a higher price to buy from someone else.

Where do you get it? The answer will be different for everyone. If you collect deposits from customers before starting work, Moore suggests funneling that check straight to your rainy day fund. That might not be possible for everyone. Many small contractors put deposits to work buying materials for the job itself. And some might not collect a deposit at all.

In that case, Moore advises putting a fixed percentage of each dollar in revenue – say 5 or 10 percent – into your reserve fund.

Perhaps a sudden windfall, or at least part of it, could be diverted to your rainy day fund as well.

How do you keep it? An effective rainy day fund has three critical features: It’s liquid – easy to get at without fees or penalties. It’s safe – not at risk of losing value because of market fluctuations. And it’s out of sight.

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Moore understands the temptation to put at least some reserves into a higher-yielding investment, such as a mutual fund, even one balanced between stocks and bonds. His advice: Don't do it!

"Your reserves are insurance against bad markets," he notes. And what happens in bad markets? Investments often go down. Suddenly that reserve fund you've put into an investment portfolio so you can get a 3 percent return instead of the 1 percent the bank offers is down 10 percent, 20 percent or more – wiping out whatever you might have gained and more.

As for "out of sight," at the very least the reserves should be in a completely different savings account from the accounts you routinely use to pay bills and receive revenue. But Moore often suggests clients go a step further, and put the reserve in a completely different bank.

Although you want it liquid, "you don't want it super-accessible," he explains. "If you stare at it every day when you log in to look at your checking account, you're going to see that money just sitting there and it will bother you."

PEACE OF MIND

When the worst happens and business suddenly goes south, it's critical to be thinking about what really matters. And that shouldn't be how you're going to get through the month. "You need to focus on correcting the underlying issue, not paying your bills," Moore says. "If your main focus is how to make payments, you're going to be focused on the wrong thing."

Suddenly, when a new customer calls, you'll feel desperate to make a sale. Perhaps you'll ignore red flags that would tell you to turn the business down. Or you'll undercut yourself in your bid just to get the business. But if you have healthy reserves when you need to crack open that piggy bank, you can take a deep breath and really think long-term. And that will be the best way to bring your business back. **e**

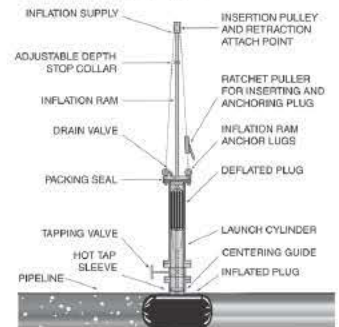
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Waterblasting and Waterjet Cleaning and Accessories

BY CRAIG MANDLI

Waterblasters and portable jetting systems are essential tools in a professional drain and pipe cleaning business. The right equipment can help you build profit. Check out the selection of products below to find the right waterblaster, jetter, cleaning nozzle, vacuum truck or truck accessory to help do your job safely, efficiently and effectively.



WATERBLASTERS

1. HIGH-PRESSURE WATERBLASTER

The Aqua Miser Ultra Boss Model E75V-II with closed-loop containment system from CESCO removes rust and paint by using water pressures up to 40,000 psi without releasing chemicals into the air. The system captures the water, filters the paint particles for disposal, and reuses the water for further paint removal, keeping harmful particles out of the air. The system reduces emissions and hazardous waste, as well as man-hours. 843/760-3000; www.aquamiser.com.

2. COMPACT WATERBLASTING SYSTEM

The IX100 Series compact waterblasting system from Jetstream of Houston features a UNx fluid system designed for fast conversion between 8,000 and 40,000 psi operating pressures. Additional features include an external gear drive, comprehensive shutdown systems, a high-performance 93 kW Tier 3 engine, high-capacity fuel tank and sealed control panel. Options include an air compressor, extended-run fuel tank, inlet regulator, insulated exhaust system, bench vise, remote e-stop, lube water recirculation pump and system pressure sensor and over-pressure shutdown. Shutdown systems include low-supply water pressure, dirty water filter, engine fault, manual emergency stop and manual override. The heavy-duty compact frame is hot-dip galvanized. 800/231-8192; www.waterblast.com.

JETTERS

3. HIGH-FLOW CART JETTER

High-flow cart jetters from American Jetter utilize a 12-gallon water tank that works much like an air compressor tank, allowing a buffer zone for the pump water source. The balance of the system allows the user to move the cart with the tank empty like any ordinary cart jetter. Once in position, connect a garden hose and start to jet. Oversize supports provide enhanced operation stability. Each unit comes standard with portable hose reel with up to 300 feet of 3/8-inch hose, foot valve operation for safety, wash down gun kit and a set of three jetting nozzles. Options include wireless remote, Wart Hog nozzle, and several flow/psi rates. 866/944-3569; www.americanjetter.com.

4. HIGH-PRESSURE GAS WATER JETTER

The Eel Jet EJ3000 gas jetter from Electric Eel cleans 2- to 8-inch-diameter lines up to 300 feet. It features steel nozzles that penetrate and clean sludge, ice, grease, sand, soap, dirt and debris from pipe walls with a variety of spray angles in septic systems, factories, hospitals, hotels, shopping malls, restaurants and other applications that need wall-to-wall drain cleaning. It has pressures of 3,000 psi and 4.7 gpm, with a 13 hp overhead valve engine (with electric start available), a 2-to-1 gear-reduced triplex pump with pulsation, a 300-foot-capacity hose reel, a throttle back control that automatically adjusts engine speed, a low-tone muffler, 12-inch pneumatic tires on a rugged steel base with front bar for motor protection, heat shield to protect the hose, and



nozzle storage on the unit. It utilizes 1/4- and 3/8-inch-diameter jet hose. 800/833-1212; www.electriceel.com.

5. TRAILER JETTER

The JM-2512 Typhoon trailer jetter from General Pipe Cleaners delivers 12 gpm at 2,500 psi. A 200-gallon holding tank carries enough water to handle remote applications where access to water is limited. It features electric brakes, safety strobe light, safety cones, rear fold-down stabilizer jacks, retractable hose guide arm, and antifreeze system as standard equipment. Its 24 hp Honda engine with electric start and 10-gallon fuel tank ensure extended performance on stubborn stoppages. On-demand Vibra-pulse helps slide the nozzle around tight bends and propel the hose down long lines. Two hose reels — a jet hose reel with 400-foot by 1/2-inch capacity featuring variable speed electric rewind, and a water supply hose reel carrying 150 foot by 3/4-inch hose — are mounted at the rear of the unit next to the pressure gauge and output valve. 800/245-6200; www.drainbrain.com.

6. DIESEL-POWERED HYDROJETTER

The O'Brien 7040-SC diesel-powered hydrojetter from Hi-Vac features plate-mounted polyethylene water tanks that have a 700-gallon capacity. The swinger reel pivots 190 degrees, providing easy access to the manhole regardless of how the trailer is parked. The hydraulically actuated reel has a variable-speed control. It is powered by a 65 hp Cummins diesel with Murphy safety gauges and variable electronic throttle control. The triplex pump is rated to 40 gpm at 2,000 psi. The standard 400-foot high-impact thermoplastic sewer hose is easy to clean, maintains stiffness and is abrasion-resistant. The tandem-axle trailer has a 6-foot channel frame and is rated to carry a full tank of water at highway speeds. 800/638-1901; www.obrienmfg.com.

7. ELECTRIC DIRECT-DRIVE PRESSURE WASHER

The Steam Jenny electric cold pressure washer from Jenny Products can be used in enclosed areas where gas-powered machines can't be used. It is powered by a Marathon or Baldor electric motor, depending on the model, and ranges from 1.5 to 10 hp. It is available with either single-phase GFCI or

three-phase power requirements. It has industrial-grade triplex ceramic plunger pumps, pressure ratings between 1,000 and 4,000 psi, and flow rates between 1.5 and 4.8 gpm. Features include a seven-gauge steel chassis, heavy-duty unloader valve, safety relief valve, thermal relief valve, and high-capacity inlet in-line water strainer. It also comes with an insulated trigger gun, a 50-foot hose with quick coupling, and a series of 0- to 40-degree-angle color-coded nozzles. 814/445-3400; www.steamjenny.com.

8. PORTABLE JETTER

The MV80 Jet Pro Cart from MyTana Mfg. Company delivers 8 gpm at 3,000 psi, and is powered by a 24 hp Honda engine. It includes a 12-gallon water tank that is set up for continuous resupply from the garden hose, 250 feet of 3/8-inch thermoplastic jetter hose and a set of nozzles for penetrating, cornering and blind thrust. Also included is a hose cart with two reels — one for the 3/8-inch hose and one for a 50-foot jumper hose, which is useful for remote jetting. 800/328-8170; www.mytana.com.

9. PORTABLE SWAGE MACHINES

The Brutus and Lil' Brute portable swage machines from Piranha Hose Products make repairing a sewer cleaning hose easy in any environment. Each machine even has a drawer to hold dies for repairs. Brutus repairs hoses from 5/8 to 1 1/4 inch, and Lil' Brute repairs hoses from 1/4 to 1/2 inch. 800/250-5132; www.piranhahose.com.

10. HYBRID HYDROJETTER

The Model 740 hybrid hydrojetter from Spartan Tool features a full 4,000 psi of jetting power at a 12 gpm flow on a wide-track towable chassis. It is available in either a traditional gasoline-powered configuration or in a hybrid that runs exclusively on liquid propane. Cleaner and cheaper to operate, the LP version allows full jetting power wherever it's needed, even inside food processing plants and other air quality-conscious locales. The unit features 350 feet of hose and a 40 hp electric-start engine. It is also available in a skid-mounted version for installation onto an existing van or trailer. 800/435-3866; www.spartantool.com.



11. COMPACT VACUUM SYSTEM

The Fury 2400 Series compact vacuum system from Steel Eagle provides a one-step unit that pressure washes, rinses and instantly recovers the waste stream for proper treatment. Features include electric start, a high-efficiency vacuum pump, vacuum gauge, high vacuum engine shutdown, automatic wastewater pump-out, heavy-duty frame and waste tank, waste collection bag filter, hour meter, 50-foot vacuum hose and a one-year warranty. It has a maximum airflow of 235 cfm. 800/447-3924; www.steeleagle.com.

12. AUTOMATED TUBE LANCING SYSTEM

The StoneAge Sabertooth automated tube lancing system is remotely operated, offering better visibility and increased safety by moving the operator away from the hoses. The self-contained dual hose reel has up to 52 feet of usable stroke for cleaning tubes from 0.87- to 2-inch diameter at up to 22,000 psi. The autostroke feature recognizes when a nozzle has reached a blockage and automatically retracts the hose slightly to keep the tool rotating. Remote shotgunning capabilities are also available, allowing for safe cleaning of exterior bundle faces and tube interiors in one setup. The entire assembly is quickly dismantled to fit through 24-inch manways. 866/795-1586; www.stoneagetools.com.

NOZZLES

13. ECONOMY NOZZLE KIT

The Economy Jetter Nozzle Kit from Amazing Machinery includes a laser nozzle, ram nozzle and rotating nozzle. The laser nozzle, which includes a forward and three back jets, dislodges blockages. The ram nozzle (three back jets) flushes loose debris so that maintaining a fluid motion without irritation is possible. The rotating nozzle (two side and two back jets) polishes and maximizes line recovery. Each nozzle comes in two separate sizes. 800/504-7435; www.amazingmachinery.com.

14. TOWABLE JETTER NOZZLE

The Cnt-r-KUT "TOW HOOK" towable jetter nozzle from Arthur

Products allows for pressurized water to be applied by the integration of a towing nozzle which can be pulled through the line. The technician can also pull a line from point "A" to point "B" if required. It is flexible enough to conform to damaged or deformed lines and can easily be trimmed in the field to fit virtually any line from 2 to 8 inches in diameter by attaching a 3/8- or 1/2-inch National Pipe Taper hose to one end. It is available in a standard and mini size. 800/322-0510; www.arthurproducts.com.

15. LOW-MAINTENANCE CUTTING NOZZLES

Root Rat cutting nozzles from Chempure Products are used with jetters from 11 hp to large truck-mounted models. Manufactured of hardened stainless steel, the cutters come with a toolbox with two interchangeable rotors — one with cables and the other with chains. The combination kit includes extra chain, cable and bearings. They need no repair or rebuilding other than bearing replacement, which can be completed in under two minutes for less than \$10 in parts. 800/288-7873; www.chempure.com.

16. ROTATING DRILL NOZZLE

The Rotodrill nozzle from Enz USA features a rotating front jet for improved cutting performance. It is ideal for clearing blocked and frozen pipes, and moving heavy debris. It has excellent propulsion, but can also be used in hydroexcavation by plugging off the thrust jets. This versatile nozzle is available in 1/2-, 3/4- and 1-inch systems. 877/369-8721; www.enzusainc.com.

17. SPINNING SEWER NOZZLE

Spinning sewer nozzles from NozzTeq are available in 1/2-, 3/4-, 1- and 1 1/4-inch sizes with two kinds of sleds. They are made of stainless steel and brass, and require no oil, daily maintenance or rebuild kits — just washing off at the end of the day. They include rear-thrusting jets, and not only cut grease, but also can be used to clean the pipe without putting another nozzle in the line. They can clean sewer or stormwater pipes from 2 all the way up to 18 inches. There are two stainless sled types available for the largest spinner. 866/620-5915; www.nozzteq.com.

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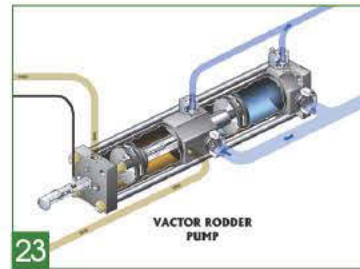
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18. ROOT-CUTTING NOZZLE

The RR3000 Root Ranger nozzle from RIDGID uses a single rear-facing turbojet to blast a concentrated stream of water that shears root obstructions from the drain wall. It is capable of clearing lines up to 8 inches, and can completely clear lines larger than the one it originally entered. It comes standard with 200 feet of hose. 800/769-7743; www.ridgid.com.

19. FLEX LANCE

The 3/6 Blast-Pro waterblast flex lance from SPIR STAR features a 0.50-inch end fitting OD 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 small-diameter tube cleaning applications. 800/890-7827; www.spirstar.com.

20. STAINLESS STEEL CLEANING NOZZLE

One-piece stainless steel cleaning nozzles from USB - Sewer Equipment Corporation are neither bonded nor screwed together, enhancing strength and reducing chances of failure under pressure. Their advanced, optimized 3D Hydro Mechanics, located in the lower part of the chamber, eliminate pressure in the upper portion of the nozzle and prevent explosion. The water coming from a pressurized hose is immediately guided directly into channels and smoothly into a one-piece ceramic nozzle insert, which do not require winglets or flow-straighteners because of the hydromechanics in and out of the chamber. They are ideal to remove sand, mud, silt, grease and obstructions from sewer and stormwater lines. 866/408-2814; www.usbsec.com.

WATER PUMPS

21. PLUNGER PUMP

Plunger pumps from Moro USA are high-pressure triplex water pumps that produce a smooth liquid flow up to a maximum water temperature of 140 degrees on standard pumps (higher temperature ratings available). The double-projection drive shaft can be operated by pulley, flexible joint or cardan shaft. The pump includes ceramic plungers, double-pressure packings, vertical-fitted valves, water spill venting, and oil-bath mechanical

parts with splash lubrication. They are available with a maximum flow rate of 128 gpm and maximum pressure of 22,000 psi. Versions include stainless steel or aluminum-bronze fluid ends. 800/383-6304; www.moroussa.com.

22. HIGH-HEAD PUMP

The portable 6-inch, high-head 6JCC pump from Thompson Pump delivers 1,100 gpm, high heads to 490 feet and 212 psi. It is ideal for high-pressure applications such as water jetting, water boosting, wellpoint installation, water supply for hydraulic fracturing, washdowns, tank cleaning and fire protection. It offers the Enviroprime System that provides ultra-reliable, automatic initial priming and re-priming. Options include the Silent Knight sound-attenuated canopy. 800/767-7310; www.thompsonpump.com.

23. SINGLE-PISTON WATER PUMP

The dual-action, single-piston JetRodder water pump from Vactor Manufacturing features a hydraulic cylinder on one side of a sealed center block and a water cylinder on the other side. A single shaft with specially constructed piston heads is slowly driven back and forth. The pump is constantly loading and expelling hydraulic oil and water. The pump's jackhammer action helps to further break up debris caked on pipe walls and provides additional cleaning power to break through obstructions in the line. A slow stroke design reduces friction, providing longer field life and less maintenance. There are no belts to adjust or maintain and only five moving parts. It comes with an unconditional 30-minute run-dry certification. 800/627-3171; www.vactor.com.

HOSE REELS/FITTINGS

24. HOSE FITTINGS/ADAPTERS

UHP hose adapters, couplers and fittings from All Jetting Technologies are manufactured in male-to-male, female-to-female, and male-to-female configurations. UHP straight and reducer couplings are also available. Hose glands and collars are provided with couplings unless otherwise specified.

(continued)

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Adapters are designed to simply couple standard type “M” fittings to autoclave fittings. All adapters, couplers and fittings are manufactured with 316 stainless steel. 772/286-1218; www.alljetting.com.

25. PRESSURE WASHER HOSE REEL

The **PW-2 Series** hose reel from **Hannay Reels** quickly mounts to almost any type of pressure washer. It is designed for mobile and portable pressure wash equipment, as well as steam cleaning, spray and washdown applications. It features a pressure rating of up to 4,000 psi, an adjustable split bearing brake assembly and a permanent attached direct-crank rewind. It is constructed of 12- and 14-gauge steel and has a black powder coat finish. 877/467-3357; www.hannay.com.

26. MULTI-GUN VALVE

The **MGV24-1200** multi-gun valve from **NLB Corp.** allows two or more high-pressure water jet lances (or other accessories) to be operated from the same 24,000 psi pump unit, and can be rebuilt in the field in just five minutes. It can be used with any dump-style lance, with nozzles of different sizes. The valve flows up to 24 gpm and weighs 33 pounds. Its modular design accommodates additional bodies to supply more lances, and features a quick-change, stainless steel cartridge for quick field repair and a new cam-lock pressure adjuster that locks the pressure without tools. 800/441-5059; www.nlbcorp.com.

27. DUAL-PEDESTAL HOSE REEL

The **DP7000 Series** dual-pedestal hose reel from **Reelcraft Industries** features a two-piece, non-welded, interlocking base that won't vibrate apart, making it ideal for vehicle-mounted applications. An interlocking steel-formed and stamped base design makes the base assembly strong, compact and resistant to vibration. It has successfully passed independent testing to mil-spec standards and is proven to stand up to heavy vibration. It is available with up to 50 feet of I.D. hose. 800/444-3134; www.reelcraft.com.

28. SAFE HOSE REEL

The **NHR-1000** rotary hose reel from **Terydon** guarantees user safety by removing high-pressure water from the operator's hands. It offers full control of rotation speed (up to 1,000 RPM) and feed rate (up to 1 foot per second) without losing cleaning potential from reaction force. With its moderately small frame, it is ideal for catwalks, manways, and hard-to-reach areas. A switch of the SG Series UHP swivel offers a transition from 20,000 to 40,000 psi. Hose can be removed and replaced in a matter of minutes. 330/879-2448; www.terydon.com.

29. PRESSURE WASHER HOSE

Kobrajet I 4,000 psi pressure washer hose from **Water Cannon** is a wire non-marking gray hose ideal for cleaning surfaces that are likely to show hose marks like pool patios, roof tops and indoor surfaces such as kitchen floors and countertops. It features high-tensile steel wire braid components, with free bend restrictors and a free swivel included in the package. It comes in a variety of lengths and works well with industrial and consumer pressure washers. It can endure temperatures from -40 up to 275 degrees F. 800/333-9274; www.watercannon.com.

SAFETY EQUIPMENT

30. MULTI-GAS DETECTOR

The **BW Technologies GasAlertQuattro**, distributed by **Milwaukee Rubber Products**, is a four-gas detector that combines a comprehensive range of features with simple one-button operation. The graphic LCD displays easy-to-identify icons that indicate operational information, such as bump test and calibration status for simplified onsite auditing. IntelliFlash provides continuous visual confirmation of detector operation and compliance. It is fully compatible with the MicroDock II automatic test and calibration system. It has flexible, interchangeable battery options with extended run-times, and extensive data logging and event logging capability. A full function self-test is initiated upon activation and runs continuously during operation. 800/325-3730; www.milwaukeeerubber.com.



31. WATERJET PROTECTIVE CURTAIN AND COVER

Protective curtains and covers from TST Sweden AB can be put together to form a protective wall of desired length. It withstands up to 43,500 psi at a 10-inch distance. Each section is 60 inches by 98 inches. On top there are five straps for easy mounting and on the bottom there are holes for further securing. The sections are easily connected through six strong and easily handled locks. They are available standard in red with warning sign in English, and optionally available in white, black, yellow, light grey, dark grey, blue and green. Each panel weighs 16.5 pounds. www.tst-sweden.com.

INDUSTRIAL VACUUM TRUCKS/ACCESSORIES

32. BOOM ELBOWS

Custom Boom Elbows manufactures both 70- and 90-degree boom elbows for a variety of hydroexcavator manufacturers for municipal sewer work. Both feature a 25.1-inch circumference and 8-inch diameter with flanged ends. They are built with a 1/2-inch wall thickness. 604/835-0199; www.customboomelbowsbc.com.

33. VACUUM TRUCK

The HV55 HydroVax vacuum truck from GapVax is constructed of ASTM A572-Grade 50 steel, has a 12 1/2-cubic-yard debris body and water tank options ranging from 400 to 1,400 gallons. Specs include a positive displacement vacuum pump rated at 5,250 cfm with 28 inches Hg. The tailgate opens fully with a field-adjustable hinge and dual cylinders, and also has four fail-safe, individually adjustable locks that ensure a complete seal. Optional equipment includes a cold-weather recirculation package, sludge pump, auger unloading system, body pressurization system, remote pendants and wireless remotes, a high rail package and stainless steel body. 888/442-7829; www.gapvax.com.

34. LONG-BODY VACUUM LOADER

The Guzzler Classic (CL) industrial vacuum loader from Guzzler Manufacturing features enhanced operator ergonomics and improved air

routing, filtration and maintenance. A longer body provides improved material separation. The standard ladder, catwalk and railing provide the operator with easier and safer access to the top of the truck. An enlarged bag house and cyclone cleanout access doors provide easier access. The transition to the dump tubes has been widened for more effective dumping. The linear wall connection from the cyclone to the bag house has been increased in size, providing a more efficient airflow. The rounded transition from debris body to cyclone allows the future addition of valves to isolate the tank for adding pressure offload systems. 800/627-3171; www.guzzler.com.

35. LARGE-CAPACITY VACUUM LOADER

The Supersucker HDX industrial vacuum loader from Super Products is equipped with a water system that includes a 600-gallon-capacity water tank setup and hydraulic pump that delivers flow up to 14 gpm and pressure up to 3,000 psi. Its 8-foot articulating boom offers 330-degree rotation and a 27-foot reach, and has the ability to pivot 45 degrees upward and 25 degrees downward. Boom functions can be operated with either a standard wireless remote control or wired pendant. An 8-inch positive displacement vacuum system provides airflow to 5,800 cfm and 28 inches of vacuum. Single-mode filtration enables loading of both wet and dry material with no changeover. A heavy-duty, telescoping double-acting cylinder provides a 51-degree dump angle for thorough unloading. 800/837-9711; www.superproductsllc.com.

36. VACUUM LOADER WITH FILTRATION SYSTEM

The Industrial Vacuum Loader from Vac-Con was designed with a filtration system to handle lightweight dry material, and features superior airflow efficiency. Single-mode machines can recover wet or dry material with up to 28 inches Hg. These positive displacement blowers are capable of pulling material long distances, as much as 700 feet or more. It is available with a hydroexcavation package, which adds a powerful, high-pressure water system that works together with the vacuum system to excavate around sensitive underground utilities, locate underground systems, and excavate in areas with limited access. 904/493-4969; www.vac-con.com.

(continued)



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37

37. POSITIVE DISPLACEMENT COMBINATION CLEANER

AllJetVac P Series combination sewer cleaners from Vacall use a positive displacement blower system to create the jetting and vacuum forces to efficiently open and maintain critical sewer lines. The blower system is powered by the chassis engine, which reduces fuel consumption, slashes service time and eliminates emissions. The AllSmartFlow CAN bus control system allows the operator to precisely control vacuum forces as well as water flow, using only the proper quantity of water, reducing unnecessary refill trips. Debris tanks have 6-, 8-, 10- or 12-cubic-yard capacities, while 1,000-, 1,200- and 1,500-gallon water tanks are available. They have a front-mounted, pivoting hose reel and an 8-foot, 6-inch extending boom with 180-degree rotation. 330/339-2211; www.vacallindustries.com. c

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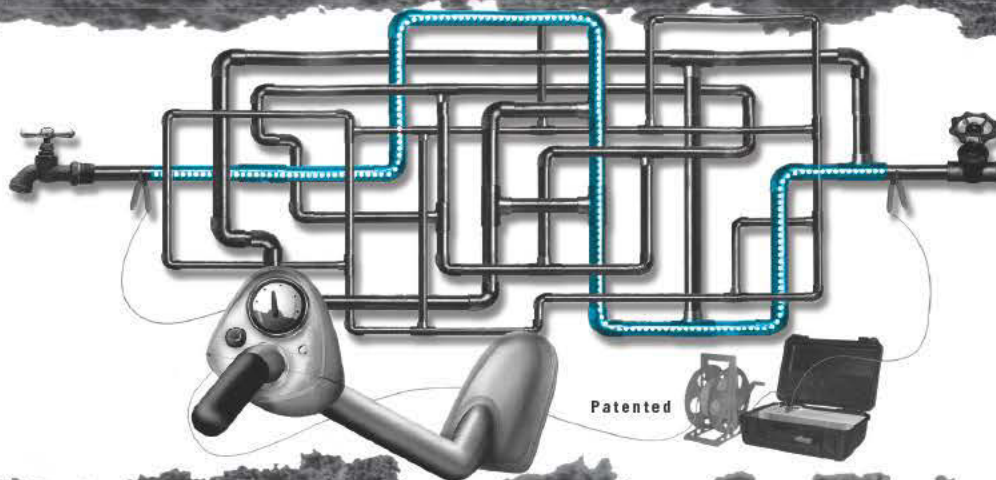


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WJTA-IMCA CONFERENCE AND EXPO SEPT. 9-11

The 2013 WJTA-IMCA Conference and Expo is scheduled for Sept. 9-11 at the George R. Brown Convention Center in Houston. Presentations include Waterjet Technology-Basics and Beyond, Sept. 9, and Boot Camp Sessions, Sept. 10-11. Featured boot camp topics include high pressure hydroblasting hose failure and life cycle analysis, hydroexcavation, refractory removal, grounding and bonding, manual waterblast efficiency, nozzle selection, robotic hydroblasting, waterblast safety, emissions-free industrial vacuuming and understanding how vacuum loaders work.

ENVIROSIGHT LAUNCHES VERISIGHT PRO WEBSITE

Envirosight launched a dedicated website (www.verisightcamera.com) for its VeriSight Pro digital push camera. The e-commerce site enables 100-, 200- and 300-foot models to be purchased by credit card or PayPal. The site also includes product information and applications.

MARTIN ENGINEERING, CCC GROUP FORM ALLIANCE

Martin Engineering and the CCC Group have partnered to design and manufacture conveyors for engineered transfer points. The companies will initially target mining and biomass applications.

PRIMELINE PRODUCTS NAMES REGIONAL SALES MANAGER

PrimeLine Products named Wesley Strong Southeast regional sales manager. He has 14 years of sales and service experience.



Wesley Strong

HONDA RECEIVES MARCOM AWARDS, DONATES GENERATORS

Honda Power Equipment, a division of Honda Motor Co., received two MarCom Awards for its computer-based dealer and distributor service training modules. Honda Engines received the Platinum Award for its maintenance course and Honda Marine received a Gold Award for its propeller basis course. The awards were presented by the Association of Marketing and Communication Professionals. Honda Power Equipment also provided Operation BBQ Relief with two of its Super Quiet Series portable generators. The relief effort cooks and caters meals for victims of natural disasters.

HAMMERHEAD RECEIVES INNOVATIVE PRODUCT AWARD

HammerHead Trenchless Equipment's 34-inch ramming hammer received the Joseph L. Abbott Jr. Innovative Product Award at the North American Society for Trenchless Technology Annual No-Dig Show.

DITCH WITCH PRESENTS SALES, SERVICE AWARDS

Ditch Witch presented Detlef Kaiser of German-based Tramann+Sohn with the 2012 Lowell Highfill Award, the organization's highest recognition for sales performance, and awarded Brent Zerr of Ditch Witch of Oklahoma with the Gold Ace Award for highest worldwide sales volume. Ditch Witch also awarded Josh Kennedy of Ditch Witch of Oklahoma with the Harold Chestnut Award, its highest recognition for service, and awarded Jeff Lone of Ditch Witch Midwest with its 2012 Service Manager of the Year award.

T-REX ADDS 35TH HYDROEXCAVATION TRUCK TO FLEET

T-Rex Hydro Excavation and Industrial Vacuum Services of Houston, Texas, added a 35th hydroexcavator to its fleet, with plans to add 14 more GapVax HV-55 hydroexcavators and 40 employees by year's end. T-Rex

provides non-destructive hydro and air excavation services through four offices in Texas, serving a growing number of projects from shale oil exploration and pipeline construction in the Eagle Ford and Permian Basin areas.

MTECH UPGRADES WEBSITE

MTech launched its upgraded website, www.mtechcompany.com. The site is designed to make scrolling and navigation of product photos and categories easier.

INSITUFORM AWARDED \$10.4 MILLION IN CONTRACTS

Insituform Technologies USA, a subsidiary of Aegion Corp., received two contracts valued at approximately \$10.4 million from the Metropolitan St. Louis Sewer District as part of the district's \$4.7 billion sewer system improvement program. The project includes installation of approximately 47 miles of cured-in-place pipe in small- and medium-diameter sewer pipelines in mostly residential areas. Work began in August and is anticipated to be completed in a year.

PIPE RESTORATION SERVICES RECEIVES AWARD, NAMED COMPANY OF MONTH

Pipe Restoration Services, a joint venture between Morrison Utility Services and U.S.-based Pipe Restoration Technologies, was named a UK Energy Innovation Award winner in the Best Innovation Implemented or Adopted by a Contractor category. The award was presented to PRS for adapting ePIPE, a technology initially introduced in the UK to eliminate lead and leaks in water and now being developed to extend asset life for gas riser systems. PRS also was selected Company of the Month by Buildings and Facilities News.

AQUATHERM RELEASES NEW LOGO, PRODUCT LINES

Aquatherm GmbH and its North American partner, Aquatherm North America, released a refreshed logo and new product lines. The German-based pipe manufacturer and supplier of polypropylene-random piping systems offers seven major product lines, with five available in North America. For the sake of unity and clarity, the Aquatherm product lines will be identified using a color-coded convention, originally tested in the U.S. market when Aquatherm's original piping product, Fusiotherm, was renamed Aquatherm Greenpipe. With the new naming, Aquatherm Greenpipe will become Aquatherm Green Pipe and Climatherm will become Aquatherm Blue Pipe. Aquatherm Lilac Pipe will remain unchanged.




aquatherm

VACUUM TRUCK RENTALS ADDS SEWER EQUIPMENT MODELS

Vacuum Truck Rentals added the Sewer Equipment Co. of America models 800 HPR ECO truck jet and 747-FR2000 ECO trailer jet to its rental fleet. Vacuum Truck Rentals has locations in Indiana, Louisiana, Massachusetts, Mississippi, New Jersey, South Carolina and Texas. They offer lease and rent-to-own options for the municipal and industrial markets.

LOGIBALL CELEBRATES 30TH ANNIVERSARY

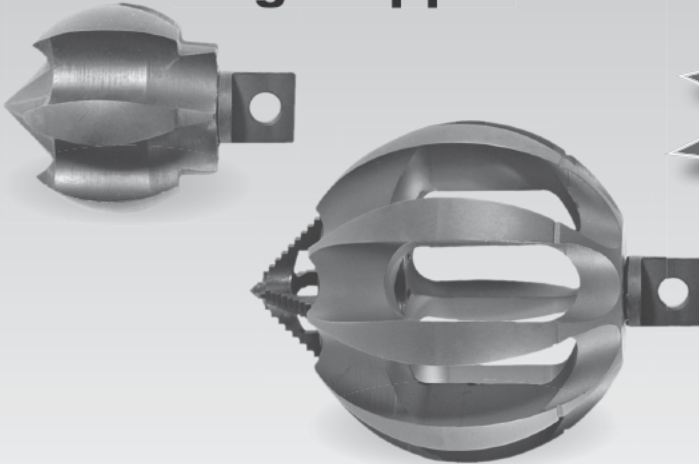
Logiball celebrates its 30th anniversary this year. Founded in 1983, the company provides test and seal packers, reinforced multi-sized plugs and carrier packers for sectional liners, lateral cleaning equipment and specialized tools for the rehabilitation and maintenance of collection systems. 



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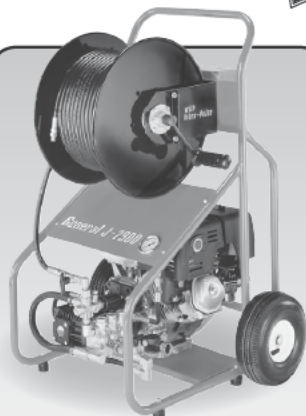
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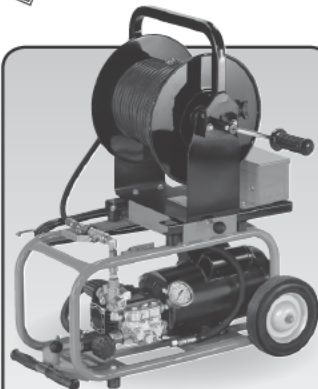
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Root killer prevents intrusion inside and outside sewer pipes

BY ED WODALSKI

Oblitiroot sewer line foaming root killer from Olvidium prevents root intrusion and stops root growth inside and outside pipes. The EPA-approved root killer contains dichlobenil as its active ingredient and won't foam until mixed, enabling its use in toilet bowls without the potential for overflow damage to tile or carpet.

"We made this so it won't foam until it's stirred, and it foams very slowly so you shouldn't have an accident," says Tim "Toby" Tobiason, product inventor and vice president of marketing and sales for Olvidium.

Oblitiroot contains a glue base that adheres to pipe surfaces, providing maximum effectiveness over an extended period of time.

"If you put any root killer down the line, including, at the start, this one, nearly 99 percent of it would drain away," he says. "We made this stickier and stickier during our preliminary tests and we got it so that if you put it in the toilet bowl, about 10 percent would stay in the sewer line."

Tobiason says he was able to further increase the retention rate by using a cable and cloth to apply the chemical.

"You dip the cloth fitting in the bucket of foam and send it down the sewer line, pouring the foam behind it. All this foam that would have been wasted and drained away hits the cable and stops," he says. "The water runs underneath it, then as you retract the cable it picks up the foam and puts it on as a coating of paint."

The cable-foam method also pushes the root killer into the joints of the pipe, creating a protective barrier against further intrusion.

"When you get that much root killer in the joints it solidifies and makes what looks like a piece of soft rubber," Tobiason says. "As long as that soft rubber is there with the dichlobenil in it, no roots will ever grow

in there. In fact, no roots will grow within 3 to 4 inches of it. So if you're going in blind and you can't see what's going on with a camera, the cable coating still lets you get the root killer pretty much everywhere and on everything."

Dichlobenil's vapor action stops root growth up to approximately 20 feet away, he says. When used in California orchards, the herbicide prevents shallow-rooted plants, such as grass, from growing without harming the deep-rooted fruit trees.

"If you get enough of our root killer in the first two feet of a sewer line, it can stop roots from growing up to 50 feet away because of the vapor," Tobiason says. "We anticipate that rubbery coating will stay there for up to two years, maybe more. If you get a lot in the joints, it should last up to five years."

A third form of application involves identifying root blockage inside a pipe and boring a 2-inch hole to the pipe joint and saturating it with root killer. "As this solidifies on the outside of the pipe, no roots can grow in anymore," he says. "With a 2-inch tube down there, all you have to do is reload it every few years. We also came up with the idea of a microchip to beep you each time it needs more root killer."

The root killer is available in three sizes: 1.6-pound bottle for 4-inch by 100-foot lines, 2.4-pound bottle for 6-inch by 100-foot lines, and 9.5-pound jug (approximately one gallon) for 8-inch by 100-foot lines. 877/747-3071; www.olvidium.com.



ARIES SIDE SCAN VIDEO CAMERA

The dual-viewing Side Scan Camera System from Aries Industries is designed for pipeline maintenance, inspection and rehabilitation in 6- to 48-inch-diameter pipe. The system offers synchronized playback, presentation of live video (MPEG format) and a flat, unfolded view

for quick pinpoint of pipeline discrepancies without having to stop and play to report each observation. 800/234-7205; www.ariesindustries.com.

ENVIROSIGHT DESK-MOUNT ROVER CONTROL

The DCX5000 Command Center from EnviroSight provides fingertip access to all ROVER X functions from a single interface. Twin proportional joysticks enable control of camera and crawler movement, while thumbwheels control illumination intensity, cruise speed, camera height and reel force. The 10-inch tilttable LCD touchscreen lets the operator drill down to deeper functions. 866/936-8476; www.envirosight.com.



MSA SENSOR FOR MULTIGAS DETECTORS

The SO₂/H₂S-LC XCell sensor for Altair 4X multigas detectors from MSA has a range of 0-20 ppm SO₂ and 0-100 ppm H₂S with 0.1 ppm resolution on both channels. The standard H₂S low concentration channel meets ACGIH recommendations for 1ppm TLV. The sensor provides pump tests in less than 10 seconds and full scan calibration in 60 seconds. www.msasafety.com.



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Gelacyl SR De Neef chemical grout from W.R. Grace Corp. is an acrylamide-free resin, designed for use in mainline and lateral grouting. The polyacrylate resin has no environmental labeling requirements and resists bacteria and fungi found in sewer systems. 800/732-0166; www.deneef.com.

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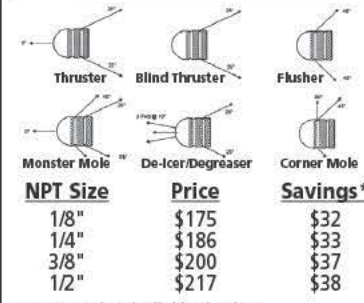


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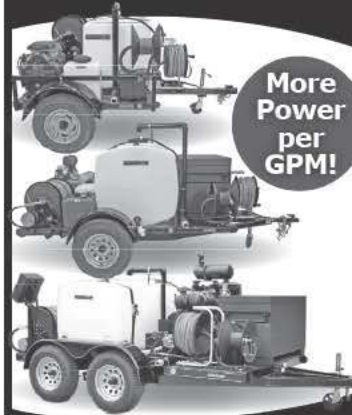
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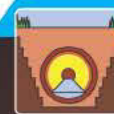
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Vac-Con V390LHA combination unit with Roots 827 blower, 1999 International Model 2554 cab and chassis. (Stock #3918C) www.VacuumSalesInc.com, (888) **VAC-UNIT (822-8648)**. (CBM)

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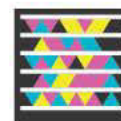
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