

# Cleaner

FOR DRAIN AND PIPE CLEANING, INSPECTION AND REHABILITATION PROFESSIONALS

APRIL 2018  
CLEANER.COM

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## Cleaning Up CALIFORNIA

INNOVATION AND AN  
ENTREPRENEURIAL SPIRIT  
HELP A GROWING SEWER  
COMPANY DO MORE FOR  
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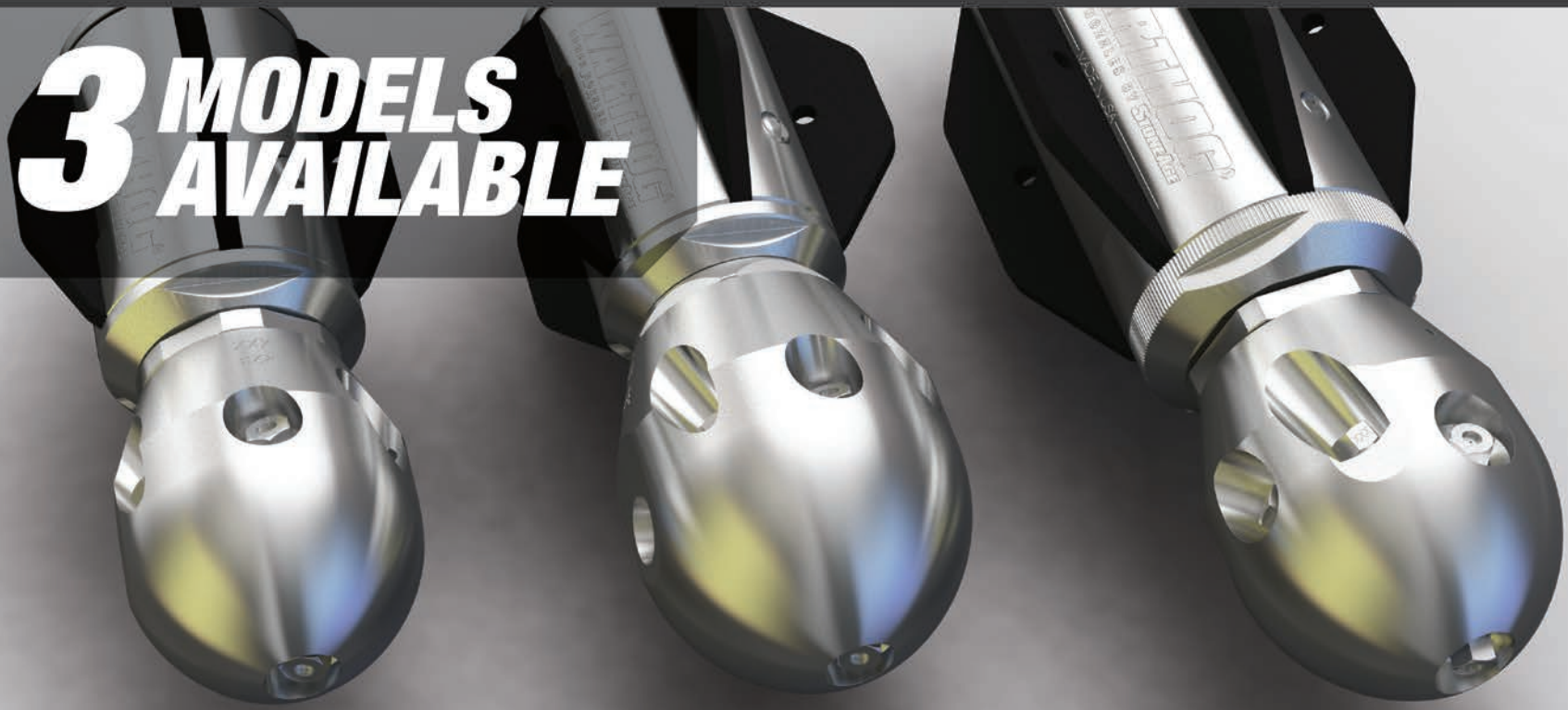
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Victor Roberts established California-based Downstream Services in 2002 with a strong entrepreneurial spirit, resourcefulness, specialized services and a focus on employee development. It has since grown into a full-service company with \$12 million in annual revenue. (Photography by Collin Chappelle)

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**MONEY MACHINES:** Skid-mounted jetter improves service

**TECH TALK:** Sealed vs. pressurized camera systems

**BETTER BUSINESS:** Don't let your best employees leave

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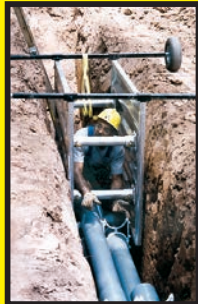
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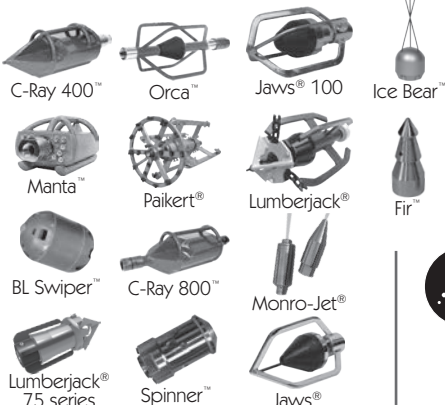
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Luke Laggis

# The People You'll Meet

Conversations with people across the industry are always the highlight of my annual trip to Indianapolis

I've met some great people in this industry, and I always appreciate any chance to catch up face-to-face.

I just got back from the Water & Wastewater Equipment, Treatment & Transport (WWETT) Show in Indianapolis, and what stood out wasn't the equipment — although some impressive trucks and technology filled the show floor — or anything about the show itself. It was the people.

I got to see some of the first friends I made in this industry, contractors whose stories I've told, and others who I was lucky enough to meet for the first time.

I got to have breakfast with Ben Smith of Minnesota-based Marvel Sewer and Drain, a contractor we profiled earlier this year. Later, he took me around and introduced me to a few people he's worked with — good people with good stories to tell.

One of those people was Ken Beyer of Clog Squad. Beyer is a Michigan-based contractor who wanted tools to better serve his business, so he started making his own sewer and drain equipment. I got to see his gear and hear about some of the jobs it's helped him tackle. You'll probably be hearing more about him in these pages in the future.

Smith also introduced me to Matt Benton from Famhost Apps - RealTime Forms. Anyone who's ever shopped for anything online knows the value of reviews, and drain cleaners can benefit just as much as any manufacturer whose goods are for sale on Amazon.

And I can't talk about people at the WWETT Show without mentioning Mike Williams from Just Drains in Philadelphia. Anyone who's seen Williams even from a distance knows how much energy he brings to everything he does. I've known him for quite a while. He sometimes calls just to talk. He always has insight and ideas, and we spent some time at the show talking about some ways he might contribute to the magazine. I'm always looking for new angles and storylines, and I'm hoping to get him involved.

Fittingly, my last conversation in Indianapolis was with Reinhart Laimer, the very first person I ever met in this industry. I went to my first Pumper & Cleaner Environmental Expo (now the WWETT Show) about five months after I started working at COLE Publishing. When I got to Indy, before the show even opened, one of our sales reps walked me around the show floor to see the setup. As soon as we walked through the doors, we ran into Laimer. The rep introduced us, and ever since, I've always made it a point to make some time to talk with him whenever I have the chance.

In many ways, this magazine is like a monthly trade show. It's an opportunity to find out what's new, learn about the latest equipment and get to know other contractors. Your monthly attendance is always appreciated. I hope we get a chance to talk.

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

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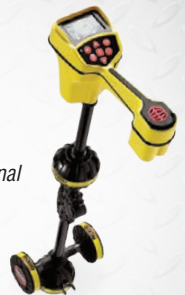


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IT'S JUST BUSINESS

## Combining Friendships and Business Partnerships

We've all heard the horror stories of great businesses utterly collapsing because the founders were good friends and the relationship turned sour. Things can get complicated when difficult, impersonal decisions need to be made in the name of creating the best future for the company. Here's a look at the pros and cons of being both friends and business partners, and how you can ensure that relationship stays healthy. [»cleaner.com/featured](http://cleaner.com/featured)

EMERGENCY RESPONSE

## Hydrovac Crews Aid in Mudslide Cleanup

Back in January, a mudslide hit Montecito, California, sweeping away cars and homes and leaving behind massive amounts of mud and debris. One hydrovac company called on to assist in the cleanup efforts recounts the experience. [»cleaner.com/featured](http://cleaner.com/featured)



“We conducted a roundtable conversation with our customers over the last two years to identify all the things they'd like to see and problems they'd like to have solved. Being able to work in metro areas was No. 1: maneuverability and not getting overloaded.”

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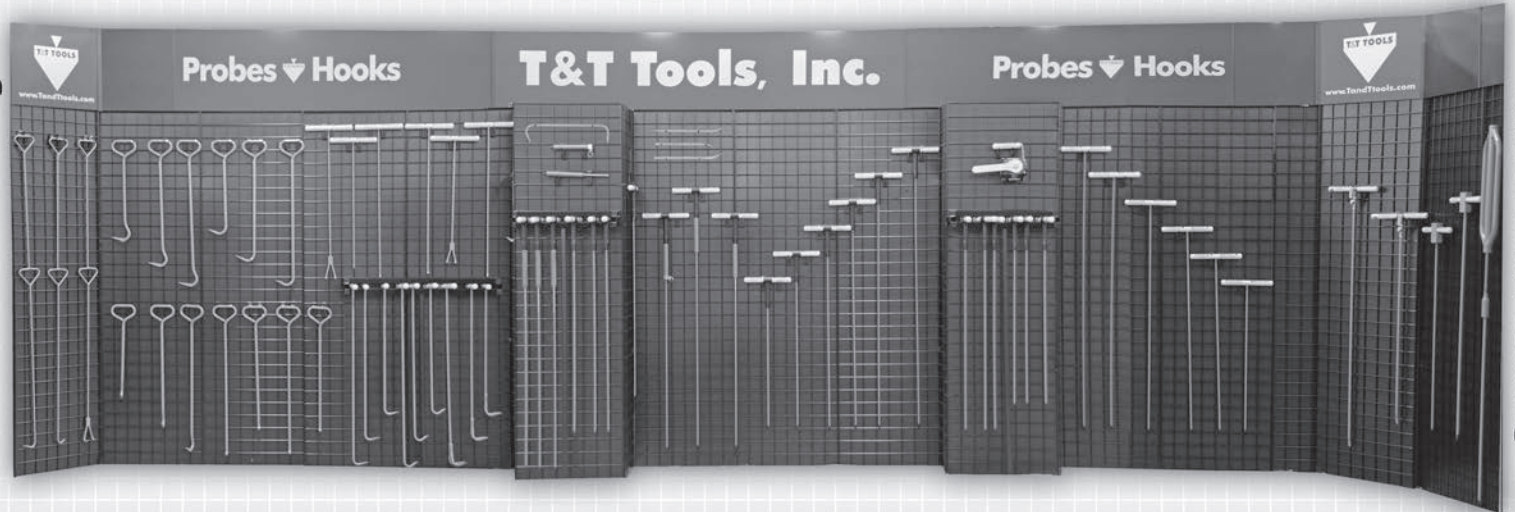
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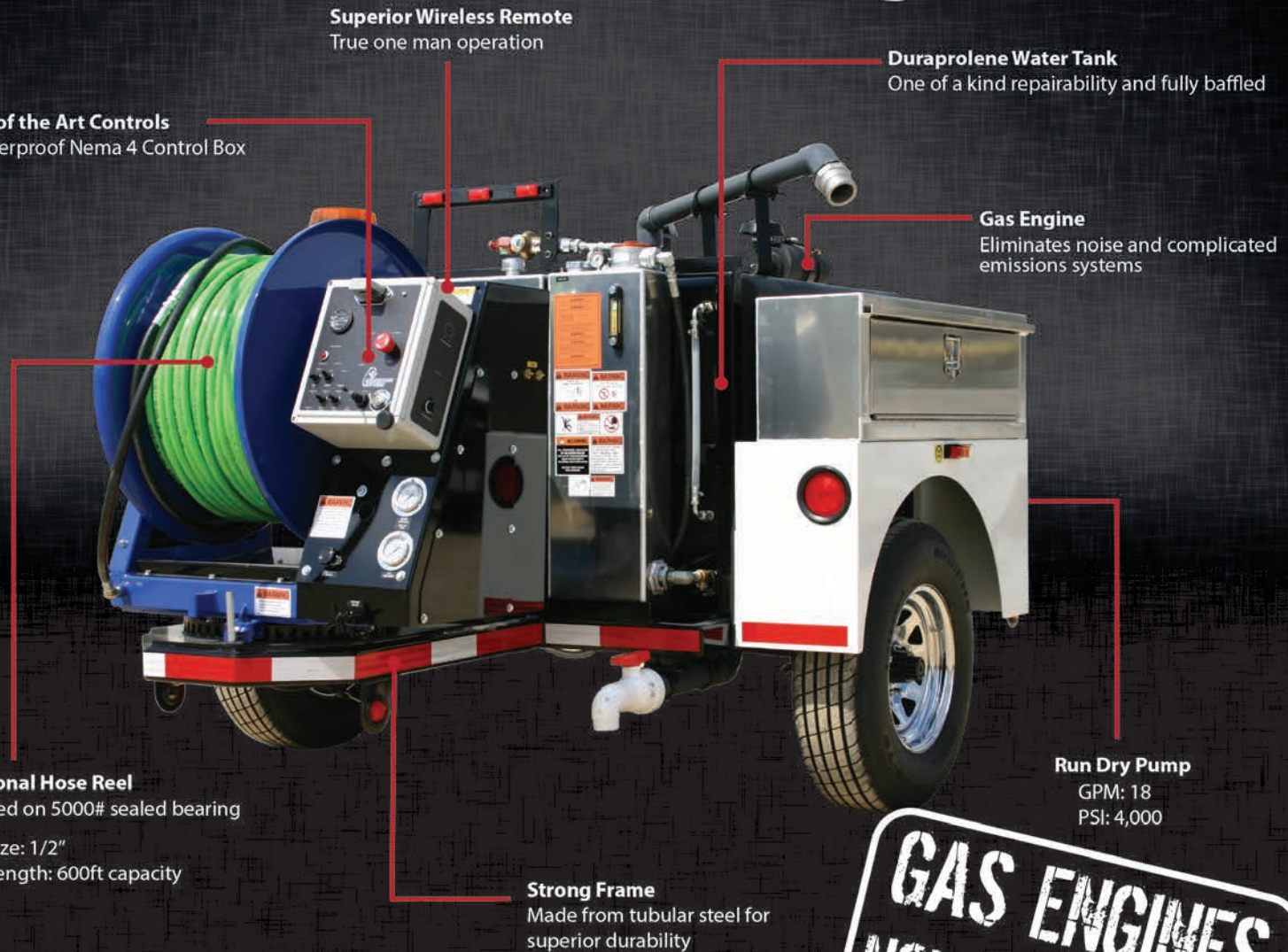
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# Make a Plan to Get Paid

Extending credit requires a policy and strategy for collecting your money when clients don't pay up

By Neil Feldman

**E**xtending credit and utilizing an invoicing system is a necessary prerequisite to growth in the commercial arena and, in some cases, the consumer market as well. Commercial end-users and contractors will typically not work with companies that refuse to extend credit terms, and in some regions, this reaches into the consumer market too.

The dark side of extending credit is that sometimes those terms come and go, and it becomes a task to collect the money that's now past due. There are many reasons why this happens — from lost bills to unexpected additional expenses that the customer could not afford. Regardless of the circumstances, an unpaid invoice can hurt your business, and you need a game plan in place to ensure payments are received.

While you can never guarantee a customer will pay a bill on time, there are things you can do to keep late or missed payments to a minimum in the future. Being clear about all terms

and conditions upfront not only sets payment expectations for the client, but also builds the trust necessary for a strong, positive customer relationship, says Greg Waldorf, CEO of the invoicing app Invoice2go. Before diving into a project, he notes, make sure that your client is fully aware of projected costs, and ensure that you take time to answer any questions upfront.

It is also essential to clearly have all of the payment terms and conditions in writing and easily accessible to customers. “You cannot have payment terms written in too many places,” says Nadine Ebersole, an associate business

attorney with Robinson & Cole in Boston. Those terms and conditions “should be on proposals, purchase orders, invoices and even on the company website if there is one,” she says. By being extremely transparent, businesses are taking smart measures upfront to be both clear to the customer and protect the interests of the business.

When contemplating work with customers that seem risky upfront, most experts advise tiptoeing into the account. “It’s a good idea to have a policy in place that may require money upfront for any new account,” Ebersole says. This allows you to point to something in writing when asking for full or partial payments from a new prospective client that seems a bit shaky.

And if a new account refuses to pay upfront, it is advisable to start out with a small project to test the waters. If the first project becomes a collections matter, it is at least kept to a minimal amount. But business law experts like Ebersole do note that no business should be afraid to turn away work if the risk of a particular customer far outweighs the potential reward.

To provide some reassurance for those particularly wary of submitting payments before receiving work, encourage them to read testimonials or reach out to previous customers. “If you have a spotless track record and take care of clients consistently over time, you will earn a greater right to take payment prior to work,” Ebersole says. When someone questions a policy, businesses with excellent track records encourage them to call specified clients and ask about their reputation and integrity as an organization.

With so much going on in a small-business environment, it can be easy to lose track of a customer invoice. Experts generally advise appointing one individual to be in charge of sending invoices as soon as a job is completed — and staying on top of it until it’s closed out — to avoid falling behind.

In an ideal world, all customer invoices would be paid in a timely manner, but that simply isn’t reality in the contracting environment. The very business model of doing the work today and billing for it tomorrow paves the way for some customers to be better payers than others

If a customer is late on an invoice, start with a friendly reminder that a bill is past due — the first step in collecting your payment. In many instances, a late payment is the result of an honest mistake, and receiving that first follow-up will make a client pay as soon as possible. Waldorf notes that the subject of money isn’t always easy to address, so you may want to ease into the topic. “Use an opportunity to check in on a customer’s satisfaction with your services, and then discuss any approaching or past-due invoices,” he suggests.

In some cases, clients will try to delay payment by saying they lost the bill or that they need to reconcile their records to find the correct payment amount. If this is the case, Amanda Vann, collections attorney with Baltimore-based law firm Andalman & Flynn, advises sending an updated invoice right away — even if you know the customer has the original — to take away this excuse.

If your client still won’t pay, be open to hearing their reasons. Vann suggests asking questions about their satisfaction with your work, their financial complexities and anything that might contribute to their refusal to pay. “Once you know why they refuse to pay, you can work toward a resolution with the client,” Vann says. “Keep in mind that everyone is just a person, and rarely is someone actually out to hurt the other. Most people are logical and willing to work toward a solution if you provide them with the opportunity to do so.”

Waldorf advises requesting a timeline for payment and continuing to follow up until the customer pays. If necessary, resend your original purchase



order, indicating that you will escalate the situation if invoices remain past due.

If repeated attempts to contact the customer and collect a payment have failed, it may be best to call in backup, but this should be a last resort, as it can be expensive and can permanently damage a relationship. Even if a customer has issues paying a particular invoice, it's possible their receivables are simply high and they are strapped for cash at that moment but are not necessarily a poor customer.

If third-party assistance becomes essential, there are three options to help get the money you're due.

**1. Factoring Services:** If you're strapped for cash and don't know when a customer will send their payment, a factoring service may be able to help get the money you need while you're waiting. With a factoring service, you sell your accounts receivable to a company for a certain percentage of the accounts' value (usually 70 to 90 percent), and that company will advance you most of that money within a few days. It will then collect your customers' payments and send the rest of the cash to you, minus the service fee.

"Keep in mind that factoring services are not collection agencies," Waldorf says, "and they will run a credit check on your customers before agreeing to purchase their invoices. If you use a factor for multiple customers' invoices, the service fees will add up, and you may end up losing money in the long run."

**2. Collection Agencies:** A debt collection agency is a company that specializes in recovering payments that are typically more than 90 days past due. The company will take the task of following up with the customer off your hands to get them to pay.

**3. Attorneys:** While you can file a lawsuit against a customer who won't pay up, the time and money associated with suing a nonpaying client is not worth it for most small businesses unless the amount owed is substantial.

"We do a very honest cost analysis when considering a lawsuit," Vann says. "Is the total cost (financial, emotional, time, energy, etc.) greater than the amount to be recovered? If it's more work to recover the money than it's worth, just learn the lesson, put in a system so it doesn't happen again, and move on. However, if that client owes you a large sum of money and refuses to pay you or a collection agency based on the terms of your contract or invoice, a lawsuit may be necessary."

In many cases, it may make more sense to negotiate with the customer yourself than to utilize a third-party service. "Some customers simply do not have the funds to make a one-time payment," Ebersole says. "Try working with the customer to determine if

installment payments or a one-time payoff are feasible."

She adds that you should document any agreement you make in writing and have the customer sign a copy acknowledging the terms. **C**

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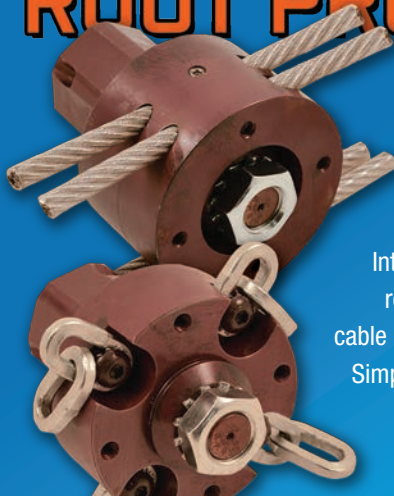
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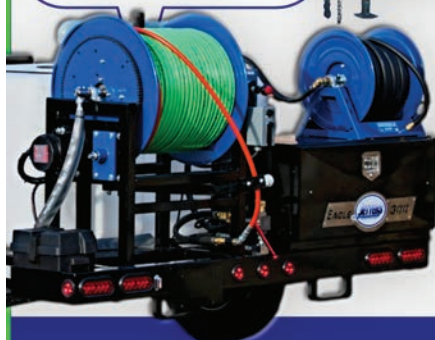
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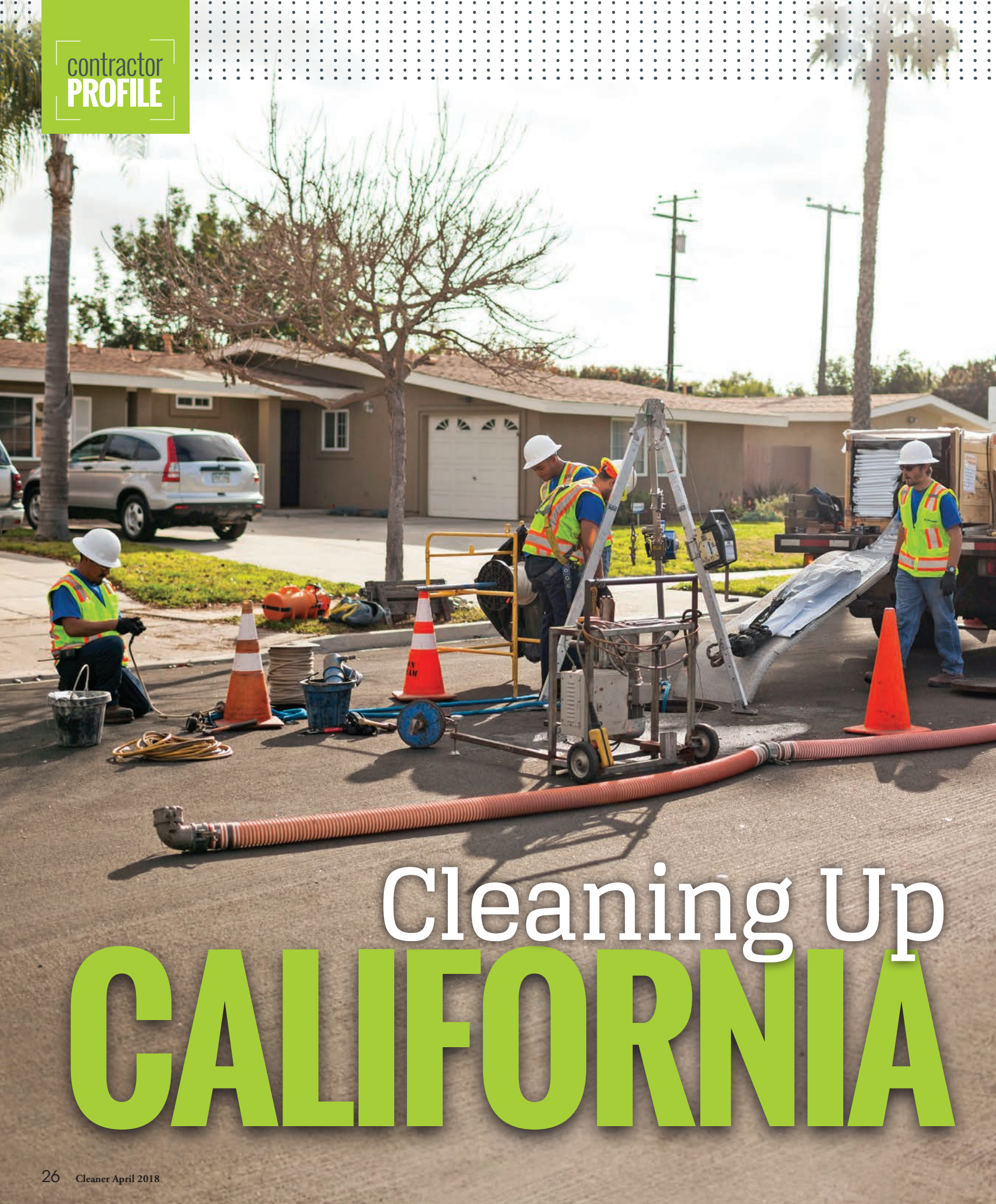
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# Cleaning Up **CALIFORNIA**



Innovation and an entrepreneurial spirit help a growing sewer company do more for municipal clients

By Ken Wysocky //  
Photography by Collin Chappelle

## There are many factors that helped Victor Roberts transform his company, Downstream Services, from an upstart sewer cleaning outfit into a \$12 million-a-year full-service company with clients throughout Southern California.

But in the end, four major things spurred the company's emergence as a player in the region's underground industries: a heavy emphasis on providing specialized services, a strong entrepreneurial spirit, a focus on employee development, and resourcefulness that is exemplified by the custom equipment the company engineers for specific applications.

"More than anything, our success stems from the fact that we're very diversified," says Roberts, who spent years running a grading and underground-construction company before selling it and establishing Downstream Services in 2002. "We do just about everything.

"An agency can call us with a problem, and we'll help them figure it out, whether it's sewer inspections, maintenance and repairs, or a process problem at a treatment plant," he continues. "We'll not only help them design a fix, but actually do the work, too. We can supply supplemental services such as traffic control and patch-paving services. ... We even have been asked to provide IT services for a municipality.

"We've always done business this way. We take our cues from our clients. The client is always king."

Furthermore, relying on subcontractors to do portions of projects usually didn't end well. Roberts says he quickly found that relying on another

company usually meant the job wouldn't be finished on time. "It is important that the success and quality of a project — and the happiness of the client — is in our hands," he says. "Subcontracting also puts revenue into other companies' pockets."

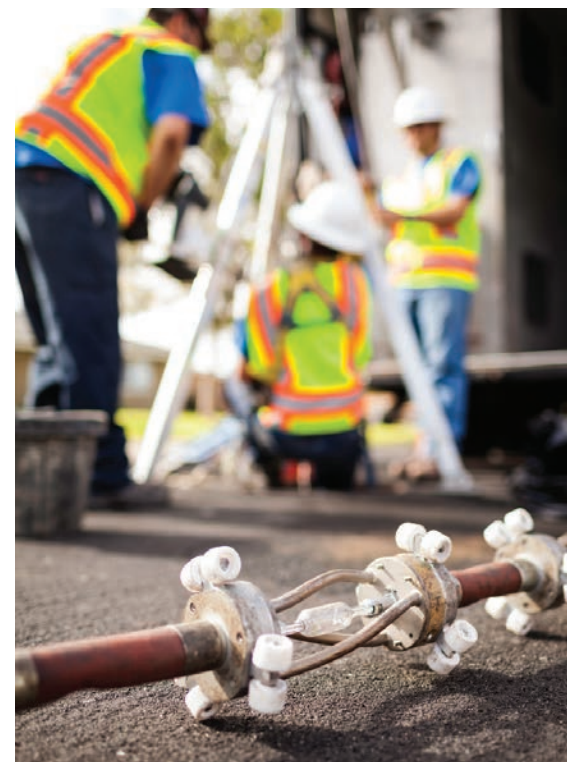
In the end, Roberts determined it was more cost-effective to invest in and engineer various kinds of equipment that enabled the company to present the client with a turnkey project.

### ROOTED IN IRON

While Roberts didn't realize it at the time, his career effectively started in 1974 when his mother bought a skid-steer to use on a horse

« Downstream Services crew members prepare to install a UV-cured ALPHALINER from Reline America in a residential San Diego neighborhood.

» Downstream Services uses a UV light-train to cure the glass-fiber reinforced liners.





ranch she'd purchased north of Escondido. Roberts enjoyed using it so much that after graduating from high school in 1978, he started grading house pads. In the early 1980s, he bought a Caterpillar track loader.

Eventually, he bought more and more excavating equipment and formed his own company, Roberts Engineering Contractors, which grew to include more than 60 pieces of heavy equipment and encompass structural concrete work and installation of underground utilities.

Roberts has a strong entrepreneurial drive. "I'm an ADHD kid and proud of it — that's the short answer. I've always been a high-energy person. I barely graduated from high school because I could never sit still. I'm still that way — I like to have my fingers in everything."

His career arc took a dramatic turn in 1998 when he sold his company. The main reasons were three-fold. The first: Competition was fierce, which made it difficult to sustain good profit margins. Secondly, the industry was vulnerable to cyclical ups and downs. "I was getting equipment weary," he recalls. "It was a constant battle, so I wanted to get out of the heavy-iron business."

The third factor: A local nonprofit environmental watchdog group called San Francisco Baykeeper had sued the California Department of Transportation and other agencies for violations of the federal 1972 Clean Water Act related to stormwater pollution. Roberts saw that as an opportunity to establish relationships with municipalities — a more stable client base — to help them comply with federal clean-water standards.

"That's why we got into the business," he explains. "I essentially started Downstream Services because this was something I was very interested in — being a part of cleaning up California's environment. When San Francisco Baykeeper sued Caltrans, we helped them put together their first contract ... and started cleaning storm drains."

Today, many of Downstream Services' customers are either local municipalities or the federal government. But the company also relies on scheduled maintenance agreements to clean and maintain stormwater sewer systems for big-box retailers and large-scale property management firms. Its primary services are pipeline assessments, systems maintenance, and rehabilitation; underground services (such as UV-cured, glass-reinforced pipe lining, as well as installation of wet utility structures and facilities); and stormwater compliance, flow monitoring, and 24/7 emergency response services.

### RESOURCEFUL STREAK

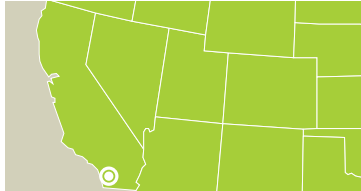
In order to better serve customers, Downstream Services often develops its own equipment and innovative tools to achieve its desired results. "I never

"More than anything,  
our success stems from  
the fact that we're  
very diversified.  
We do just about  
everything."

Victor Roberts

« Crew members feed a new liner from the truck into a manhole on a sewer main rehabilitation project.

» Fabian Ferrufino drops into a San Diego manhole to help guide the installation of a CIPP liner.



## Downstream Services

**LOCATION:** Escondido, California

**FOUNDED:** 2002

**OWNERS:**  
Victor and Wilma Roberts

**EMPLOYEES:** 65

**SPECIALTIES:** Sanitary and stormwater sewer systems maintenance, inspections, rehabilitation, and repair; flow monitoring; 24/7 emergency response

**SERVICE AREA:** California

**WEBSITE:**  
[www.downstreamservices.com](http://www.downstreamservices.com)

want to hear, ‘This is the way we’ve always done it,’” Roberts says. “We’re always looking for more efficient and productive ways of doing things.”

For example, the company frequently fabricates its own cutting tools for its water jetters to perform tasks such as reinstating laterals and pulling rocks from pipelines or handling tough cleaning jobs. “We’ve even used cameras to grab things — attached a wire-basketlike tool to the rotating head on our (R.S. Technical Services Inc. (RST)) cameras,” he says. “They probably don’t want to hear about what we do with their cameras.”

The company also has fashioned its own tires for inspection cameras that allow the tractor to get a better grip when traversing slick biofilms on sewer pipes. “The tires slip, just like your feet do when you’re walking on mossy rocks in a riverbed,” Roberts explains. “But we developed tires that cut through the biofilm.” The company also builds its own dewatering boxes out of roll-off containers — 12 in all.

On a larger scale, the company also fabricated what Roberts calls storm drain filter trucks, used to clean catch basins and storm drains. The company

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👉 Joe Dickey keeps an eye down the manhole to monitor progress as the crew winches a liner through the sewer main.

👉 Joe Dickey assists other crew members feeding the liner from the truck to the manhole.



owns five of these trucks, each built out on an Isuzu NRR chassis with an 800-gallon debris tank (also self-fabricated), a 200-gallon water tank, and an 800 cfm blower made by Roots Systems.

“We could never find a truck we really liked, plus they’re expensive,” he explains. “So we make our own.” The company also fabricated its own 4,500-gallon tanker truck equipped with a Jurop/Chandler vacuum pump, a skid-mounted pull-plate cable drain cleaning machine, and two trailer-mounted sewer bucket-cleaning machines.

Where does this do-it-yourself mentality come from? Roberts says it stems back to his days in civil contracting, where contractors are responsible for a multitude of tasks that challenge their ingenuity and resourcefulness. “You just get used to figuring things out,” he says. “Plus, I’m pretty mechanically inclined.

“It’s often difficult for us to find components the way we want them, especially made locally,” he continues. “So it’s natural for us to do things ourselves.”

As such, the company has a 6,000-square-foot light machine shop with a wide array of metal-working equipment, such as a steel-working lathe and welding machines. The company also employs a shop foreman and six shop employees: mechanics, fabricators, and machinists.

CONTINUED >>

**“I essentially started Downstream Services because this was something I was very interested in - being a part of cleaning up California’s environment. When San Francisco Baykeeper sued Caltrans, we helped them put together their first contract ... and started cleaning storm drains.”**

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“We do all our own maintenance and repairs,” Roberts says. “The cost for that stuff gets crazy, so we do it ourselves. Plus, there’s no real repair facility around here; the closest one is 45 minutes away in San Diego. So it also makes sense economically.”

## LARGE FLEET OF EQUIPMENT

Downstream Services also owns many other machines and pieces of equipment, including six Camel waterjetting trucks, built by Super Products on Freightliner chassis with Roots Systems blowers; one trailer jetter made by Harben and two manufactured by Jetters Northwest; an Inuktun Services long-range sonar pipeline inspection camera system; and six CCTV trucks, built out by Downstream Services on Mercedes-Benz Sprinter vans, using RST cameras and technology.

For pipe rehabilitation, the company has invested in a UV-cured, glass-reinforced pipe lining system made by Reline America. In addition, the company’s emphasis on safety is reflected by its use of DBI-SALA confined-space gear (3M) and four self-contained breathing apparatuses — Survivair Sperian Cougar models made by Honeywell Analytics. To manage its small-equipment inventory, Downstream Services’ asset department uses Asset Panda software.

Looking ahead, Roberts says he anticipates further growth for the company, some of it through geographic expansion. Pipe lining also is expected to generate more revenue as demand for that service grows. “Our goal in the next three to five years is to open an office in central or Northern California, where we see a lot of need for our services,” he says. “We expect to hit \$20 million in sales within the next five years.”

One thing won’t change, however: Roberts’ work ethic and the client satisfaction the company provides. “We’re old-school here,” he explains. “You don’t get a voicemail when you call here. Even if you call us at 2 a.m., you’ll still get a live person and whoever is on duty that night will call you back. Whatever we do, we do it right.” **c**



« The Downstream Services management team outside the company shop in Escondido, California.

## » Giving employees a career, not just a job

Like so many contractors these days, Downstream Services in Escondido, California, has a hard time finding good, qualified employees. But company officials have found that referrals from current employees makes that daunting task a little easier.

Moreover, the company also employs several strategies to retain employees after they’ve come aboard, says Victor Roberts, owner and vice president of the company. Downstream Services offers a profit-sharing program and pays all employees who’ve been employed for at least one year. The amount of the bonus depends on the current year’s profits.

The company offers employees other perks, ranging from a 401(k) retirement program to health insurance benefits. Such benefits allow it to compete with pensions offered by municipalities, he says.

“We even give employees no-interest loans for things like vehicle breakdowns or medical emergencies,” Roberts says. “We set a cap on these loans, and employees have to be with us for a year in order to qualify. We can either deduct payments from their paychecks or collect the money as they can afford to pay.”

The company also strengthens its employee retention rate by performing regular job reviews. “We diligently let them know what they need to do to improve,” he notes. In the same vein, the company invests in employees by supporting and allowing time for continuing education.

“The state has several different levels of certifications,” Roberts explains. “Each time an employee achieves one, they get an automatic pay bump. Or if a driver gets a commercial driver’s license, that bumps him up \$1 an hour, too. Everything they do to better themselves, they get more money.” The company also strives to promote from within, he adds.

“We’re most proud of the fact that we treat employees like family because it’s a family business. I know the name of pretty much every employee we have. To retain them, they need to be happy coming to work every day. We work very hard every day to make sure they’re happy.”

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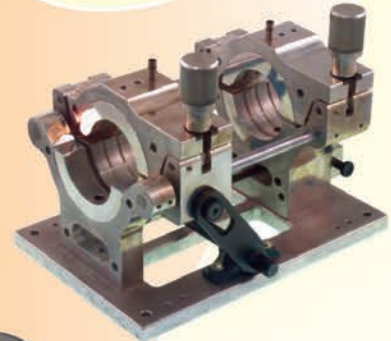
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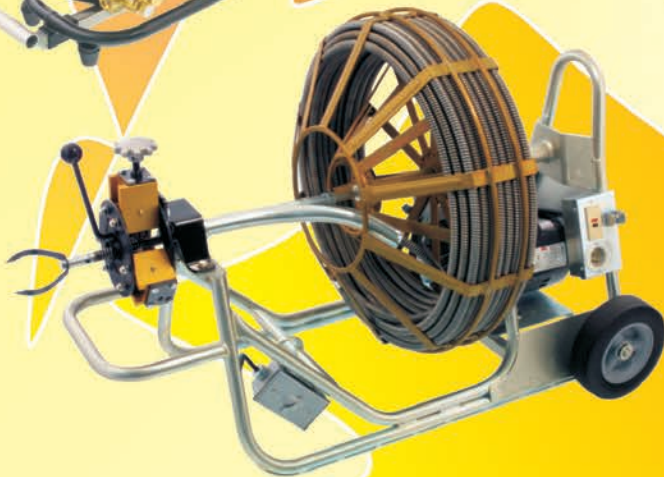


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# Experience Makes the Difference

Years of experience make Doheny Technical Institute trainers the heart of education program

By Jared Raney

**S**ewer work is a “learn by doing” industry — it doesn’t take a college degree, yet ongoing education and training is critical.

Doheny Technical Institute offers hands-on field training for drain and sewer cleaners.

“This isn’t an industry you can come in off the street and just automatically learn; it takes years of actually doing it,” says Mike Renner, director of marketing for Doheny Technical Institute.

Trainers at Doheny Technical Institute have a minimum of 10 years’ industry experience. Many have considerably more. “Most of them have 25-plus years, and that gives us the ability to really dive into the knowledge, and I think that’s really important,” Renner says.

As any of those experts will tell you, the industry is ever changing, and operators must learn constantly, even as they continue to perform their job duties year in and year out.

An extension of Jack Doheny, a sewer cleaning and maintenance equipment dealer, the Doheny Technical Institute offers a number of courses for operators to stay on top of their game.

“We’ve been doing training at Doheny since we started selling trucks, and we realized quickly that when we sell a truck, if a guy doesn’t fully understand how to utilize it, he will not fully get the benefit out of that truck,” Renner says.

Doheny Technical Institute offers five courses focusing on sewer cleaning and inspection:

- Operation and maintenance.
- Inspection operation.
- Advanced pipe cleaning.
- Confined-space entry.
- Pipeline Assessment Certification Program, Manhole Assessment and Certification Program, and Lateral Assessment and Certification Program.

## OPERATION AND MAINTENANCE

Their core class is the operation and maintenance program, which covers “the basics of safely and effectively running the trucks that we offer,” Renner says.

The key word there is “effectively.” It’s not just a low-level sweep of running a truck, it’s making sure the operators know how to get the most out of their truck.

“Both the practical side and the theoretical knowledge of how the truck works ... not just how to run the truck, but techniques on how to make the truck run more efficiently in different applications,” Renner says.

## INSPECTION OPERATION

Similar to the operation and maintenance class, inspection operation covers the use of inspection equipment.

“It is basically operation maintenance, but inspection is such a different animal than running a truck. Because of the technical nature of it, we’ve separated that class out,” Renner says. “We teach practical and theoretical knowledge concerning the safe operation, maintenance, and troubleshooting of various inspection equipment. Setup procedures, mainline operation, lateral, digital inspection, software, locating, and accessories — we go through all of that.”

## ADVANCED PIPE CLEANING

Unlike the rest of the institute’s offerings, which are comprehensive base-level trainings, the advanced pipe cleaning class is high-level sewer cleaning — advanced techniques covering every imaginable scenario.

“It’s based all around sewer cleaning and how to clean every type of sewer. So you’ve got large-diameter pipe; we talk about how to do the step-cleaning methodology; we talk about the nozzles, with their applications and their capacities. We do a review of the specialty sewer tools that are out there, and we talk about best management practices for pipe cleaning,” Renner says.

An above-ground mock sewer system, which the institute’s team refers to as its pipe cleaning proving ground, is used during the training to demonstrate the concepts being introduced.

## CONFINED-SPACE ENTRY

“This is an OSHA permit required confined-space training. It’s an eight-hour, interactive, hands-on class that will provide those enrolled with a full understanding of permit preparation duties, fall protection, and air monitoring,” Renner says.

Doheny Technical Institute has a mobile simulator for confined-space training that they can take around to classes, allowing the attendees to perform full manhole entry.

“We can go through all the OSHA stuff in the classroom and then actually go out in the truck and perform a full drop into a manhole: how to effectively do it, fill out the paperwork, put the air monitor in, and put the harness on,” Renner says.

## NASSCO PROGRAMS

The institute offers PACP, MACP and LACP training through NASSCO, but the master trainer is employed by the Doheny Technical Institute.

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“Everything is run through NASSCO; we just have our own on-staff trainer,” Renner says. “So we schedule all our stuff through NASSCO; everyone gets a certification from NASSCO. It’s just a part of our training offering.”

### GETTING STARTED

There are essentially two options for training: traveling to one of Doheny Technical Institute’s many locations for a prearranged training session or, if you have 10 or more employees to enroll, having the institute come to you.

In 2017, Doheny Technical Institute hosted 137 training opportunities for a total of 1,278 people, not counting the complementary training that comes with purchasing a machine.

The normal sessions can be found on the website, [www.dohenycompanies.com](http://www.dohenycompanies.com), and registration can be completed online. For an on-site session, email [dti@dohenycompanies.com](mailto:dti@dohenycompanies.com).

“Our mission statement is to train the operators on how to safely and efficiently do their job,” Renner says. “These trucks can be dangerous if you don’t run them correctly, and they can also be costly if you don’t run them safely and effectively. So we try to go in there and give them all the knowledge they need — on the one side to operate and manage a truck safely, and on the second side, advancing over that is to efficiently do the job that they’re going to do.” **c**

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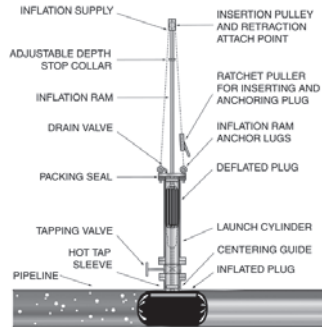
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# STICKING TO THE PLAN



Pennsylvania contractor crafts a strict business plan and develops a devoted customer base for plumbing and drain services

By Marian Bond // Photography by Joe Hermitt

**M**aster plumber Mike Leonard formed his company with a defined plan of action. He knew what he wanted to do. He also knew what he didn't want to do.

The mission was to provide plumbing and drain cleaning services for a residential and small commercial clientele, with no deviation into other services such as new construction or HVAC. His firm belief, which has been the bedrock of the company's success, is that if you provide high-quality plumbing and drain services and carry the inventory to tackle most any job, you will have a platform for success.

Leonard's primary service area includes three small communities within a 10-mile radius, with a mix of older residential areas and newer developments. Commercial work, which makes up about 15 percent of the business, includes doctors' offices and medical centers. For major projects, large facilities typically go out for bid and Leonard does not participate.

He sets himself apart from much of the competition by offering flat-rate pricing, from a drain cleaning call that requires inspection and jetting, to a quick faucet replacement. For small drains, the call is \$260 for the first hour, and with larger drains it is \$440. The charge for additional time when required is \$40 per quarter hour.

"The beauty of the flat rate, although you always get kickback — nobody wants to spend \$500 unless on vacation or a meal out — is that it works. The neat thing that calms the storm very quickly is the camera. The customer

is looking at the screen and they are seeing a ball of roots and all the other things involved and how bad things are; and they're thinking, 'Man, I'm glad we're doing this.' Ninety-five percent of the time, this takes the sting out and they are happy to be paying the bill and solving a big problem.

"Until we had the camera, things were unseen. You ran the cables down but you didn't know what was there or if you got all the roots out. Now I can let the camera sit there and I can work the roots and I know when they are gone."

## LATERAL DEMAND

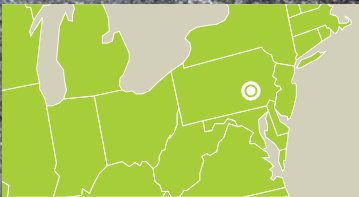
Most of the company's lateral line work involves terra-cotta, Orangeburg and cast-iron pipe. Problems with PVC pipe are usually related to improper installation.

"We see Orangeburg pipe literally falling apart, and the roots strangle it and close it off like a boa constrictor. Terra-cotta with 2-foot joints will have water leaks at each joint where we see lots of sludge clogs. With cast-iron pipe, it will be rough inside and cause debris to hang up."

There are more clogs with the low-flush toilets because of the lower volume of water going through the drain. "People don't think about the effect this has on their drainlines."

The company handles all cleaning work in-house, but when a line requires rehabilitation — relining or pipe bursting — he works with a subcontractor. Even though another company handles those services, Mike Leonard's Plumbing stays involved in the project from start to finish.





## Mike Leonard's Plumbing

**LOCATION:** Hershey, Pennsylvania

**OWNER:** Mike Leonard

**ESTABLISHED:** 1992

**EMPLOYEES:** 8

**SERVICES:** Plumbing, drain cleaning, CCTV, jetting, bath renovation

**CUSTOMERBASE:** Residential and commercial

**WEBSITE:** [www.mikeleonardsplumbing.com](http://www.mikeleonardsplumbing.com)

⤴ The Mike Leonard's Plumbing staff includes (from left) Mike Keller, Leonard, Joe Rothermel, Kathy Neu, Matt Lavelle and Rodney Fellenbaum.

Mike Leonard watches the monitor while feeding a MyTana camera through a clogged lateral line.



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**“Until we had the camera, things were unseen.**

You ran the cables down but you didn't know what was there or if you got all the roots out. Now I can let the camera sit there and I can work the roots and I know when they are gone.”

Mike Leonard

Customers are made aware that another company will be doing a specific part of the project in these instances. Leonard takes care to explain the processes and how every aspect of the work will be handled.

“We have a great relationship with this company. We will get everything ready, and they will come in, do their thing, and then we finish up,” he says.

Even though he's bringing in a subcontractor for these services, it's still an important profit center. Leonard sees a great potential for growth in this segment of the business due to the number of aging and failing systems in his service area, along with growing demand.

**STOCKED FOR SUCCESS**

The company operates out of a 5,000-square-foot warehouse and office in a prominent location in Hershey, Pennsylvania. Plumbers have a quick drive if they need to pick up a piece of equipment, and he maintains a substantial supply inventory.

Leonard prides himself in the inventory he carries and the value of his seven service vehicles. The Isuzu trucks have tilt-forward cabs with gas engines and 14-foot custom boxes on the back. Because of the relatively small service



Mike Leonard pulls hose off his truck-mounted HotJet USA jetter to clean a clogged lateral line.

area, these trucks put on only 7,000 to 10,000 miles in a year, and he tries to get up to 10 years per van before replacing them.

“When we pull up into your driveway, you have the value of \$150,000,” he says. “The truck is worth \$60,000, and with all the tools we maintain and the inventory, you have that much total value.”

Leonard sends all vehicles to a garage for service and has no interest in an in-house mechanic. “The people who take care of our trucks are experienced, and what they do they do well to get my trucks back on the road,” he says. “We make from \$8,000 to \$20,000 a day per truck. If it is sitting in a shop, I'm not making money.”



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“We like the products we use and have had great success with them. We have to stay up on things by reading, and the experiences we have with the various products in the field are important.”

Mike Leonard

Drain equipment is from General Pipe Cleaners and Spartan Tool. The company uses camera systems from MyTana Mfg. and RIDGID along with a RIDGID locator and Hot Jet USA jetter producing 6 gpm/2,500 psi.

Three of the people on the staff operate the jetter, but two others will soon go for training. Leonard says he likes the safety and operational training Hot Jet USA offers.

“We like the products we use and have had great success with them,” he says. “We have to stay up on things by reading, and the experiences we have with the various products in the field are important. We want to build on our own knowledge because what the manufacturers say and what happens in the field can be very different.”



Leonard feeds the business end of a Spartan cable machine into a clogged lateral line.

## THE RIGHT PEOPLE

Leonard has been fortunate to find plumbers who fit into the culture he has developed, which allows them to develop a clientele within Mike Leonard's Plumbing.

“They pretty much represent themselves,” Leonard says. “I provide the pricing and the way we want to do things. But these plumbers will meet from two to eight people in a day, and they can offer opinions as to replacing a fixture or item. They can develop their own business in this way. We provide

the booties, uniform, cellphones. Customers can request a specific plumber.”

The service staff includes three journeymen plumbers and two apprentices. “We have Joe Rothenmel, who has been with me 20 years, and Mike Keller, 16 years. Henry Theisen has been a plumber in our company for seven years.”

Employees take their work vehicles home at night, which they appreciate. In addition, they always have quality tools, and Leonard insists they replace anything that has outlived its service life in any way.

## Flush Away Hunger

About four years after opening Mike Leonard's Plumbing in Hershey, Pennsylvania, owner Mike Leonard wanted to show his appreciation for the business by making regular donations to the local food banks in the three communities he serves.

He called the program Flush Away Hunger. A quarterly donation is made to the food banks in Hershey, Palmyra and Hummelstown. It amounts to \$1 for each and every job the company has performed in a four-month period. The most recent donation amounted to a \$250 check to each organization.

Over the years, the program has garnered Leonard some attention in local newspaper and television coverage.

“I just wanted to give back to the communities that have supported our company,” he says.

This important contribution is in addition to many other efforts, such as sponsoring multiple local sports teams. Leonard's wife, Diane, has joined her husband in representing the company in these various community activities over the years.

“Diane keeps a low profile in the office, but she is there handling bookkeeping and other duties while putting in some long hours,” Leonard says. “She has been a significant contributor to our success.”



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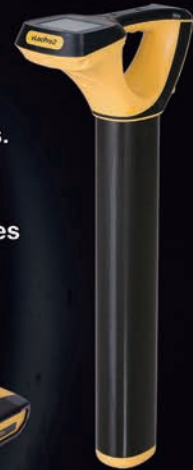


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Like most firms, there is the challenge in attracting new technicians into the industry. Leonard actually pays young people to ride along with one of his plumbers during the summer months, offering \$10 an hour. His son Christopher, now in college, worked with a driver for two years, and in 2017, his daughter Lylee wanted to learn more about the business and spent the summer working with a plumber.

He says several young people apply for these summer jobs every year, but he will only hire them if he has a plumber available to participate.

"If I could find plumbers, I would hire in a heartbeat," he says. "We could use two or three more if I can find quality people with integrity."

He offers full benefits, health care for employee and the family (including eye care and dental), as well as a 401(k) with a 4 percent match.

"I've tried word-of-mouth, advertising for help, hiring companies to find people," he says. "One of these days, we know the right person is going to walk through the door."

**JUST LIKE FAMILY**

In the meantime, Leonard pledges to take good care of existing customers, and he has no desire to expand beyond the current 10-mile service radius.

He says if he were advising a startup company, he would emphasize the importance of integrity and treating people with respect, as if dealing with your own mother or grandmother.

Leonard says the most valuable policy in terms of developing customer relations has been to have employees who are happy and who can represent his company to the best of their ability. This has been a winning foundation for Mike Leonard's Plumbing. **c**



» Leonard rolls a Spartan cable machine out of his truck to clean a clogged lateral line.

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# In-House Hiring Help

When it comes to recruiting new employees, referrals can reduce costs and increase the quality of job candidates

By Ken Wysocky

**R**ecruiting new employees is expensive. Experts estimate that businesses spend billions of dollars a year — some peg the cost at more than \$4,000 per new hire — as they strive to fill job openings.

Yet, too often the results don't justify the cost. Consider this: About one-third of new employees quit their jobs within the first six months, according to one study. And a recent Gallup Poll shows that 70 percent of workers are disengaged from their jobs. With this kind of disparity between hiring costs and employee turnover/disengagement, it's easy to question what organizations get in return for their investment.

But it doesn't have to be that way. In fact, you can reduce your recruiting costs, increase your return on investment and reduce employee turnover by tapping into a resource that's found under your roof: your own employees.

"Employee referrals provide an easy and inexpensive way to leverage your employee base to expand the talent pools beyond just job boards and career websites," says Jenna Filipkowski, Ph.D., the vice president of research at the Human Capital Institute ([www.hci.org](http://www.hci.org)), a consulting group that specializes in strategic talent management. "They're already vetted because your employees know them. They're a great way to get your organization's brand out in front of people."

Referred candidates are three to four times more likely to be hired than traditionally recruited candidates, according to a recent HCI study entitled, *Making Referral Programs Count: Sourcing Quality Hires through Employee Networks*. The study, which polled more than 200 organizations, also found that employee-referred candidates typically are a better cultural fit because they most likely have values and beliefs similar to the ones held by the referring employees. And while the study found that referred employees don't necessarily perform better than nonreferred employees, they typically stay with organizations longer, Filipkowski says.

That's no small matter in light of the high cost of employee turnover. According to a study performed by the Society for Human Resource Management, employers typically shell out the equivalent of six to nine months of an employee's salary to find and train a replacement. Moreover, a study conducted by the Center for American Progress showed that filling the position of highly trained executives could be as high as 213 percent of their salaries.

## GAINING POPULARITY

The study showed that 29 percent of the businesses surveyed have increased their usage of employee referrals compared to the previous year. While the reasons for that are difficult to pinpoint, one thing is certain:

As unemployment rates continue to drop, the pool of qualified job candidates keeps shrinking.

That, in turn, makes it more and more challenging for employers to fill open positions. As Filipkowski puts it, "It's a candidate's market, which isn't so great for employers trying to fill those positions."

As such, you must be strategic about how you recruit new employees, which could explain why employee-referral programs are becoming more popular. But in order to be effective, there are several things organizations must consider. For starters, keep it simple. "It must be simple for employees to use, not some complex, multihurdle program that's hard for employees to wrap their brains around," she says.

Despite the need for simplicity, organizations still need to consider many factors as they develop a referral program. For example, management must decide things such as which employees can or cannot make referrals, whether to weight all recommendations the same or give more preference to some employees because they hold senior positions or are long-tenured employees, the job performance of the referrer, and so forth. The HCI study showed that 78 percent of respondents weight all employee referrals the same and 60 percent allow all employees to participate in the program.

In addition, organizations need to give employees incentives to feel enthusiastic about referring job candidates. "They need to know why they should do this — why they should go out on a limb and ask people they know to become part of the organization," she explains.

## CASH IS KING

Financial incentives and some kind of public recognition/acknowledgement are two common motivators. Filipkowski says the study showed that 92 percent of the participating organizations in the study offered cash incentives, with \$1,000 as the median value. While most employees prefer cash, each organization needs to figure out what would incentivize employees to make job referrals. An employee survey can help pinpoint those motivations, she says.

Organizations also must develop a formal communication plan around the program that explains its basic guidelines, as well as why such a program is needed. "If the program isn't formalized, it's not top of mind," Filipkowski says. "And the communication can't be a one-and-done effort. You have to continually promote the plan so the enthusiasm doesn't die out."

Programs also need the involvement and support of senior management. If they see value in the program, employees are more likely to see it, too. "Without support from senior leadership, the program won't get off the ground," Filipkowski says.

Of course, there's a bigger issue in play here in which senior management plays a crucial role: creating a corporate culture that's so dynamic that employees can't wait to invite people they know to apply for jobs. Just as people wouldn't recommend a lousy restaurant, they certainly won't encourage someone they know to apply for a job at a place where they themselves don't like to work, she notes.

"Senior leaders should understand that if they're asking employees to refer job candidates, they better be sure that they've created a culture that employees want to promote," Filipkowski says. "You're asking employees to be an extension of your brand — communicate why others should want to work there."





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Organizations can help in that area by making it easy for employees to share reasons why their organization rocks. Let employees write blog posts on social media platforms, encourage them to write positive reviews on websites like Glassdoor or even let them create video testimonials they can share on social media. “Not many people do that, but I think it’s a smart thing to do,” Filipkowski suggests.

Good job-referral programs also typically include a monitoring component that allows management to judge whether or not they’re effective. That would include tracking things such as how many new hires come from referral programs versus internal hires or job boards and the retention rates for job-referral employees, as well as their level of engagement and performance. “You also should track how many employees make referrals,” she adds. “If it’s always the same three people, you just might have a problem.” c



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## An Easy Move

Kei Carts attachment saves time by making pipe lining equipment easier to maneuver over rough terrain

By Ken Wysocky

Pushing a MaxLiner HotKick unit (PrimeLine Products) to remote locations for pipe lining jobs used to give Keith Witt a bit of a workout. But thanks to an all-terrain attachment made by Kei Carts, the owner of Witt's Water Works plumbing service in Willard, Utah, now must get his exercise somewhere other than at work.

Equipped with large rubber tires, the aluminum attachment adds new dimensions to Witt's business, namely improved productivity and portability. "It's made getting the unit in and out of my truck much easier, as well as easier to transport on longer distances," says Witt, a sole proprietor who established his business in 2004. "When I work at remote locations, it cuts transport time significantly. And we all know your time is worth something."

Powered by a diesel engine, the HotKick is used to heat and cure the felt liners used in MaxLiner pipe lining systems. It weighs around 177 pounds and measures 36 by 24 by 49 inches. The cart that comes with it is great for paved surfaces. But it's not as adept at traversing rougher terrain, notes Witt, who

« Keith Witt of Witt's Water Works in Willard, Utah, makes easy work of hauling his MaxLiner HotKick with an all-terrain attachment made by Kei Carts.

### Witt's Water Works

**LOCATION:** Willard, Utah

**EQUIPMENT:** All-terrain attachment for MaxLiner HotKick unit

**FUNCTION:** Easier transport of heavy machines

**FEATURES:** Aluminum construction, 10-inch pneumatic tires, one-minute installation

**WEBSITE:** [www.keicarts.com](http://www.keicarts.com)

**PRICE:** \$495

does service and repair plumbing, drain cleaning, and pipeline rehab work throughout northern Utah.

A recent job required Witt to move the HotKick several hundred feet on an uneven lawn, including an 8- to 10-foot drop down a hill. Observing how difficult it was to move the machine, a MaxLiner representative who was showing Witt the ropes suggested that he buy

the Kei Carts all-terrain attachment, made specifically to handle HotKicks.

"We did two shots on the job — one section of 4-inch-diameter pipe about 35 feet long and another section of 3-inch-diameter pipe about 40 feet long — and then another two-shot job," Witt recalls. "And that all-terrain attachment would've come in real handy on both jobs. It took two people about 15 minutes to get the HotKick to the job site, and with the all-terrain cart, I could've done it by myself in about five minutes," he explains.

So Witt invested around \$500 in the attachment, which weighs about 27 pounds and measures about 22 inches long by 10 1/2 inches wide. It features four 10-inch-diameter pneumatic tires, two on each end.

"I wasn't concerned about the cost," he says. "I just knew it was a tool that could really help me be more productive." Witt says he was also influenced by John Larsen, the owner of Rhino Rooter in Brigham City. Witt and Larsen often combine forces on drain cleaning and pipe lining projects.

Larsen was already familiar with Kei Carts because he owns one of its Stealth carry-reel carts. A Stealth cart with a 12-inch reel can carry 300 feet of 3/8-inch-diameter hose or 200 feet of 1/2-inch diameter hose. The Stealth enables Larsen to work in remote, hard-to-access locations where he can't take his large 4018 trailer-mounted jetter, made by US Jetting (4,000 psi at up to 18 gpm). The Stealth can also be built with 8- or 22-inch carry reels and features two 10-inch-diameter pneumatic tires. It weighs about 65 pounds and measures 46 by 22 by 24 inches (with a 12-inch reel).

It takes less than a minute to affix the attachment to or detach it from a HotKick cart. To attach it, just position it under the rear of the HotKick cart,

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raise it into place, slide a connecting rod through the assembly, and push a large hairpin clip pin through one end of the rod. The connecting rod self-stores on the attachment when not in use.

The all-terrain attachment is one of many custom attachments made by Kei Carts, owned by Rodney King and based in Mount Vernon, Illinois. He also builds attachments that make machines such as the Picote Solutions Maxi Miller, RIDGID SeeSnake pipeline inspection cameras and Envirosight cameras easier to transport. (For more information, visit [www.keicarts.com](http://www.keicarts.com) or [www.facebook.com/kei-carts-538860102945234](http://www.facebook.com/kei-carts-538860102945234).)

Witt says the attachment also provides a big assist in weather-related problems, such as snow, along with terrain issues like hills, mud, and sand. "We did a job about two or three weeks ago where there was quite a bit of snow on the ground," he explains. "The attachment definitely helped me get the equipment to the job site, which involved traveling across about 200 yards of snow-covered grass. It took me just a couple minutes. Without the attachment, I would've been snowplowing with the cart."

The company also owns a Dodge 3/4-ton pickup truck, a 14-foot cargo trailer made by Wells Cargo, drain cleaning machines made by Spartan Tool (100 and 300 models), a Clog Squad from the Clog Dog, and a TCM-2000 from GI Industries. Witt relies on the PipePatch system from Source One Environmental to perform point repairs in pipes.

Could Witt work without the attachment? Sure, he agrees. "We're persistent — we'd make it work. But now transporting equipment doesn't press on my mind any more. I know I can get the HotKick where I need it, quickly and efficiently." **C**

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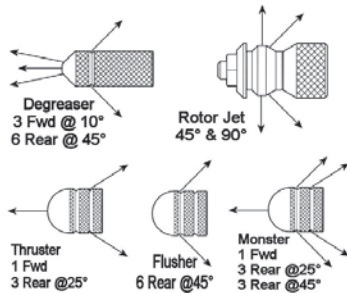


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# Protect Your Workers and Your Bottom Line

Both the direct and indirect costs of a workplace accident can quickly add up

By David Dow

**R**unning a company can be a bit like walking a tightrope. It's all about balance.

When times are slow and budgets are tight, many programs and activities that don't directly benefit production or the bottom line are halted or, at best, reduced. Other times, particularly when times are busy, the No. 1 priority is getting as many projects completed as possible with available resources.

What to cut? What to keep? No doubt, this is a tough assignment for any manager because there are numerous pros and cons for each decision. In too many cases, safety ends up on the "cut" list. It can mean reducing or deferring safety equipment expenditures, personnel and training.

The reason is because of the basic nature of safety: If everything goes as planned, it's business as usual. No accidents. No injuries. That makes it difficult to know whether money spent on safety is really having an effect. Complacency can set in. Safety money gets cut, or at least deferred.

The main argument for safety is obvious — to protect workers from injury and death. But there is a financial argument to make as well. Keeping safety programs, equipment, and training in your budget can, in the long run, be the less expensive route. Studies show that a good safety and health program can save \$3 to \$6 for every dollar invested.

## REAL COST

The direct costs of an injury are familiar: medical treatment, lost-time wages, and property damage. But here's what is really significant. According to a study at Stanford University, indirect costs can be four to five times higher than the direct costs. Indirect costs include:

- Investigative costs.
- Loss of skilled, experienced workers.
- Loss of profit from workers.
- Loss of production and work stoppages.
- Cost of hiring new workers.
- Cost of training new workers.

- Retraining expense for an injured worker.
- Legal expenses and settlements.
- Increased cost of workers' compensation insurance.
- Increased general liability insurance premiums.
- Federal, state and local fines for noncompliance.
- Inability to contract for work, as result of accident history.

The Stanford University study actually found that the less serious the injury, the higher the ratio of indirect to direct costs.

Direct cost	Indirect to direct cost ratio
Up to \$2,999	4.5 to 1
\$3,000 to \$4,999	1.6 to 1
\$5,000 to \$9,999	1.2 to 1
\$10,000 and above	1.1 to 1

## COST CALCULATOR

OSHA has developed a calculator to help you estimate the direct and indirect costs of workplace injuries. And in the case of for-profit companies, the calculator also shows how much additional revenue is needed to offset those costs, based on the profit margin of the company.

To use the calculator, visit [www.osha.gov/dcsp/smallbusiness/safetypays/estimator.html](http://www.osha.gov/dcsp/smallbusiness/safetypays/estimator.html).

The results are very interesting. Here's an example. Let's assume a worker has sustained a simple bone fracture and that the company has a profit margin of 5 percent. Using the calculator, we can determine that the direct costs of the injury are \$50,778 and the indirect costs are \$55,855. That's a total cost of \$106,633. Based on the 5 percent profit margin, the employer must generate \$2.1 million in additional revenue to offset the cost.

Before an injury happens, it can be difficult to see that a crisis might be avoided or an injury prevented simply because of safety training and preparation. But the calculator produces some hard numbers that show the significant impact that overlooking safety can have.

## IT'S LIKE INSURANCE

Think of it like insurance. Would you risk owning a home without homeowners insurance? If something happened and you lost an uninsured home, the financial impact would be devastating. Homeowners insurance is a protective investment — it protects you financially in the event of a loss of one of your largest assets.

An investment in safety works the same way. You are protecting one of your most important assets — your workers. As you can see from the example above, a serious injury or death of a worker can have a devastating financial impact. Keep this in mind the next time safety cuts or deferments are being discussed. **C**

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David Dow is co-founder of Trench Safety and Supply — now part of Underground Safety Equipment — which supplies excavation safety products and services to construction, excavation and, utility companies.

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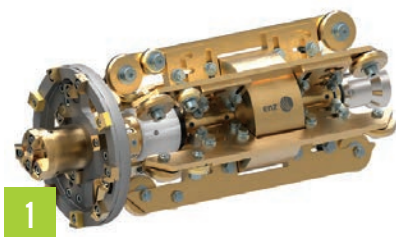


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# Pipe Bursting Methods and Projects

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Designed for city use, the **GapVax HV33** is shorter, smaller, and more compact than its predecessor. It is designed to safely transport water and debris in urban areas. It is 30 feet long overall on a medium-duty chassis and includes a 600-gallon water tank, 6-cubic-yard debris body, 6- or 8-inch boom adjustable from 14 feet to a 17-feet-6-inch boom, 4,000 cfm blower, and inverted fully opening tailgate. 888-442-7829; [www.gapvax.com](http://www.gapvax.com).



#### 5 / HI-VAC X-VAC X-13

The **X-Vac X-13** hydroexcavator from **Hi-Vac** has a 27-inch Hg, high-capacity vacuum system; a 10 gpm at 2,500 psi triplex water pump; a top-loading, 360-degree boom; poly-graphite, rust-free water tanks; a power transfer with OMSI heavy-duty transfer case design; and a noise-deadening, heat-retaining enclosure that surrounds both the water system and the vacuum system. It can carry up to 23,000 pounds, and it can transport and dump debris on site. **800-752-2400; www.hi-vac.com.**

#### 6 / HURCO TECHNOLOGIES HYDROEXCAVATION VACUUMS

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

#### 7 / HYDRA-FLEX RIPSAW

The **Ripsaw** rotating turbo nozzle from **Hydra-Flex** blasts a 0-degree water stream at up to 3,200 psi while rotating at a high speed to provide an 18-degree cone of coverage. Its cone-shaped flow pattern is ideal for potholing applications. The heavy-duty, high-impact nozzles are constructed with stainless steel housings and tungsten carbide wear surfaces to withstand harsh environments and provide long life. Repair kits are available for extended life and lower operating costs. Select from traditional coating (blue) or upgrade to the heavy-duty coating (green), a formulation designed for use in extreme environments. Greater impingement allows users to complete jobs faster or use a smaller nozzle size while getting the same impact as nozzles with higher flow rates. **952-808-3640; www.hydrflexinc.com.**

#### 8 / NOZZTEQ MONRO-JET

The **MONRO-JET** hydroexcavation nozzle from **NozzTeq** combines the power of a solid-stream pencil jet with the large coverage of a fan jet. Its circular

water jet motion generates tremendous power at modest gallons per minute rates, allowing the operator to move faster whether hydroexcavating, surface cleaning or cleaning sewer lines. It can be used for other types of surface cleaning such as concrete, steel, castings and large surface areas including line removal from runways. It can be modified for internal pipe cleaning of sewers and pipes of all types. An orbital design increases performance at a lower gallons per minute rate and pressures as high as 36,250 psi. **866-620-5915; www.nozzteq.com.**

#### 9 / PRESVAC SYSTEMS HYDROVAC

The versatile **Presvac Systems Hydrovac** is designed for cold weather operation with optional full compliance with DOT specifications for collection or transportation of hazardous materials. The high-vacuum blower allows extraction of all types of soils, gravel, rock, clay, water and silt material, with knockout features in the debris tank minimizing carryover. Modular filtration configured to blower size provides blower protection and minimal maintenance. It comes with a heavy-duty, 8-inch boom that extends up to 25 feet, with six-way hydraulic power and wireless controls for all boom functions, soft-start water pump, vacuum breaker and truck engine speed. **800-387-7763; www.presvac.com.**

#### 10 / RAMVAC BY SEWER EQUIPMENT HX-12

The **HX-12** hydroexcavator from **Ramvac by Sewer Equipment** has a 12-yard debris tank and a temperature-controlled environmental chamber that contains the entire water system, including water tanks. A directional discharge system allows the operator to off-load debris back into the excavation site when finished, without the mess of dumping the tank. This system also allows operators to blow any obstructions out of the dig hose. It includes a long-range wireless remote, NEMA 4 electrical system, a 900,000 Btu water boiler and a three-stage cyclonic filtration system. The standard 4,400 cfm blower delivers fuel economy. It is available with a RamAir air excavation system touting a 185 cfm at 150 psi air compressor for when the operator can't risk adding water to the problem area. **877-735-4640; www.ram-vac.com.**



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#### 11 / RIVAL HYDROVAC T7

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

#### 12 / SOIL SURGEON HYDROEXCAVATING TOOL

The Soil Surgeon hydroexcavating tool fits any sewer combination truck equipped with a telescoping 6- or 8-inch boom. The tool has a 1-inch water connection. The operator controls water pressure and power-through truck controls. It has a 6-foot Tuff Tube with handles to guide the unit down for potholing or side to side for trenching. Six jets boring inward cut the soil, while six boring outward bring the tube down. 949-363-1401; [www.soilsurgeoninc.com](http://www.soilsurgeoninc.com).

#### 13 / SOUTHLAND TOOL REDUCER CUFF

The Reducer Cuff from Southland Tool solves the problem of getting large rocks and material stuck in 8-inch tubes, top-mounted elbows, horizontal hoses and telescopic extensions. Blocked debris can cut off suction flow and overheat the pump, requiring workers to stop to disassemble tubes to locate and remove the blockage. The 8-by-6-inch unit attaches to the 8-inch flat flange or other connection and then reduces to a 6-inch steel pipe with a 6-inch Kanaflex 180 AR hose bolted to it. This allows the user to dig and not damage utility lines while avoiding sucking up anything larger than 6 inches. It is easy to store at just 10 pounds and 17 inches tall. 714-632-8198; [www.southlandtool.com](http://www.southlandtool.com).

#### 14 / STONEAGE HXR-300 ROTARY HYDRO-X

The HXR-300 Rotary Hydro-X nozzle from StoneAge uses an angled rotating jet pattern that’s designed to decrease jet dwell time and reduce undercutting for effective work around utilities. Users can save labor hours and heavy-equipment costs, all while avoiding the risk of damage to buried utilities. It is fully rebuildable, allowing the operator to reduce cost of ownership by extending the life of the tool with minimal, low-cost maintenance. There are three jetting options available for a variety of applications: higher flow for harder surfaces, intermediate flow for general use, and lower flow for water savings. It handles pressures up to 5,000 psi and flow rates from 3.5 to 10 gpm. 866-795-1586; [www.stoneagetools.com](http://www.stoneagetools.com).

#### 15 / SUPER PRODUCTS MUD DOG 1200

The Mud Dog 1200 12-yard-debris-capacity hydroexcavator from Super Products has a rear-mounted boom capable of a 19- to 27-foot reach, 335-degree rotation, 45-degree upward and 25-degree downward pivot. This range of boom motion allows crews to achieve greater work area access and deeper digging without halting production to reposition the trunk. Easy-to-use ejector plate unloading technology provides fast, thorough and safe debris removal. A tilt-unloading feature ensures liquids in the debris tank are cleared quickly and efficiently, even when unloading in an up-slope/nose-down position. Options include the Acculevel load-sensor system for precise debris tank level measurement. 800-837-9711; [www.superproductsllc.com](http://www.superproductsllc.com).

#### 16 / SUPERVAC ATLAS

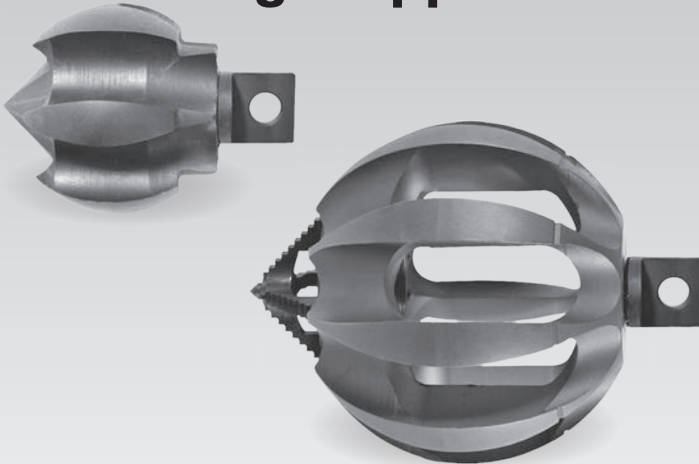
At 31 1/2 feet, the Atlas hydroexcavation trailer from Supervac offers the compact versatility of a regular vacuum truck, with a high payload capacity of 49,400 pounds. It is easy to maneuver with its tight turning radius and solves road weight limit issues. It comes equipped with a flashing arrow and LED working light, full-opening rear door, protection arm and LED light, a hydraulic door lock, 3,600-gallon carbon-steel debris tank and baffle, and a catwalk access ladder and handrail. Its six side-mounted and evenly distributed plastic water tanks (three on each side) have a total capacity of 1,500 gallons. It runs off the chassis engine of the tractor being used to haul the trailer. The unit’s top-loading boom offers 320-degree rotation, extension of 25 feet, an 8-inch flex hose, top access door and protection elbow. 866-839-5702; [www.supervac.co](http://www.supervac.co).

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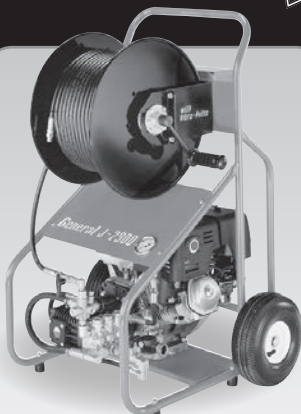
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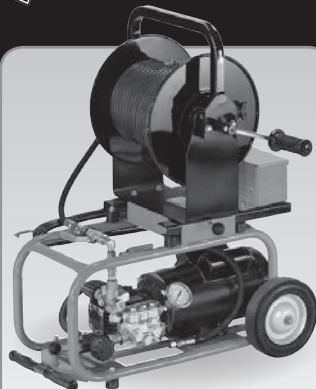
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#### 17 / SUTTNER AMERICA STATIC HYDROEXCAVATING NOZZLE

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

#### 18 / TORNADO GLOBAL HYDROVACS F4 ECO LITE

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

#### 19 / TRANSWAY SYSTEMS TERRA-VEX HV38

The **Transway Systems Terra-Vex HV38** has a 12-yard debris tank with onboard scales, allowing a driver to load the tank worry-free. It includes a large debris tank for those light loads, saving time and money, complete with a 26-foot-by-8-inch telescopic boom. It has a simple one-touch-operated hydraulic half-door with a 3,800 cfm at 27-inches Hg hydraulically driven blower. Water pressure is achieved with a hydraulically driven triplex pump, delivering 10 gpm at 3,600 psi from a 1,000-gallon HDPE baffled water tank. The water is heated with a 420,000 Btu diesel-fired burner for cold-weather operation. 800-263-4508; [www.transwaysystems.com](http://www.transwaysystems.com).

#### 20 / VAC-CON X-CAVATOR

The **X-Cavator** from **Vac-Con** is powerful, durable and easy to operate. It comes fully loaded and features a hydrostatic drive that uses the chassis engine for the vacuum, creating a more efficient system that eliminates the

need for PTO, clutch and gearbox operation. It is available with water systems up to 4,000 psi and a mobile, wireless remote-control system that enables the operator to work the chassis engine revolutions per minute, boom, automatic vacuum breaker, dump controls and hydraulic door locks from remote areas up to a 1/2 mile. The boom rotates up to 270 degrees. 904-284-4200; [www.vac-con.com](http://www.vac-con.com).

#### 21 / VACALL - GRADALL INDUSTRIES ALLEXCAVATE COLD WEATHER PACKAGE

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

#### 22 / VACTOR PARADIGM

The **ParaDIGm** vacuum excavator from **Vactor** is designed for utility, municipal and contractor customers involved in the installation, maintenance and repair of underground water, sewer, gas, electric and telecommunications lines. This compact, multiuse truck can dig holes with water or air; vacuum, contain and dispose of drill mud; power pneumatic, hydraulic or electrical tools; and provide transport and storage of replacement parts, equipment and tools. The truck's Park-n-Dig design minimizes the time between arriving on the job site and excavation, including the ability to dig up to 6 feet in depth without additional pipe and hose. Its air compressor powers utility tools such as jackhammers and tampers that may be used on the job. The truck offers substantial storage space for these tools, including a long-handle toolbox. It can also tow up to 20,000 pounds. 800-627-3171; [www.vactor.com](http://www.vactor.com).

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### 23 / WESTECH VAC SYSTEMS WOLF

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

## PIPE BURSTING TOOLS

### 24 / POW-R MOLE TRENCHLESS SOLUTIONS MODEL PD-33M

The model **PD-33M** pipe bursting machine from **Pow-r Mole Trenchless Solutions** is designed to replace existing underground pipes 2 to 6 inches in diameter. Its nonslip cylinder-activated jaws prevent cable damage while providing 60,000 pounds of pulling force. It offers a cost-effective alternative to open-cut excavation, which reduces customer disruption and increases company profits. The process replaces the existing pipe with a fused HDPE pipe, which eliminates all joints, and allows the operator to pull through bends such as 45-degree fittings. This system is modular and can be easily disassembled and reassembled for manhole and basement applications. With a compact design and very small footprint of only 20 by 20 inches, this unit can be used in tight locations. **800-344-6653; www.powrmole.com.**

### 25 / SPARTAN TOOL UNDERTAKER

With 30 tons of lateral pulling force, the **UnderTaker** pipe bursting system from Spartan Tool employs a hydraulically powered cylinder that pulls a bursting head through the existing line while simultaneously replacing it with seamless, high-flow, code-approved high-density polyethylene pipe. With a small hole at each end of the run, the user can pull pipe from the building to the main, accommodate bends in the pipe, increase diameter, and lay new line at a rate of up to 5 feet per minute. The system allows replacement of 2- to 6-inch pipe with up to three 45-degree bends in the pipe. It can also upsize from 4- to 6-inch pipes. When assembled, the unit weight 210 pounds, but it disassembles into four separate components for easy transport, with no part weighing more than 70 pounds. **800-435-3866; www.spartantool.com.**

## SHORING

### 26 / ULTRA SHORE TRENCH BOXES

Lightweight **Ultra Shore Trench Boxes** are constructed from corrugated lightweight aluminum that is easy to transport, set up, and use, making them a time- and money-saving option for plumbers, municipalities and utility contractors. All panels can be used horizontally or vertically and are stackable up to 12 feet in Class C soils. The boxes can easily be transformed into a three- or four-sided application with the use of quick-release end closure panels. Other accessories include our 2-foot leg kits and wheel kits to help take full advantage of OSHA regulations. **800-746-7464; www.shoring.com.**

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# Pipe Bursting Methods and Projects

By Craig Mandli

## PIPE BURSTING EFFECTIVE IN SANDY SOIL, HIGH WATER TABLE

**PROBLEM** / The city of Seymour, Indiana, lies about 10 feet lower than the land around it. Therefore, any work at depths greater than 5 feet generally requires a week of dewatering prior to breaking ground. Yet even dewatered, excavating in close proximity to building foundations is risky. When a blockage occurred in one neighborhood's 16-inch asbestos-cement gravity sewer main, the city called Lawyer Excavation for the repair.

**SOLUTION** / For this job, **HammerHead Trenchless** specified an **HB125** static pipe bursting system, designed for use in pipe diameters 6 to 20 inches with 125-ton pullback capacity. It includes a downhole pulling unit and 4,500-psi hydraulic powerpack. Dewatering continued steadily for one week before the burst. Lawyer Excavation then fused up the 560-foot length of HDPE pipe on the surface two days in advance. The crew pulled the pipe into position, fusing it to the pipe puller on the bursting assembly. Ahead of the fuse-on puller was the expander, which would cut the pipe open and expand the pipe path about 25 percent larger than the 14-inch DIPS HDPE replacement pipe's O.D., reducing friction. The pipe pilot and swivel connection completed the bursting assembly. The HB125 pressure gauge read 90 tons as the expander engaged the old pipe, then subsided to approximately 50 for most of the burst. At times, all 125 tons of pullback capacity was briefly called upon.

**RESULT** / Lawyer Excavation completed the run in just three hours. 800-331-6653; [www.hammerheadtrenchless.com](http://www.hammerheadtrenchless.com). c



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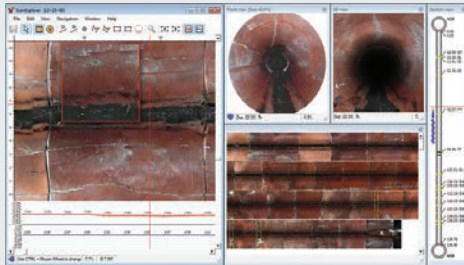
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## SPOTLIGHT

### ScanExplorer allows easy analysis of side-scanning data

By Craig Mandli

Pipeline video inspection is an essential tool, but the technology does have limitations. For instance, personnel using live video are often required to stop the inspection immediately if they detect a defect. Those disruptions mean more time and money.



The ScanExplorer module for the WinCan VX inspection software lets the user view and analyze side-scans and laser profiling data following the inspection. Side-scanning technology is used to image the interior of sewer pipes without relying on video, capturing the entirety of a pipe wall as a single high-res image, allowing engineers to quickly evaluate condition and identify defects.

“Inspections are only as useful as your ability to analyze them,” says Mike Russin, business manager for WinCan in the Americas. “Side-scan technology focuses equipment operators on what they do best.”

There are two major benefits to side-scanning. Not only does it speed up the inspection — as the equipment operator doesn’t have to stop to pan, tilt, or zoom — it also speeds up analysis. Engineers and supervisors do not need to sit through video footage, pausing and rewinding to view problematic places.

The ScanExplorer add-on module for WinCan VX inspection reporting and asset management software lets users navigate scans for rapid review, measure and annotate defects, and generate reports at the click of a button. Additional data captured during side-scanning, such as inclination and temperature, can be plotted alongside the scan. The module also lets users view side-scans as virtually rendered environments. For instance, it can present a forward view of the pipe through which an analyst can advance at any desired speed. Alternately, the pipe can be viewed as a virtual 3-D model in which the analyst can freely pan and tilt.

“The module lets engineers and analysts review scans more efficiently, pinpointing problems, zooming in for greater scrutiny and making annotations that are easy to share and archive,” Russin says.

ScanExplorer can also present laser profile data, helping analysts visualize pipe ovality and geometric features. When paired with WinCan software, the module helps transform raw inspection data into the information municipalities and contractors need to make maintenance decisions. The software’s measurement tools help quantify defects, and sophisticated search capabilities filter observations by any combination of criteria. Its report generator automatically summarizes inspection findings using a standard or user-defined template. The software also includes native support for GIS mapping and 3-D imaging. 877-626-8386; [www.wincan.com](http://www.wincan.com).



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### 1 RIDGID THERMAL IMAGERS

Thermal imagers from RIDGID are ideal for locating electrical issues, hidden moisture, overheating motors, insulation voids and thermal bridges. The product line includes four imagers: RT-3, RT-5x, RT-7x and RT-9x. They range from providing 160 x 120 to 320 x 240 pixel thermal images. Using pixel shift technology, SuperResolution effectively doubles the resolution of the camera for saved images, allowing greater detail to detect anomalies. The RIDGID Thermal App creates and shares reports from the thermal imager onto a mobile device. With e-Assist, via the integrated digital camera, the imager recognizes a placed reference sticker, determines emissivity and reflected temperature, and sets both values automatically. 800-769-7743; [www.ridgid.com](http://www.ridgid.com).

### 2 WATER CANNON INC. - MWBE 12-VOLT FLUID TRANSFER PUMP

The EF4000 Everflo 12-volt diaphragm pump from Water Cannon Inc. – MWBE is ideal for fluid transfer applications, agricultural sprayers and spot sprayers. The lightweight and versatile pump comes equipped with a polypropylene housing and valve plate, Viton valves, and a Santoprene diaphragm. It also features a low-demand switch that automatically turns the pump on and off, as flow is required. This feature eliminates the need for a pressure regulator or bypass valve, making it more efficient. Power is only used when the pump flow is in demand. It is self-priming up to 8 feet and has a maximum fluid temperature of 140 degrees F. 800-333-9274; [www.watercannon.com](http://www.watercannon.com).

### 3 A.Y. MCDONALD TELESCOPING METER FLANGE

With a retractable flange that allows for an extra 1/4 inch of room, A.Y. McDonald’s Telescoping Meter Flange makes meter installation and replacement easy. Available in 2-inch straight and angle FNPT by flange ball valves, this product also contains two EPDM O-rings that seal the flange to the valve body and four 304 stainless steel shoulder screws that contribute to the robust design. 800-292-2737; [www.aymcdonald.com](http://www.aymcdonald.com).

### 4 MILWAUKEE RUBBER KANAFLEX KANABOOM LITE

Kanaflex KanaBoom Lite, distributed by Milwaukee Rubber, is a medium-duty wet and dry material handling vacuum hose with a static dissipative polyurethane liner. It is usable in temperatures ranging from -40 to 140 degrees F, and is ideal for industrial vacuum equipment, roof vacuuming, dry fertilizer and pet-coke. It has a flexible abrasion-resistant polyurethane liner, rigid PVC helix, and has a smooth bore with a PVC corrugated outside diameter with static dissipating materials. It is lightweight and flexible in subzero temperatures. Its abrasive-resistant polyurethane tube provides an increased life span, prevents material buildup and provides quiet operation. 800-325-3730; [www.milwaukeeerubber.com](http://www.milwaukeeerubber.com). **C**

### Valley Industries acquires Comet USA

Valley Industries, based in Paynesville, Minnesota, announced it has acquired Comet USA, a distributor of industrial high-pressure plunger pumps and accessories. Comet USA, based in Burnsville, will now be known as Comet Industrial Pump Division.

### Parent company of Liberty Financial division of Navitas Credit Corp. signs merger agreement

The parent company of Liberty Financial division of Navitas Credit Corp. signed a merger agreement with United Community Bank. Navitas will operate as a subsidiary of United Community Bank, and the current management team will continue to lead the organization.

### VersaFlex and Raven Lining Systems merge

VersaFlex and Raven Lining Systems announced that the two companies merged effective Jan. 1, 2018. The new company plans to expand and build on the combined expertise in polyurea, polyurethane, epoxy and cementitious technologies.

### Dwyer Group expands world headquarters

Dwyer Group held a grand opening in celebration of a new, three-story, 18,000-square-foot building in Waco, Texas. The expansion, adjacent to the company's headquarters, brings the corporate team to one location including the executive offices, accounting and marketing departments. **c**



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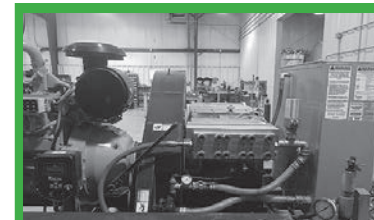
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