

dig DIFFERENT

Think outside the bucket

PRODUCT FOCUS:



32



SHOP TALK:

**FINDING THE
RIGHT PIPE
FOR YOUR
DIRECTIONAL
DRILL**

30

FOLLOWING THE TRACKS

Hydrovac company finds
unique solution to help its clients

12

PROFILE:

**SERVICE DIVERSITY KEEPS
CUSTOMERS COMING FOR
COLORADO CONTRACTOR**

18

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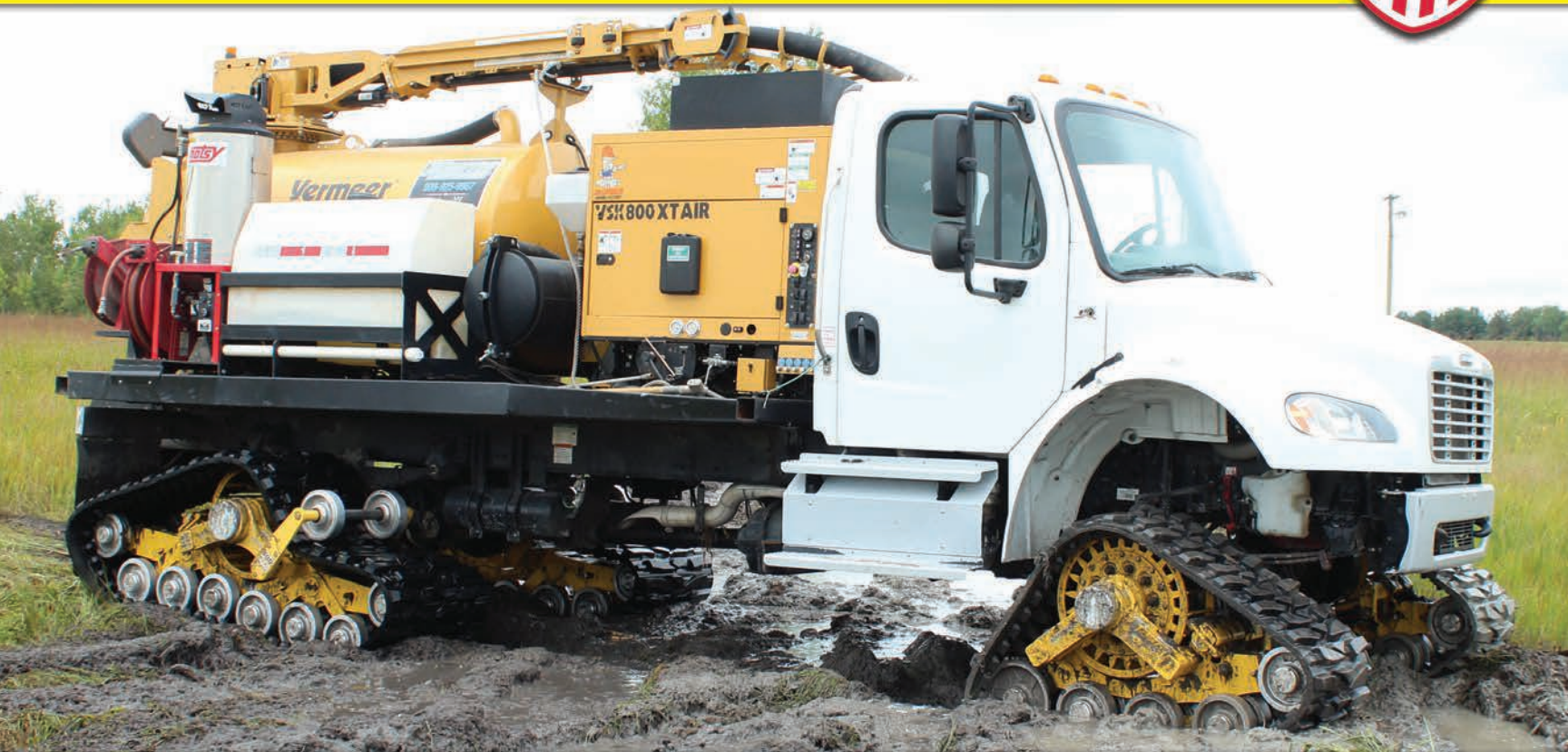


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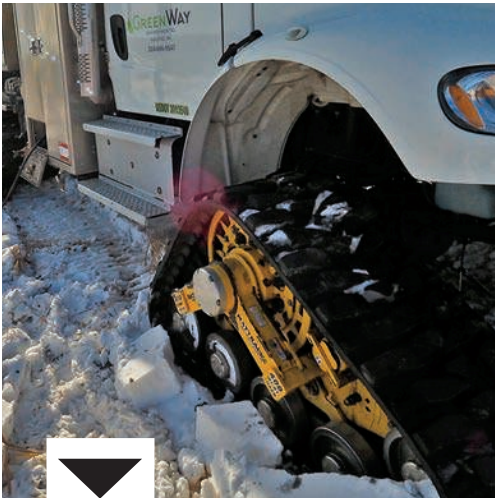
Contents

MARCH 2019

Think outside the bucket

digDIFFERENT

FOCUS: No-Dig Show Issue; Piercing, Bursting, Tunneling and HDD



FEATURES

- 18 PROFILE: HYDROEXCAVATION**
Living the High Life
Snowbridge Inc. builds a solid year-round business by adding pipe and hydroexcavation services in Colorado's Rocky Mountains.
By Ted J. Rulseh
- 32 PRODUCT FOCUS:**
Piercing, Bursting, Tunneling and HDD
By Craig Mandli
- 39 SUCCESS STORIES:**
Piercing, Bursting, Tunneling and HDD
By Craig Mandli

- 37 SAFETY FIRST:**
The Difference Between Life and Death
For contractors, having a plan in place for emergencies is a must for saving lives and keeping everyone on the same page.
By Jared Raney
- 38 SMART BUSINESS:**
Setting Prices or Staking Out Territories With Competitors Can Be a Felony Offense
Collusion is a clear and present danger when neighboring pumping companies get together and talk business. Handle these relationships carefully.
By Erik Gunn

COLUMNS

- 9 BELOW THE SURFACE:**
Education Is Part of the Game
Learning lessons from other contractors and engineers could prove beneficial in upcoming jobs for your company.
By Cory Dellenbach
- 24 DOWN & DIRTY:**
Historical Challenges
Engineer, contractor, city work together to find a better solution than opencut while navigating around historical structures.
By Cory Dellenbach

IN EVERY ISSUE

- 10 @digdifferent.com**
Visit daily for new and exclusive content.
- 40 The Latest: Products**
This Issue's Feature: Bring a versatile pull head to the job site
By Craig Mandli
- 42 The Latest: News**
- 42 Happenings**

COVER STORY

- 12 PROFILE: HYDROEXCAVATION**
Following the Tracks
Minnesota's GreenWay Environmental finds a unique solution to helping its customers in environmentally sensitive areas.
By Cory Dellenbach

ON THE COVER:

Keith Kiehl, GreenWay Environmental operator, potholes a pipeline on the outskirts of Karlstad, Minnesota, using the company's 2017 Freightliner equipped with a Vactor ParaDIGm HXX hydroexcavator and Mattracks 400 Series rubber track conversion system treads. (Photography by Brad Stauffer)

- 28 TECH PERSPECTIVE:**
Going Mobile
Mobility and coordination are cornerstones of successful construction, now made easier with mobile apps.
By Jared Raney
- 30 SHOP TALK:**
Drill Pipe Considerations
Reduce productivity roadblocks before HDD jobs begin.
By Cory Maker

NEXT ISSUE: April 2019

FOCUS: Site Preparation and Remediation

- Profile: JG Environmental (Lancaster, Pennsylvania)
- Tech Perspective: Simulator training
- Safety First: Cooperation with cross bores prevents catastrophe

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Advertiser Index

March 2019

American Augers	11	Milwaukee Rubber Products, Inc.	31
Fat Pumps	2	Radius HDD	7
Cleral USA On Board Scales	35	Rival Hydrovac Inc.	29
Ditch Witch	back cover	UltraShore	35
Easy Kleen Pressure Systems	31	Vac-Con, Inc.	5
GapVax, Inc.	43	Vactor Manufacturing	8
Imperial Industries, Inc.	17	VANAIR MFG	27
Kondex Corporation USA	27	Water Cannon, Inc. - MWBE	6
Lee Supply Company, Inc.	25	Marketplace	41
Matracks, Inc.	3		



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Education Is Part of the Game

LEARNING LESSONS FROM OTHER CONTRACTORS AND ENGINEERS COULD PROVE BENEFICIAL IN UPCOMING JOBS FOR YOUR COMPANY

BY CORY DELLENBACH, EDITOR

The warmer weather is now in sight for many of us as spring quickly approaches. That means work is about to pick up and you'll be busy all summer.

There's still time though to fit in some learning for you and your crews, and there's no better place to do that than at the North American Society for Trenchless Technology's (NASTT) No-Dig Show this month.

I know, I know. Sitting in a conference room full of people and learning doesn't sound fun, but hear me out. At this show you get to learn about case studies of jobs that are either in process or completed. You get to find out how these engineers, contractors and municipalities are dealing with the same job site challenges that you are probably going to face yourself this upcoming busy season.

This year's show, being held March 17-21 at the Donald E. Stephens Convention Center in Rosemont, Illinois, will feature six industry track sessions focused on both installation and rehabilitation. Morning and afternoon blocks give attendees the chance to attend several different sessions.

Topics include pipe bursting, tunneling, pipe ramming, cured-in-place pipe, condition assessment and horizontal directional drilling.

LEARNING FROM OTHERS

The Down & Dirty feature in this issue actually is from a session at the 2017 No-Dig Show. The engineering company, AECOM, was hired to put in new sewer lines in Norfolk, Virginia, and because of historical buildings and other obstacles, it was decided to use HDD on a portion of the install rather than open cut.

The HDD portion went past a historical church and crews went through extra steps to ensure nothing happened to that church during the work.

It took hard work and good communication with city officials to convince them that things would go OK, but the crews were able to accomplish the job and save the city some money.

THE VALUE OF LISTENING

It's projects like this that you'll hear about at No-Dig. Listen to what those presenters are saying. Their solutions

to the tough and unique jobs that are being discussed will help you down the road. Whether it's only a portion of what they told you or the whole thing, you'll gain valuable insight and might look at some of your upcoming jobs a little differently.

Speaking of listening, it's important to do that whenever you can. Listen to your employees, co-workers and even your customers.

Troy Peterson, owner of GreenWay Environmental in northern Minnesota, listened to his customers when he started his hydroexcavation company six years ago. They wanted him to be able to work in swampy areas where most trucks can't go. He listened and gave them what they wanted.

His company now has three hydrovac units that are outfitted with tracks to accommodate swampy areas. It has saved his customers money and has also saved Peterson time on the job, allowing him to take on even more work.

Taking time to listen to people is a necessity. Practice it at the No-Dig Show, and then bring that home to your company and your customers. You'll be amazed by what it can do for your business.

CATCH UP WITH ME

I'll be at the No-Dig Show and would welcome a visit from you. You can email me at editor@digdifferent.com. Or visit us at Booth 834 during the show floor hours each day.

Enjoy this issue! ▼



SPEAKING OF LISTENING, IT'S IMPORTANT TO DO THAT WHENEVER YOU CAN. LISTEN TO YOUR EMPLOYEES, CO-WORKERS AND EVEN YOUR CUSTOMERS.

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INDUSTRY EVOLUTION

How Tech is Changing the Equipment Rental Market

Construction equipment is advancing with the advent of new technology, giving contractors the tools to work as smartly and safely as possible. It's also changing the rental market. This online exclusive takes a closer look.

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EMPLOYEE MANAGEMENT

Contractor Avoids Micromanaging


As a business owner, it can be tempting to want to have control over every single aspect of operations. But as Brass Inc. of Utica, Ontario, shows, it's better for the overall success of the company if workers have a degree of autonomy. Brass Inc. was profiled in the magazine in 2018, and in this online exclusive you can read more about its employee management philosophy.

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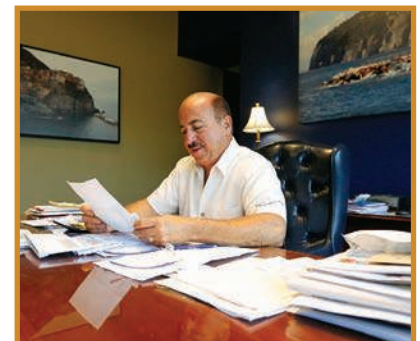
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ENTREPRENEURSHIP

How to Draft a Business Plan

If you've been someone else's employee long enough in this industry, sometimes you get the urge to head out on your own and join the world of small-business ownership. The first step is creating a business plan, something that can take a long-term view and serve as a guiding light as you get your company started. This online exclusive provides some advice to keep in mind.

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Keith Kiehl, GreenWay Environmental operator, moves the Vactor ParaDIGm HXX's boom into place on a job site.



HYDROEXCAVATION

Profile

FOLLOWING THE TRACKS

MINNESOTA'S GREENWAY ENVIRONMENTAL FINDS A UNIQUE SOLUTION TO HELPING ITS CUSTOMERS IN ENVIRONMENTALLY SENSITIVE AREAS

STORY: CORY DELLENBACH PHOTOS: BRAD STAUFFER

Troy Peterson doesn't like to sit around doing nothing for very long. When he sold his interest in a steel recycling operation, he knew he needed to find something new to fill his time.

After talking to his brother, who works for an oil company, he found it: owning a hydroexcavation company.

"I was just going to go simple with no employees and stay small and just have fun," Peterson says. "I started with one truck, and that didn't last long."

Six years after starting GreenWay Environmental in Karlstad, Minnesota, with just one truck and himself, Peterson has grown his company to five trucks and five employees. There are plans to add two more employees and more trucks this spring.

"We're just a small company, but we're making a big impact out here," Peterson says.

"I WAS JUST GOING TO GO SIMPLE WITH NO EMPLOYEES AND STAY SMALL AND JUST HAVE FUN. I STARTED WITH ONE TRUCK, AND THAT DIDN'T LAST LONG."

Troy Peterson

VARIOUS WORK

That "out here" is in a little corner of northwest Minnesota, near the border of North Dakota and Canada. However, Peterson says he will work in any of the 50 states.

Most of his work, though, keeps him in his immediate service area, working along pipelines for oil and gas companies, and potholing of utilities.

"We do the city work, waterlines and sewer lines," Peterson says. "That's the normal day-to-day stuff. Then we do all the pipeline work, the station work, the big digs and then all the potholing of stuff out of the stations."

Keith Kiehl potholes a pipeline using the company's Vactor ParaDIGm HXX hydroexcavator equipped with Mattracks 400 Series rubber track conversion system treads to maneuver through the wetlands.

Most of his current customers have used his services since he first started GreenWay Environmental. It didn't take long for his business to grow.

After starting with one Vactor HXX 2112, he now has two of those machines with 12-cubic-yard debris tanks, one Vactor ParaDIGm unit (3-cubic-yard debris capacity), a Vermeer VSK 800 vacuum excavator, and a Westech Vac Systems unit that he took possession of in late February.

Peterson says he'll also be buying an oil-vac truck in the near future as well to bring his total to six trucks.

"I knew the company was going to grow fast; that's just the way things go with me," Peterson says. "There's really no half-throttle. We just do it, but we do it really well. I have very, very good relations with my customers, and we take care of them."

Peterson believes that is one of the reasons why his customers like



The team at GreenWay Environmental includes, from left, Keith Kiehl, operator; Jamie Reese, business manager; Mark Agre, laborer; Troy Peterson, CEO; and Justin Blazejewski, operator. From left, the vehicles are a 2014 Freightliner equipped with a Vermeer VSK 800 vacuum excavator; a 2011 International and a 2006 International, both equipped with a Vactor HXX 2112 vacuum excavator; and the company's flagship, a 2017 Freightliner equipped with a Vactor ParaDIGm HXX hydroexcavator and Mattracks 400 Series rubber track conversion system treads.

GreenWay Environmental Karlstad, Minnesota

OWNER: Troy Peterson
EMPLOYEES: 5
SERVICES: Anything hydroexcavation related, structural and building moving, crane rental, soil reclamation
SERVICE AREA: Mainly northwestern Minnesota, but does travel throughout the U.S.
WEBSITE: www.greenwayvac.com

No advertising needed

Troy Peterson has never advertised for GreenWay Environmental. He's never needed to.

"I'd be scared to advertise," says Peterson, owner of the hydroexcavation company based in Karlstad, Minnesota. "I don't like saying no, and if you advertise, you have everyone calling."

Even without advertising, GreenWay Environmental crews are staying busy. In fact, last summer proved to be a challenge.

"We were so busy we were having a real tough time keeping up," Peterson says. "There were only three jobs that I couldn't cover, and I felt so bad that I couldn't cover those three jobs."

Peterson doesn't like to be in those situations, saying normally he can just move things around on his schedule thanks to understanding and flexible customers, but it just couldn't happen with those three jobs.

"That's why I'm scared of advertising," Peterson says. "I can't forget about my core customers that have been with me since I started and fed me work."

Peterson has seen changes, though, in the industry in the last six years from when he first started. One big change is he is charging cheaper rates to keep up with the competition.

"You have to keep your rates in line with everybody else," Peterson says. "I'm all union and we'll go to some nonunion jobs and compete with companies that are paying nonunion, and it's really, really hard. Sometimes it's a little tough to compete."

working with his company — his and his crew's willingness to get out and work with the foremen and lend a hand if needed.

Beyond the hydrovac work, the company does reclamation work, as well as building and structural moving. It also just recently acquired a crane and will rent that out to customers.

UNIQUE EQUIPMENT FOR UNIQUE WORK

Working for oil and gas companies provides some challenging environments, many of which include swamps, where gaining access for big hydrovac units can be difficult.

"I was in my second year of running the company when a gas company gave me a pile of work and I was going to do all the hydrovac on these digs,

"THE TOUGHEST PART WITH US IS THEIR JOB AND BEING AWAY FROM HOME. IT GETS TOUGH. SOMETIMES THEY'RE ON THE ROAD AWAY FROM FAMILY FOR A MONTH AT A TIME. YOU JUST HAVE TO WORK WITH THEM AND TRY TO TAKE CARE OF THEM."

Troy Peterson

but it started raining," Peterson says. "They didn't have it in the budget to bring in big mats to get my big truck in."

Peterson says it made him think about ways to get that work he was missing out on because of the size of his current trucks.

"That's when I teamed up with Mattracks and we started talking about putting tracks on a hydrovac unit," Peterson says. "They had never built a track that big for that type of application for something that heavy. I told them that I thought it was something we need to do."

Mattracks and GreenWay Environmental came up with what Peterson now has on his ParaDIGm unit — 400 Series rubber track conversion system treads.

"It was strictly because I was tired of losing work because I couldn't get my big truck into these fields," Peterson says. "The first job I used them on was



Troy Peterson, GreenWay Environmental CEO

for an oil company. They were rerouting this pipe, and they had me come in there. They had budgeted for a month and a half with the big truck to do all this hydrovac work."

Peterson, however, came out with one of his tracked units and knocked off the job in two days, without putting a mat down. Thanks to that job, GreenWay Environmental now does more work for the oil company.

"Now we go to these jobs in Nebraska with the tracked truck and we do all the off-station work that leads into work for the big trucks," Peterson says. "They just hire me for everything."

ADDING THE FIFTH TRUCK

It's no secret that Peterson is excited about his newest hydrovac unit from Westech. It was a must-have truck with more work coming from the oil and gas companies. The small ParaDIGm is nice, but having a larger truck still capable of getting in those tough areas was important, he says.

That's why Peterson worked with Westech in the last year to design the hydrovac unit for his company. The new truck is a 9-cubic-yard tandem that stays under the legal road limit when full.

The truck, which can be fitted with tracks, has a hydraulically driven Roots (Howden) 624 blower (300 cfm, 16-inch vacuum). Ben Schmidt, Westech general manager, says the truck looks like a baby brother to a Westech Wolf, with side-mounted aluminium water tanks (with 1,000-gallon total capacity).

(continued)

GreenWay Environmental is the first company to have the new truck, allowing Peterson to get the truck into the field and prove its performance before Westech goes to market with it, according to Schmidt.

"I'm a Vactor and Westech guy," Peterson says. "They're the companies that will, at all costs, get you up and running. I've been hollering and hollering for years that we need a legal tandem. I'm glad they reacted."

Peterson says from this point forward, he will only be getting the 9-cubic-yard trucks for his company because of the weight issue.

FINDING THE HELP

Peterson knows he could grow his company even more, but one of the challenges he faces — much like the rest of the industry — is finding the employees, especially in northwestern Minnesota.

"I have a tough time getting guys," Peterson says. "We're all union here, and the available employees are used to working a job, getting laid off and going."

Peterson, however, says he has never laid off any of his employees and likes to hire full-time, local people.

"I try to get them younger and bring them into the company and train them, and hopefully they stick around for a while," Peterson says. "The toughest part with us is their job and being away from home. It gets tough. Sometimes they're on the road away from family for a month at a time. You just have to work with them and try to take care of them."

As far as keeping those good employees, that's the easy part: "I pay them very, very well, and I take care of them," he says. "I have a three-unit condo that I moved in for them in our small community of 800. I own a lot of houses and I provide them with housing if they need it. They get company pickups. I just take care of them. I'm nothing without my employees. I just take very, very good care of them; pay them very well."

SLOW AND STEADY

Peterson is careful not to grow too fast. He's seen what happens when companies have.

His plan is to add a couple more trucks in the future, with a goal of up to eight trucks. One of his first additions will be a liquid-vac truck to test that market this year. ▼



"I'M NOTHING WITHOUT MY EMPLOYEES. I JUST TAKE VERY, VERY GOOD CARE OF THEM; PAY THEM VERY WELL."

Troy Peterson

Operator Justin Blazejewski checks the air filter on the company's 2006 Vactor HXX 2112.



Troy Peterson checks in with Keith Kiehl, who takes a break from potholing a pipeline. Peterson drives a 2002 Jeep Liberty, outfitted with MatTracks EZ HD track conversion system treads.

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STORY: TED J. RULSEH PHOTOS: CARL SCOFIELD

Imagine you're a pumper in a territory with long winters and a short work season, a small permanent population that limits the year-round volume of work and a base of septic system users being eroded by expanding municipal sewer systems.

Bill Tatro III and Chris Tatro faced that scenario with their onsite service business around home base in Breckenridge, Colorado. Their answer: diversify. Their company, Snowbridge Inc., maintains a strong septic system service and repair business but also performs sewer lateral construction, pipe cleaning and maintenance, pipe inspection, cured-in-place pipe lining and hydroexcavation.

Their pipe services touch the residential, commercial and industrial sectors. Their two Roto-Rooter franchises serve five counties around Breckenridge. They do it all with an experienced 16-member team, which they retain with competitive pay and a complete benefit package.

"In the main counties we serve, the septic business is shrinking, and over time it's going to shrink even more," Bill Tatro says. "In the town where most of the septic systems are, the local sanitation district has been aggressive in extending sewer services. So we're really trying to grow other areas of our business. We see a definite growth path in municipal and industrial services, and we want to expand our trenchless repair business as well."

DIVERSITY SPELLS SUCCESS

Snowbridge provides many services beyond hydroexcavation, including drain cleaning; septic tank pumping; septic system installations, repairs and inspections; grease trap cleaning; and trenchless pipe repair. Drain cleaning and trenchless pipe repairs account for about 70 percent of the company's annual gross revenue; septic and grease trap pumping account for the remaining 30 percent.





“SERVICE DIVERSITY KEEPS YOUR CUSTOMERS FROM LOOKING AROUND AND HIRING SOMEBODY ELSE BECAUSE YOU CAN DO THE JOB.”

Bill Tatro III

To understand why Snowbridge is so diversified, simply consider the company’s location in Breckenridge, a ski resort community nestled in the Rocky Mountains, about 80 miles west of Denver. Breckenridge is a remote community with a small year-round population that swells when tourists arrive during the skiing season. As a result, Snowbridge must go farther afield for business, catering to customers as far as 75 miles outside of Breckenridge, and offer them a multitude of services to sustain business volume and avoid the bane of contractors: expensive equipment that sits idle.

“We don’t have a lot of any one kind of work to do, so to stay busy year-round, we have to offer a lot of different services,” Tatro says. “We couldn’t survive just pumping septic tanks or doing inspections. Sometimes it feels like we do way too many things, and other times it feels like we don’t do enough.”

Offering diverse services provides other benefits, too. First of all, customers prefer a contractor that offers one-stop shopping because they don’t have to call multiple companies to get work done. Second, it gives the company better control over scheduling because crews don’t have to wait for, say, a tardy excavation subcontractor to arrive for a septic system installation. And third, it creates independent revenue streams that can help offset slow times in other service segments and minimize the need for subcontractors.

“We like to be the only company a customer needs to call,” Tatro says. “What starts off as a drainline problem might turn out to be a broken sewer pipe, which we can fix for the customer and keep that revenue in-house. ... Some of our best jobs come from service calls. Many times, service diversity keeps your customers from looking around and hiring somebody else because you can do the job and do it fast.”

A LONG HISTORY

Snowbridge traces its history back to 1976, when Bill Tatro Jr. and wife, Cheryl, bought a vacuum truck with a

Ever Leon, project supervisor, prepares a Vactor truck to pothole for a gas line. The combination truck allows the company to provide a wider variety of services in and around Breckenridge, Colorado.

Cusco tank on a Ford chassis and started a septic tank pumping business. “My dad was kicking around ideas to start a business,” Bill Tatro III says. “When the old guy who was pumping septic tanks here retired, my dad decided to do that.

“I started working for my dad during the summers when I was 13, in 1986. I worked for him in summer through high school and part of college.” He took a break from college for a couple of years and worked full time in the business in 1994-95. Then he went back to finish a degree with an agriculture major in animal science at Colorado State University.

He came back to the family business for two years after that, left for four years to work in heavy-equipment rental, and then came back for good in 2004. He and Chris Tatro, eight years younger, bought the business in January 2009. By that time, the septic service business was thriving and the Roto-Rooter franchises were well-established.

CASTING A WIDE NET

Snowbridge owners determined long ago that onsite treatment services alone did not make a sound business model. Tatro’s parents established the

two Roto-Rooter franchise 30 years ago. The Roto-Rooter business and the Snowbridge septic services feed business to each other. “We may go out to a septic system for a drain call, and the tank might end up needing to be pumped,” Tatro says.

Other diversification happened gradually, by evolution. The company bought its first box-truck-mounted water jetter (Harben) in 1986 and served mainly commercial customers, often thawing frozen sewer pipes.

Today the company owns a truck-mounted 4,000 psi/25 gpm Rockstar jetter (US Jetting), a van-mounted, propane-fueled 4,000 psi/9 gpm Brute unit (Jetters Northwest) and a trailer-mounted Harben 4,000 psi/10 gpm jetter. For effective jetting, the Tatros prefer Warthog rotating nozzles made by StoneAge.

Over time, the company started doing sewer line repairs after finding broken pipes on jobs. Next came CIPP lining in 2005; the company uses an LMK Technologies lining system.

In addition, Snowbridge owns a 40-ton pipe bursting machine made by Pipe Genie and a PipePatch line repair system made by Source One Environmental.

For sewer lateral inspection, technicians use SeeSnake push cameras (RIDGID), often in tandem with that company’s NaviTrack locators. As work expanded to the municipal side and into larger pipes, “We had to increase the size of our equipment,” Tatro says. “So we bought a Rovver crawler camera (Envirosight) in 2014. The whole system is relatively small and mobile. We mounted it in a small cargo trailer, which we built to accommodate additional video screens, audio and other equipment.

“Shortly after that, we saw that we couldn’t adequately clean the larger pipes with our jetters, so we bought a used Vactor combination truck. Now we can work on pipes from 1 inch all the way up to 36- and 48-inch culverts.”

The Snowbridge Inc. team includes, from left, Ever Leon, Kristina Fry, Katie Tatro, Bill Tatro III, Chris Tatro, John Beyer, Jan Losh and Derrick Floyd.

Snowbridge Inc. Breckenridge, Colorado



FOUNDED: 1976
OWNERS: Bill Tatro III (CEO) and Chris Tatro (president)
SERVICE AREA: Colorado and parts of surrounding states
SERVICES: Septic system pumping and installation; pipe cleaning, repair, inspection; hydroexcavation
EMPLOYEES: 16
WEBSITE: www.snowbridgeinc.com



Serving industry

As part of its diversification, Snowbridge Inc. is expanding into the industrial market. That includes pipe cleaning and maintenance at mines in its Rocky Mountain territory.

"We have some active molybdenum mines in the area," says company co-owner Bill Tatro III. "We often go on site to clean their water transport and water reclamation pipes. One of the mines we serve is no longer active. It's a huge reclamation property now and is treating water that is pumped out of the mine. The long transport pipes that carry water from the mine to the wastewater treatment plant become calcified over time from hard minerals in the water. We do a lot of cleaning of those pipes."

Hydroexcavation is a growth area; the company's Vactor combination truck does double duty potholing and daylighting for excavating contractors. "We also do projects of our own where we repair or install sewer lines and have to daylight for utilities," Tatro says.

"We've got a budding hydroexcavation business. We don't have any local competition for that work. Some contractors come up from Denver and compete with us, but there are none based nearby. We do a decent amount of hydroexcavation for municipalities and some of the bigger contractors. We will probably have to purchase a true hydrovac truck this year."

The company's Vactor combination truck does double duty potholing and daylighting for excavating contractors. "We also do projects of our own where we repair or install sewer lines and have to daylight for utilities," Tatro says.

The vacuum truck fleet includes two units built by House of Imports, including a 2006 International 8600 with 3,300-gallon waste and 400-gallon freshwater tanks and 520 cfm National Vacuum Equipment Challenger pump and a 2006 Freightliner M2 with 2,200-gallon and 200-gallon freshwater tanks and 363 cfm National Vacuum Equipment Defender pump.

For excavation, Snowbridge uses a 2006 Cat 305 mini-excavator. "For the past five years or so, we have also leased a larger machine during the excavation season," Tatro says.

Home base for all services is an 8,000-square-foot shop and office in Breckenridge, built in 2003. It has a heated garage for the vacuum trucks, jettors and other large equipment, along with six offices. Most equipment maintenance is handled in-house.

"WE'VE HAD TO DIVERSIFY ALL ALONG THE WAY BECAUSE OUR AREA IS PRETTY SMALL. ... BUT THERE HAS NEVER BEEN A LOT OF ANY ONE KIND OF WORK THAT WE CAN DO TO MAKE ENOUGH MONEY YEAR-ROUND TO KEEP THE DOORS OPEN. WE'VE HAD TO DO A NUMBER OF DIFFERENT THINGS TO STAY BUSY."

Bill Tatro III

WEATHERING THE CONDITIONS

Every contractor faces obstacles of one kind or another on a daily basis. But employees at Snowbridge encounter some unusually challenging situations based on the area's topography and geography.

Take the brutally cold winters, for instance. Breckenridge and surrounding service areas sit an average of 9,500 to 10,000 feet above sea level, and temperatures often dip to 10 or 20 degrees below zero. That creates steady work thawing frozen pipelines in winter. Toughest job ever? Clearing out about 1,200 feet of a sanitation district's frozen 4-inch force main that runs between a treatment plant and a lift station. That job took about four days, doing 400- and 500-foot runs with a water jetter mounted inside a heated and insulated jetter truck built by US Jetting.



Bill Tatro III, CEO, successfully moved the company toward more repair and excavating work when the septic service side of his business saw a reduction in demands.

Frequent snowfalls also make winter driving a risky proposition, especially in high mountain passes. But environmentally, the hardest thing to deal with is the cold weather, says Tatro. "All our equipment is designed to suck water into it or shoot water out of it, so when hoses freeze, it makes things difficult."

The high altitude creates operational problems, too, because the thin air robs power from truck engines, pumps and the like. "In general, everything we use has to be a little bit bigger and possess a little bit more horsepower than what you'd run at lower elevations," Tatro says, noting that Snowbridge's vacuum trucks are equipped with 400 cfm pumps. "Diesel engines must be turbocharged or they don't work well."

A vacuum-truck blower that pulls 27 inches Hg at sea level pulls only about 16 or 17 inches at high elevations, and a traditional vane pump generates about 30 to 40 percent less vacuum power, explains Chris Tatro, vice president and co-owner. That makes some pumping operations pretty interesting.

To counteract the reduction in vacuum power created by longer, uphill hose runs, crews use a pressure-lift device called the Power Booster, made by Pressure Lift Corp. Typically placed at the end of the hose, in the material to be moved, it acts like an air pump, generally adding supplemental vacuum power of about 20 cfm at 90 psi.

(continued)



Snowbridge's Vactor combination truck does double duty potholing and daylighting for excavating contractors.

“WE SEE A DEFINITE GROWTH PATH IN MUNICIPAL AND INDUSTRIAL SERVICES, AND WE WANT TO EXPAND OUR TRENCHLESS REPAIR BUSINESS AS WELL.”

Bill Tatro III

DELIVERING QUALITY

Snowbridge builds its reputation on an excellent team led by Bill Tatro, managing the onsite side; Chris Tatro overseeing project work including municipal service and trenchless repairs; and Sam Dayton supervising the field crews.

The other field team members are Ever Leon, project supervisor focused on municipal service; John Beyer, senior service technician, drain cleaning specialist and trainer; service technicians Mike Streicher, Todd Franzen, Phil Gudlewski, Danny Spiecher and Derrick Floyd.

Back at headquarters, Katie Tatro is office manager, Jan Losh handles administration and human resources, and Noah Gauss is director of business development, sales and estimating.

Team members receive uniforms, health and dental insurance, a retirement plan, and paid vacations. “We have a good crew that has been in place for quite a few years now,” Bill Tatro says. “We’ve worked really hard to retain the people we have.”

Recruiting new team members has been challenging in a locality with a strong economy and abundant jobs in the construction and service sectors. Tatro rarely finds applicants with direct pumping or drain cleaning experience, so he looks for people with mechanical skills. Failing that, he’s willing to take on people who have an interest in learning.

“Last year we hired Danny Spiecher, who had been a cook and didn’t have any experience in the mechanical world. We gave him a shot, and he has become a good drain technician. We sent him to the National Association of Wastewater Technicians Operation and Maintenance class, and he’s going to be our O&M technician for ATUs. He has really taken to it. He liked the change, and he’s doing well.”

ON A GROWTH TRACK

Meanwhile, Snowbridge is adapting to a market in which the septic service business is on a downward trend. “A few years ago, when the sanitation district started moving its services farther out, we made a conscious decision to start doing more repair work and excavating,” Tatro says. “If we’re going to lose the septic systems, then we’d like the chance to put the sewer lateral in. We install sewer lines to the municipal main where they’re replacing septic systems. We do about 10 sewer lines a summer, along with tank and system replacements.

“We’ve had to diversify all along the way because our area is pretty small. It’s resort-community-based, so we don’t have a large population of full-time residents. We have an oversized infrastructure to support the people who come and visit — the skiers and the mountain vacationers. But there has never been a lot of any one kind of work that we can do to make enough money year-round to keep the doors open. We’ve had to do a number of different things to stay busy.”

It’s a formula that certainly seems to be working. ▼

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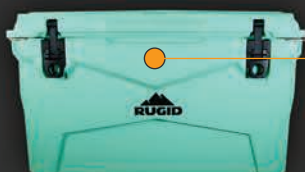


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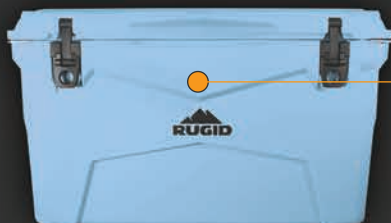


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Historical Challenges

ENGINEER, CONTRACTOR, CITY WORK TOGETHER TO FIND A BETTER SOLUTION THAN OPENCUT WHILE NAVIGATING AROUND HISTORICAL STRUCTURES

BY CORY DELLENBACH

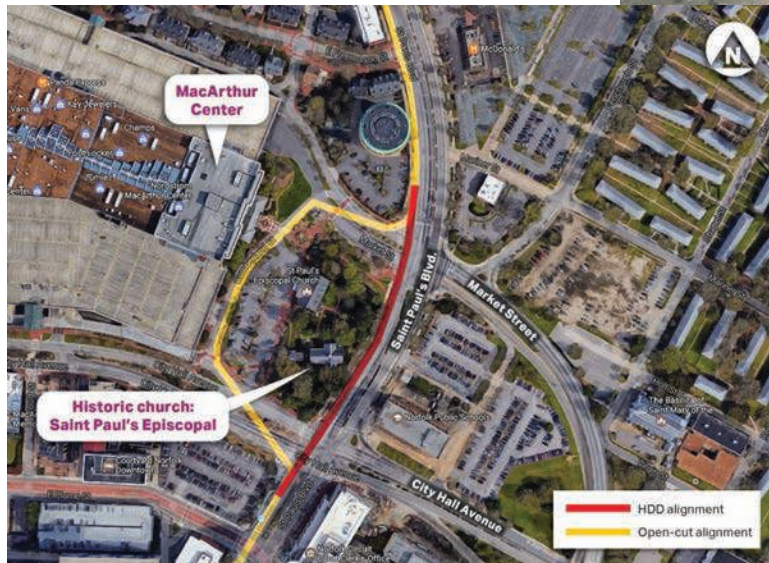
What do you get when you cross opencut with directional drilling and historical landmarks? The answer could be a recipe for disaster if something goes wrong.

The project was to replace a large segment of 36-inch prestressed concrete cylinder pipe force main in the downtown Norfolk, Virginia, area. The pipe was beyond its intended service and was starting to become a high-risk concern.

“Not only was it time for it to be prioritized for replacement, but it was also under an Environmental Protection Agency consent order agreement,” says Will Gibson, project engineer for the engineering firm AECOM. “There were multiple reasons to get that pipe replaced or rehabilitated.”

The project originally was proposed as all opencut. During construction, however, the general contractor decided it was worth exploring alternative methods on a troublesome portion of the route. If opencut were to be used, it would affect more streets and a shopping mall and take longer to complete the project.

An American Augers DD-210 horizontal directional drill was used during the project in Norfolk, Virginia.



The proposed route with and without directional drilling as an option. The yellow line indicates the route opencut installation would have taken, while the red line shows the route for horizontal directional drilling operations.

- PROJECT:** Installing a 1,000 section of new force main in Norfolk, Virginia
- CUSTOMER:** Hampton Roads Sanitation District
- CONTRACTOR:** Tidewater Utility Construction (general), Spring & Associates (subcontractor, directional drilling), AECOM (engineer)
- EQUIPMENT:** American Augers DD-210 directional drill (American Augers; 800-324-4930; www.americanaugers.com)
Tulsa Rig Iron MCM 1000 mud recycler (Tulsa Rig Iron; 918-321-3330; www.tulsarigiron.com)
- RESULTS:** New pipe installed in the portion using horizontal directional drilling, historical structures undamaged, project completed five months ahead of schedule

DOWN & DIRTY

PHOTOS AND GRAPHIC COURTESY OF AECOM

After several concepts were considered and eliminated, the contractor submitted a design-build proposal using a 1,000-linear-foot, 30-inch directional drill to keep the alignment straight and on its current path.

Together through teamwork with AECOM, the general contractor and the city, the project reached substantial completion five months ahead of the projected timeline.

AN AGING PIPE

The Hampton Roads Sanitation District owns and operates the large regional force main interceptor system and 13 wastewater treatment plants, providing service to 18 counties and cities and approximately 1.7 million residents in the Hampton Roads region of Virginia.

In 2011, the district began the South Trunk Sewer Section G Force Main Replacement Project to replace about 6,000 linear feet of a large-diameter force main, constructed in the 1940s, in downtown Norfolk.

“WE HAD EVERYTHING THAT YOU COULD IMAGINE AROUND US. SO EVEN WITH HDD NOT HAVING QUITE THE STAGING REQUIREMENTS OF A MICROTUNNEL, IT’S STILL A LOT OF EQUIPMENT TO PUT OUT THERE.”

Will Gibson

AECOM began by studying and comparing alignment plans to navigate the new 30-inch ductile iron pipe force main through the major and minor streets of Norfolk to replace the aging sections of the current force main. It was determined that most of the new force main would be located along St. Paul’s Boulevard (running north-south), which is a heavily traveled roadway for commuters and residents.

During the design phase, the Norfolk Utilities and Public Works Departments prohibited any work through the Market Street and City Hall Avenue intersections along the force main route. These intersections were vital to commuter access to and from St. Paul’s Boulevard and Interstate 264, a major regional highway adjacent to downtown.

Trenchless crossings were explored at that time, but due to some construction projects in adjacent areas experiencing problematic crossings or ground settling, the city preferred finding open-cut solutions around the intersections.

“We stayed along the major corridor, and then we had to dive off that corridor to get around those two major intersections to continue with an open-cut alignment,” Gibson says.

The design was modified to align the force main down a small side street adjacent to Norfolk’s busiest shopping mall to avoid the intersections. The design through the tight corridor presented various challenges.

“Our restrictions on the contractor for that area were very tight,” Gibson says. “They could only work certain times of the year and certain times of the day, and a lot of it was confined to night work. There were a lot of stipulations there, which is why when the contractor got going, they wanted to take a look at HDD.”

GOING WITH HDD AFTER ALL

Early in the construction phase, the contractor, Tidewater Utility Construction, evaluated the challenges of the alignment and proposed several ideas to avoid the segment of open-cut installation. After several concepts were considered and eliminated, Tidewater Utility Construction submitted a design-build proposal using a 1,000-linear-foot, 30-inch HDD along St. Paul’s Boulevard, continuing with the overall alignment.

“At that point, AECOM and the general contractor had made enough headway, done enough good work and impressed the city enough that they were willing to allow us to propose that and take a look at HDD,” Gibson says. “So the HDD actually wasn’t initiated until we were in the middle of construction, which makes it kind of interesting.”

HDD still posed some challenges, however, especially with the tight working area.

(continued)

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“We were surrounded by very large buildings, the high-end shopping mall, the downtown Norfolk courts complex and then some high-end residential condos and town houses,” Gibson says. “We had everything that you could imagine around us. So even with HDD not having quite the staging requirements of a microtunnel, it’s still a lot of equipment to put out there.”

AECOM, Tidewater Utility Construction, and the directional drill contractor, Spring & Associates, were required to submit a detailed staging plan to the city and explain where each piece of equipment was going to be, what kind of lane shutdowns were expected and all of the impacts of those.

“There was quite a submittal to the city just for them to sign off on how we were going to stage this,” Gibson says.

Crews were able to keep much of the staging to a single lane. Equipment included the American Augers DD-210 directional drill, the control room and the Tulsa Rig Iron MCM 1000 mud recycler unit all in a single lane of traffic, along with the entry pit.

“During nonrush-hour times, we were able to take a second lane just to open up workspace a little bit,” Gibson says.

UNDERSTANDING HISTORY

Norfolk is a city rich with history dating back to the Colonial times of the 17th century. Understanding the city’s historical evolution was critical during the design of the proposed pipeline.

“If you look at the history of the city, the downtown area was actually a lot more water area than it is today,” Gibson says. “The reason is because in the 1800s, the city expanded their landmass into the Elizabeth River and they did this by pretty much taking a landfill mass and other materials and just dumping it into the water to create the land and build it out.”

Because of that, many areas of downtown Norfolk are not applicable to trenchless technologies.

“What we found out during some preliminary studies was that a lot of the things they threw in there were huge,” Gibson says. “They were big masses of brick and concrete, and all kinds of things that you probably would not want to drill through on a normal basis knowingly.”

There were other areas early in the design phase where they looked at doing a trenchless cross, but only to find out that area was one of those that was built out and couldn’t guarantee not hitting something.

“We had to convince the city in some areas to stick with the open-cut and not go with trenchless because of those obstacles,” Gibson says. “So this project actually ended up being a mix of microtunneling at the start, open-cut and then HDD and then open-cut again.”

One of the more substantial historical considerations was a church located along the directional drill route. The church, an historic landmark, is the oldest structure in Norfolk, having been constructed in the 1730s, and is on the National Register of Historic Places.

“The church was probably the most high-profile structure that we were working very closely to,” Gibson says. “It was obviously a very big concern, and we believe structurally that the church is kind of a slab-on-grade design. With anything HDD related, you always worry about the inadvertent returns, and with our alignment being within 100 feet of that church and the brick wall surrounding the church, we were concerned that if inadvertent returns went toward the church, possibly under or close to the structure, we would undermine it and have some settling issues.”

AECOM developed a monitoring plan, which included topographic survey, vibration monitoring and installation of monitoring wells. The topographic survey was a way to document the before and after elevations of aboveground features.

“The monitoring wells we drilled were about 12 feet down and we put in a perforated PVC pipe, and we did this about every 50 feet along the church, which is about a 500-foot span,” Gibson says. “They were designed as an early



Pipe curvature and equipment support along major arterial roadway in downtown Norfolk, Virginia.



Nighttime horizontal directional drilling work took place adjacent to this condominium building, requiring steps to be taken to ensure there wasn’t too much ground vibration.

warning system. So if we had an inadvertent return heading toward the church, the idea is that those fluids would go up the bored wells and we see fluid come out of them. If we did see that, we could shut down the operations and try to mitigate any returns heading toward the church and go with our contingency plans at that point.”

WRAPPING UP THE JOB

Fusing of the pipe took place concurrently with the drilling activities, and a full stringout was done prior to pipe-pull efforts. The city and the contractors agreed to complete the pullback in the nighttime hours.

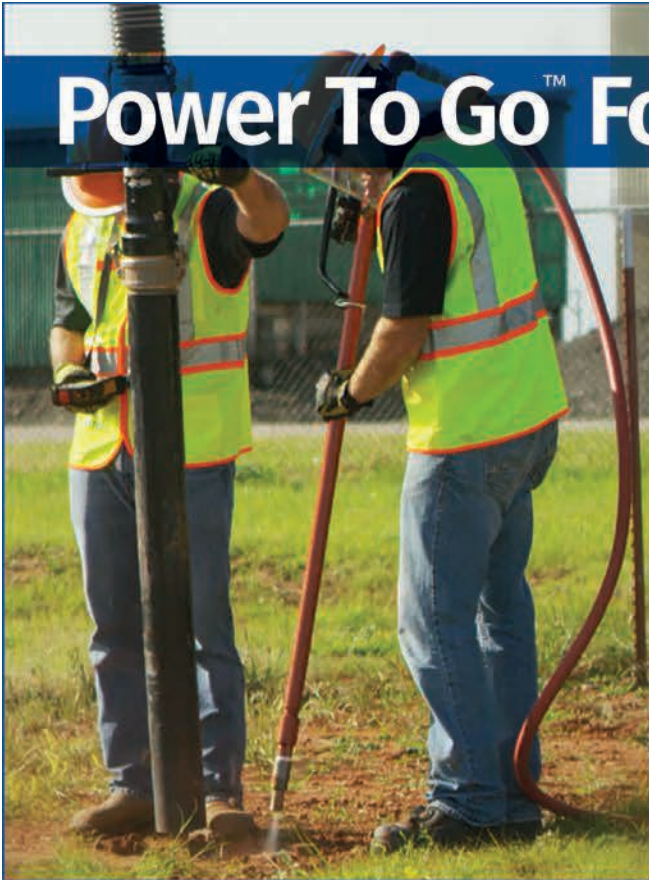
Although the HDD installation accounted for just 1,000 feet of pipe out of the project’s total 6,000 feet, the impact was substantial.

“The overall results by doing the HDD were outstanding,” Gibson says. “We avoided the open-cut, and we avoided, by going under those two intersections, impacting traffic. We also credit the HDD with shaving about five months off the construction time.”

The early finish saved the city approximately a million dollars on a \$10 million-dollar project.

“The extra precautions that we took with the monitoring wells and just everybody being on the same page in terms of communicating and having the inspectors where they needed to be at the right time — all that quality assurance/quality control couldn’t have gone better,” Gibson says. “It’s what prevented anything from going wrong.” ▼

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Going Mobile

MOBILITY AND COORDINATION ARE CORNERSTONES OF SUCCESSFUL CONSTRUCTION, NOW MADE EASIER WITH MOBILE APPS

BY JARED RANEY

Add up all the time lost while struggling to find the right equipment or product in a truck, workshop or warehouse; now picture eliminating all that wasted time with a single simple tool.

That's the essence of mobile applications.

Every time you've needed to go back to the office for a form, find a computer to dig up a piece of info or run back to your truck for a piece of paper to write on — the burgeoning array of products in the expanding construction productivity software market has the potential to save hours of time on and off the job site.

Most fieldworkers today have smartphones, which means any crew with these devices has the potential to be transformed into a collaborative, connected and efficient team.

A BETTER TEAM

According to a study by PlanGrid, a construction productivity software developer, the construction industry at large loses almost \$180 billion a year due to lost time while searching for project data, poor communication and rework due to mistakes while coordinating jobs.

The study also determined that “miscommunication and poor project data account for 48 percent of all rework on U.S. construction job sites.”

PlanGrid offers its productivity software on any mobile device, as well as desktop and web browser.

“What it really means is connecting the field team with the right information to do their job at the right time,” says Stuart Frederich-Smith, vice president of marketing for PlanGrid. “How do you make sure that you have the most recent, up-to-date plans all the time? In the old paper world, it was difficult to make sure that those things were up to date. How do you make sure that the teams are prioritizing the right things, working together? So collaboration is the second piece in that puzzle. And then the third is being able to analyze performance on one project, share best practices with others and make really good decisions for the business.”

Especially for large companies, coordinating over many job sites and dozens of employees, possibly even over great distances, the ability to have a central, accessible database keeps everyone literally on the same page.

“Making sure that when you don't have physical proximity to your team, you still have consistency of access to information matters a lot,” Frederich-

“WHAT IT REALLY MEANS IS CONNECTING THE FIELD TEAM WITH THE RIGHT INFORMATION TO DO THEIR JOB AT THE RIGHT TIME.”

Stuart Frederich-Smith



PHOTOS COURTESY OF PLANGRID

Many fieldworkers today have smartphones, which means any crew with these devices has the potential to be transformed into a collaborative, connected and efficient team. That can make job sites more productive and keep those at the office informed of how the job is going.

Smith says. “I think a key value for us is to be mindful of the real job site conditions and build a product that works for people in the real world.”

FLEET MANAGEMENT

Another common use of mobile applications is in fleet management. SkyBitz is one developer specializing in object tracking and asset management. Its Ops Center Mobile software allows users to not only track assets, but sort and organize from a tablet or smartphone.

“It all boils down to, for whatever reason, asking, ‘Where is it?’ They can quickly go on the mobile app, enter in the asset ID, or they can pull up the map, and say, ‘I’m expecting to find this asset in this location. Let me see what’s there,’” says Debbie Sackman, senior product manager for SkyBitz.

The mobile app can also sort by region, by asset type, and a number of other options to aid managers in keeping a handle on the many pieces of equipment they are responsible for. Another feature allows alerts to be set up for a work site, or “geo-zone.” If equipment leaves that work site when it’s not supposed to, supervisors are notified instantly.

“Any information you look at, it’s the same whether I’m looking at it on my mobile phone or whether I have somebody back in the home office looking at it from a web screen,” Sackman says. “We’re seeing the same set of information, so it’s always very quickly synchronized.”

BEST USES

Mobile apps are another technology that are often only as good as the uses they are put to. It’s important to know what your goals are when implementing a mobile solution.

“The recommendation I would have is that there be a very clear plan in terms of how it’s going to be used and who’s going to be responsible for updating these things,” Frederich-Smith says. “Have a very intentional plan of how teams collaborate together, with technology.”

The asset management software allows managers to create custom IDs for assets, and a consistent naming scheme is important. Again, having all your information in one place, easily accessible, isn’t worth much if you can’t make sense of it.

Lastly, getting buy-in from your team is essential.

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Mobile applications in the construction field have been around for about a decade, but have gained steam in the last few years.

they might need to change their workflow or how software might adapt to their workflow.”

Before that even, you’ll need to spend some time researching to make sure the solution you choose is a good fit for the operation.

It’s OK to be picky, especially with the rapid expansion that this market segment has experienced.

Take the case of Action Auger, in Calgary, Alberta. Owner Brham Trim knew they needed a better way to organize inventory, as they were losing tens of thousands of dollars a year in wasted or missing parts.

Despite a thorough search, he didn’t find quite what he was looking for and instead hired a software developer to create a personalized mobile application solution.

“After we’ve inventoried a truck, we’ve set parameters into the app, that this is what we think it should have, and that’s a living list,” Trim says. “It allows us to know what’s on the trucks and allows it to move from truck to truck.”

“I THINK THAT AS TECHNOLOGY HAS BECOME MORE AVAILABLE, THROUGH SORT OF PERVASIVE SMARTPHONES AND TABLETS, IT’S CREATED **AN OPPORTUNITY FOR MORE TECHNOLOGY TO MAKE ITS WAY IN THE FORM OF MOBILE APPS.**”

Stuart Frederick-Smith

“We see a lot of cases where a decision is made without real input from that team,” Frederick-Smith says. “The software is not actually adopted, and adoption is all that matters in this stuff. So involve the field team in a structured pilot, where they review options, think about how

By cataloging each truck’s inventory into a single, easily accessible database, Trim’s crew has a fuller picture of the overall inventory, limiting doubled purchases and extraneous parts.

No matter what direction you go, it will involve a considerable investment upfront — both in money and time. To ensure that you see results in the long run, choosing the right software is possibly the most important factor of all.

AN EVOLVING FIELD

Mobile applications in the construction field have been around for about a decade, but have gained steam in the last few years.

“I think that it’s evolving, definitely,” Frederick-Smith says. “I think that as technology has become more available, through sort of pervasive smartphones and tablets, it’s created an opportunity for more technology to make its way in the form of mobile apps.”

As they develop, companies who aren’t embracing the changes of the modern world may find themselves falling behind. Fortunately, the possibilities are more limitless by the day, and any company can find a solution that fits its needs.

“It’s really only limited by what our customers are telling us they want us to do,” Sackman says. “From a technology standpoint, so far we have not run into anything that somebody has asked for on a mobile app that we haven’t been able to do. We continue to add functionality based on what our customers are asking for and new features that they feel are important. So it’s like anything in technology — we’re never standing still.” ▼

Drill Pipe Considerations

REDUCE PRODUCTIVITY ROADBLOCKS BEFORE HDD JOBS BEGIN

BY CORY MAKER

Profitability on a horizontal directional drilling project hinges on a productive crew. And a key component of productivity and continuous performance is having the right equipment for the job. For example: It is important to use a drill with enough torque for the ground conditions in which you're operating and to ensure the drill being used has enough space to set up and shoot out an entrance path.

Even when you have drills suited to the job site, however, roadblocks can keep you from getting the most out of your equipment. Proper HDD tooling can help. Before ground breaks, you can make tooling selections that speed product deployment and help keep your company profitable.

DESIGN CONSIDERATIONS

HDD projects require equipment tailored to the job, such as features that help when shooting out long bores or system tools that help when boring in challenging ground conditions. Matching the drill, as well as the drill pipe, to the job site is a recommended initial step for any underground project. Just as important, but often overlooked, is also fitting the drill and the drill pipe to make sure they effectively work well together.

Manufacturing specialization can impact efficiency. So, manufacturers focused exclusively on drill pipe have advanced the life of the pipe, designing a variety of options suited to almost anything that will be encountered underground.

When directional drill manufacturers are not responsible for drill pipe design for their own drills, however, they're required to design a drill to fit specific pipe specifications. For example, the unit must be designed to meet a specified makeup torque to properly assemble the drill string. And, unless both drill pipe and drill were designed together, it's difficult to match a specific thread profile to the drill that will use it.

The result of this mismatch is that the drill will have too much or too little rotary torque for the drill pipe since every drill pipe is designed to handle a specific makeup torque. When the drill has too much torque, operators need to derate the machine's engine to achieve the proper makeup and thrust levels. For instance, a drill capable of 40,000 pounds of torque will run at 28,000 pounds because of the pipe's limitations. Another consequence of the mismatch is sending too much power downhole, causing worn drill pipe to break more easily. When there is too little torque, however, the drill lacks the power needed



PHOTOGRAPHY BY LEZLIE STERLING

Matching the drill (as well as the drill pipe) to the job site is a recommended initial step for any underground project. Just as important, but often overlooked, is fitting the drill and the drill pipe to make sure they effectively work well together.

AS WE KNOW, HDD EQUIPMENT SELECTION IS KEY TO PRODUCTIVITY, AND MATCHING DRILL PIPE IS A CRITICAL ELEMENT.

to make up the pipe correctly. Pipe can begin breaking loose while drilling.

These issues can be greatly reduced by making sure drill pipe and the drill are designed to work together. Not only will this intentional design help ensure you have the right makeup torque for your tooling, but additional enhancements can then also be built into the HDD equipment.

One such enhancement is coordinated drill pipe makeup. When designing pipe with an intended thread profile, the drill can automatically set the speed and feed for makeup. This simplified, automated process helps extend the life of the thread.

HEIGHTENED STANDARDS IN FORGED PIPE

As we know, HDD equipment selection is key to productivity, and matching drill pipe is a critical element. To further enhance gains on HDD projects, consider using forged drill pipe, designed for the drill. Forged pipe lasts longer and helps minimize the risk of losing HDD tooling downhole.

Due to set industry standards, all forged drill pipe, regardless of manufacturer, is often considered to be of the same quality. Each pipe, for instance,

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will be made from a single piece of AISI 4130 steel that satisfies the S-135 tubing grade requirements. Double shoulder connections, which enhance the performance of connections, are also becoming common on HDD job sites.

Those industry standards, however, don't specify the thickness of drill pipe. Operators often want stiff forged drill pipe because it helps them steer more effectively. The stiffer the pipe, the less likely an operator will get flex out of the bore when pushing downhole.

The trade-off is that stiffer pipe is often thicker, which can negatively impact the bend radius. Manufacturers such as Ditch Witch, however, design forged drill pipe to the industry standards and tubing grade requirements, but thicker than competitive pipe, while maintaining a desired bend radius.

Additionally, for Ditch Witch forged drill pipes, wear indicator grooves designed into the forged drill pipe provide the operator visual indication of wear allowances that are beyond the typical industry standards. Often operators will have to visually inspect their threads and visually hunt for breaks or wear, which can involve estimating the pipe's remaining life. Indicator grooves, however, show the wear on the tool joint, helping operators more accurately determine the degree of wear, and better predict when replacements are required.

Finally, by designing drill pipe for the machines and forging the drill pipe with solid, U.S.-made steel, manufacturers have extended the life of drill pipe beyond industry averages. Next to comparable offerings, these tool joints have up to four times the life.

Matching HDD equipment and expecting higher standards from forged drill pipe offers you new approaches to enhancing job site productivity. Time is money on the job, and by getting the most out of equipment, crews will be able to reduce unexpected roadblocks like excessive time spent calibrating or inspecting equipment.

ABOUT THE AUTHOR

Cory Maker is the product manager for drill pipe and fluid management for Ditch Witch. ▼

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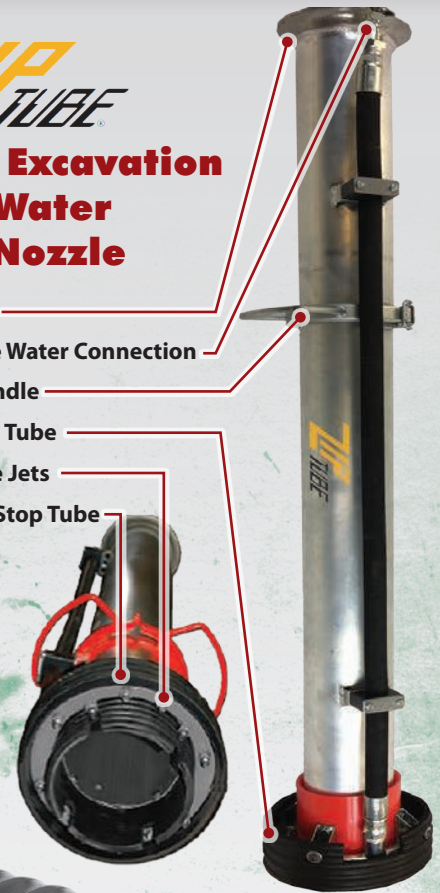
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BY CRAIG MANDLI

Air Excavation Equipment

Ramvac by Sewer Equipment AX-4000

The AX-4000 air excavator from Ramvac by Sewer Equipment offers a simple, single engine design with 12-volt electrical controls and manual hand valves for ease of use, while also providing operators the ability to excavate with both air and water effectively using only one truck. This series offers payload capacities from 5,000 to 12,000 pounds, while the hydraulic rear door allows operators to dump spoils quickly and easily. It allows you to customize your blower to achieve the results you need in any applications, with capacities of 18 or 27 inches Hg, 1,400 or 3,000 cfm and hose diameter of 4 or 6 inches. All water systems are contained within a single heated enclosure for cold weather applications, while also offering a large amount of standard tool storage. **888-477-7638; www.ram-vac.com**



Horizontal Directional Drilling

Gardner Denver Robuschi RB-DV

The Robuschi RB-DV deep-vacuum rotary lobe blower from Gardner Denver is capable of running continuously at 27 inches Hg, with free airflow ranges from 494 to 6,676 cfm. Its air injection mechanism offers a cooler running, more fuel-efficient blower. Its design offers high overhung load capacity, meaning it will be up to the task of handling the frame flex and forces when positioning the truck. With no wearing parts and dry operating technology, it is easy on the maintenance bill. **866-428-4890; www.gardnerdenver.com/robuschi**



Toro DD2226

The Toro DD2226 directional drill delivers 2,600 ft-lbs of rotational torque and 22,000 pounds of thrust and pullback for versatility, allowing the machine to pull back and turn larger reamers in tough ground conditions. Dual rear stabilizers provide additional stability in uneven terrain. For convenience, it is also equipped with TDOS-1 Operating System software, featuring the SmartTouch control mode that streamlines pipe handling by allowing the operator to advance through the pipe handling process with a touch of a rocker switch on the joystick. It's designed to be easier for both new and experienced operators to learn. In addition, using SmartTouch allows operators to reduce the pipe loading cycle times, thereby increasing overall productivity. It includes a 72 hp Tier 4 Final Yanmar 3.3-liter engine that requires no diesel exhaust fluid, as well as a 31 gpm, 1,500 psi drilling fluid pump. **855-493-0088; www.toro.com/en/underground**



Vermeer D40x55DR S3 Navigator

The Vermeer D40x55DR S3 Navigator horizontal directional drill delivers productivity in broad-range ground conditions, from hard, medium, and soft rock to loamy/dirt and clay. It has Vermeer dual rod technology that uses an inner rod to provide torque to the drill bit, while the outer rod offers steer-

ing capability and rotation torque for reaming. The combination provides powerful downhole cutting action and the flexibility to select the appropriate tooling to best match the ground conditions. Powered by a 140 hp John Deere diesel engine, it serves up 40,000 pounds of thrust/pullback and 5,500 ft-lbs of rotational torque. It can carry 500 feet of drill rods on board. It offers a carriage speed of 115 feet per minute and low guaranteed sound power rating of 104 dBA. **641-628-3141; www.vermeer.com**



Hydroexcavation Equipment

Cusco Sewer Jetter

The Sewer Jetter from Cusco can help perform major cleanups by excavating debris with a 26-foot boom reach and a 270-degree boom rotation. Outfitted with quality components and reverse engineered for optimal weight and payload with a superior operator control system, the unit is designed for simple regular maintenance and features durable and uncomplicated systems to reduce repairs and downtime. It can be paired with a Cusco SJX hydroexcavator to provide growing municipalities and contractors a powerful option for handling sewer and waterline maintenance and digging new lines with one piece of equipment. Options include various tank and chassis sizes and can be modified based on customer specifications. **800-490-3541; www.wastequip-cusco.com**



DBO Solutions ME 4000

The ME 4000 from DBO Solutions is a fully mobile waste recovery system designed for street and hydrovac waste processing. Ideal for multiday projects or as a portable facility-based unit, it quickly and efficiently processes hydrovac, storm and street waste slurries, recovering clear filtrate water and stackable solids. It can easily handle multiple truckloads of different material per day, making it ideal for heavy civil construction projects. Designed for ease of transportation, setup and operation, it has self-loading options, minimal short- and long-term maintenance requirements, severe-duty construction, and is ISO 9001 compliant and Department of Transportation approved. Advanced automation controls are standard, and remote operation interface options are also available. **844-432-6349; www.dbodecant.com**



Ditch Witch HX30

The Ditch Witch HX30 vacuum excavation trailer offers a 24.8 hp Kubota diesel engine designed for performance and productivity on midsized potholing, soft-excavation or cleanup tasks. The low-profile machine reduces unit height without compromising ground clearance. It is available with a 500- or 800-gallon debris tank and in a light or heavy version. Also available are advanced optional boom designs to improve ease of use. With advanced sound-reducing technology, it creates minimal disturbance in noise-sensitive areas. An optional reverse-flow feature allows quick and easy spoil off-loading for improved productivity. **800-654-6481; www.ditchwitch.com**

Dynablast CAB420FLS-12V

The Dynablast CAB420FLS-12V hydrovac water heater produces 420,000 Btus with an output temperature of 175 degrees F at 5 gpm to work in colder climates and for improved digging in clay-filled areas. It is designed to fit most

municipal hydrovac trucks with its 24-by-24-inch footprint. It is ETL-certified, providing improved heat transfer between the Schedule 80 pipe and water. It comes with two service access panels and two momentary override controls, which improve serviceability. The cabinet is designed with a reversible door for a variety of truck configurations and uses 14-gauge steel with polyester UV-protected, powder-coated paint with an aluminum discharge cap and stainless steel hardware. **905-867-4642; www.dynablast.ca**



Easy Kleen Pressure Systems Wildcat Heaters

Wildcat Heaters high-pressure, oil-fired hot-water/steam heaters and hydraulic pump systems from Easy Kleen Pressure Systems are designed for reliability and efficiency and are install-ready for vacuum trucks and hydroexcavators, according to the maker. A full range of heater options includes dry steam, redundancy packages, Schedule 80 and 160 stainless steel or A53 boiler pipe, fine-tuned temperature, and flow-control systems. All coils are manufactured in-house, with CRN boiler-approved coils now available. Heaters can be designed for mounting in a cabinet or supplied as a completed cabinet unit. They are CSA- and ETL-approved. **800-315-5533; www.easykleen.com**

Enz USA Rotodrill

The Rotodrill nozzle from Enz USA has a rotating front jet for improved cutting performance. It's effective at clearing blocked or frozen pipes and moving heavy debris. It has ideal propulsion but can also be used in hydroexcavation by plugging off the thrust jets. This versatile nozzle is available in 1/2-, 3/4- and 1-inch systems. **877-362-8721; www.enzusainc.com**



GapVax HV33

Designed to safely transport water and debris in urban areas, the GapVax HV33 is shorter, smaller and more compact than its predecessor. It is 30 feet long overall on a medium-duty chassis and includes a 600-gallon water tank, 6-cubic-yard debris body, a 14- to 17-foot 6-inch boom in 8 or 6 inches, 4,000 cfm power and an inverted, full-opening tailgate. **888-442-7829; www.gapvax.com**

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**



Imperial Industries Hydro 3600 Hybrid Excavator

The Hydro 3600 Hybrid Excavator from Imperial Industries offers compact power and versatility, with

capabilities that include digging trenches to locating fiber optic cables and clearing debris. It provides direct applications for septic hauling, utilities maintenance and emergency response situations. It can be operated by one person. Units are available in code and noncode. **800-558-2945; www.imperialind.com**

Kaiser Premier CV Series

The CV Series hydrovac from Kaiser Premier has all critical components centralized and housed in an insulated, heated aluminum van body. The RB-DV series of rotary three lobe positive displacement blowers can operate at high vacuum levels thanks to a device that injects atmospheric air. RB-DV series blowers can reach vacuum levels of up to 93 percent on a deadhead and 27 inches Hg without the need to inject water or use an upstream heat exchanger.



Its hydraulically assisted off-load method eliminates overhead conflict concerns when off-loading by avoiding the need to raise the tank. Rather than using gravity alone, it applies its mechanical advantage to quickly off-load compacted tank

debris. To release hot high-pressure water, the vehicle can be equipped with a 700,000 Btu boiler. The transfer case is specifically designed for vacuum excavation trucks requiring a highly configurable and easily serviceable gearbox. **970-542-1975; www.kaiserpremier.com**

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, according to the maker. An orbital design increases performance at a lower gallons-per-minute rate and pressures as high as 36,250 psi, allowing the operator to move faster when 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 cleaning of sewers and pipes of all types. **866-620-5915; www.nozzteq.com**



Presvac Systems Hydrovac

The Presvac Systems Hydrovac is designed for versatility and 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, according to the maker. 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**

Rival Hydrovac T10

The T10 from Rival Hydrovac is a larger version of the initial Rival T7 unit, which has become a suitable choice for many urban contractors who are aware of the trending weight restrictions on these types of trucks and realize the need to bring these trucks into compliance when driving on roads to disposal. It operates in the same manner as the T7, as it is fully hydraulic, eliminating the need for a transfer case, and aside from engaging one PTO, the entire truck is operated from the remote and rear panel. This unit features the same "pressure off" feature as the smaller units and has essentially the same controls. **403-550-7997; www.rivalhydrovac.com**



(continued)



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.soilssurgeoninc.com

Supervac Hercules XL

At 37 feet long, the Hercules XL from Supervac is suitable for applications where weight is not as much of a concern. It can carry 18 cubic yards of debris, and it has available a payload capacity of 25,000 pounds. The 3,600-gallon debris tank is mounted as close as possible to the truck's cab. Its 3,800 cfm, 27-inches Hg blower is more compact than its predecessors and mounted directly over the truck's second axle. In addition, more equipment, including its 30-ton hydraulic dump hoist and 400,000 Btu boiler are compactly situated near the cab to allow for more even weight distribution. The unit's 185 cfm air excavation compressor, Webasto diesel fuel heater, 3,000 psi high-pressure water pump, controls, aluminum toolboxes and six 250-gallon (1,500-gallon total capacity) plastic water tanks are evenly distributed along the sides of the unit, adding to the even weight distribution. 866-839-5702; www.supervac.co



Tornado Global Hydrovacs F4 ECOLITE

The F4 ECOLITE from Tornado Global Hydrovacs has a 12-cubic-yard mud tank and holds 1,550 gallons of freshwater. The unit is more than 7,000 pounds lighter than the



company's older models and offers more than double the payload. The boom has a 342-degree rotation and a 26-foot reach. The smaller F3 ECOLITE is a 10-cubic-yard, 1,250-gallon tandem-axle unit that also more than doubles older payload capacities. It features an 8-inch boom and a 3,800 cfm blower. 715-441-7157; www.tornadotrucks.com

Transway Systems Terra-Vex HV38

The Transway Systems Terra-Vex HV38 has a 12-yard debris tank with onboard scales, which allows 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 with 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



Vac-Con X-Cavator

The X-Cavator from Vac-Con is designed to be powerful, durable and easy to operate. It features a hydrostatic drive using the chassis engine for vacuum, creating a more efficient system that eliminates the need for power takeoff,



clutch and gearbox operation. It is available with water systems up to 4,000 psi and a mobile, wireless remote-control system controlling chassis engine revolutions per minute, boom, automatic vacuum breaker, dump controls and hydraulic door locks from up to a half-mile away. The boom rotates 270 degrees. 904-284-4200; www.vac-con.com

Vacall AllExcavate

Vacall AllExcavate hydroexcavators include AllSmartFlow smart controls that help to conserve water during high-performance jet/vac digging around utilities and waterlines or cleaning frac tanks and vessels. Single-engine efficiency helps conserve fuel and reduce emissions. It has a high-pressure water system with rheostat control to vary water volume and capacity output. A heated compartment protects the water system components against freezing. Its water tanks are made of high-quality aluminum for extra strength. Large, galvanized steel debris tanks are also available. A single control is used to open, close and lock the tailgate. It has double-cyclone filtration with a simplified design to reduce maintenance, extend performance and increase working life. Its rear-mounted boom front-loads debris. It is available with a cold weather package. 800-382-8302; www.vacall.com



Vector ParaDIGm

The ParaDIGm vacuum excavator from Vector 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.vector.com



Vector Technologies Mudslinger

The Mudslinger line of compact trailer-mounted hydroexcavation vacuums from Vac-Con, in cooperation with Vector Technologies, uses a 66.8 hp Kubota diesel engine with a 1,200 cfm at 16 inches Hg positive displacement blower and comes with a 535- or 845-gallon debris tank with 55-degree hydraulic dump hoist and a hydraulic door. The water system is 4 gpm at 4,000 psi with 50 inches of 3/8-inch hose and comes with a 225- or 325-gallon HDPE water tank. A 9-foot boom with 24 inches of hydraulic extension, hydraulic up/down and 270 degrees of manual rotation is also available. It is mounted on a heavy-duty welded tube steel trailer. 800-832-4010; www.vector-vacuums.com



Westech Vac Systems Wolf

The Wolf noncode hydrovac truck from Westech Vac Systems is suitable 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 propor-

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tionately 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

Mud/Slurry Pump

Gorman-Rupp ValuPrime

The ValuPrime priming-assisted centrifugal pump from Gorman-Rupp is a compact and powerful pump ideally suited for the dewatering needs of the construction, industrial and agricultural markets. It is available in 4-by-4-inch and 6-by-6-inch model sizes, flows to 1,520 gpm, total dynamic head to 150 feet and solids-handling capabilities up to 3 inches. It comes standard with a 34-gallon fuel tank, programmable control panel, and an Environmental Protection Agency-compliant Isuzu Final Tier 4 diesel engine. It is ideal for flood and stormwater standby, general job site dewatering, dust control, and water and street department applications. 419-755-1011; www.grpumps.com



Pipe Bursting

Pow-R Mole Sales PD-33M

The PD-33M pipe bursting machine from Pow-R Mole Sales 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, reducing customer disruption and increasing 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.powmole.com

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 weighs 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



(continued)

Pipe Fusion

McElroy Hornet

The McElroy Hornet is an all-in-one outlet fusion tool for polypropylene pipe that provides an alternative to manual outlet fusion. Its design allows it to self-align on the center of the pipe, while a guided carriage facilitates the drilling of the outlet hole and fusion of the fitting for perfect alignment without repositioning the machine. A quick-change drill and fitting adapters keep the outlet hole and fitting aligned throughout the entire process for a more accurate fusion. With a small footprint and weighing just 11 pounds, it performs outlet fusions in any orientation, making it suitable for overhead and vertical fusions in tight spaces. It works with all McElroy socket heaters and fusion outlet adapters. An integrated ratchet strap allows it to attach to a wide range of main sizes from 40 to 630 mm while installing outlets for 20 to 63 mm branches. **918-831-9236; www.mcelroy.com**



Reed True Peel PE Prep Tool



The True Peel PE Prep Tool from Reed removes dirt and oxidation from the outside diameter of the pipe in preparation for electrofusion. Its spring-loaded blade does not skip and keeps consistent pressure on the pipe to yield a smooth, finished surface. The blade completely peels even out-of-round pipe with the help of the close-fitting mandrel, which rerounds oval pipe. The blade may be rotated to provide a second cutting edge, giving twice the blade life. An observation window allows the operator to view peel completion. These tools can be used on the ends of pipe or

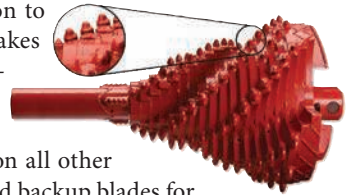
on tapping tee outlets. Each model is size-specific for both pipe size and wall thickness. Its low profile allows it to be used on tapping tee outlets with limited clearance. **800-666-3691; www.reedmfgco.com**

Rock Drill/Saw

Melfred Borzall Ogre

The Ogre stacked reamer from Melfred Borzall is built for jobs that have a lot of cobbles, shale, river rock, glacial till and hardpan. The tool is designed with a slow taper and deep, spiraled fluting to give it maximum mixing and pumping motion, as well as to efficiently carry away cuttings. Angled fluid jets

propel water opposite the reamer rotation to keep carbides clear of debris. Each cutter takes off only a 1/2 inch at a time for smooth, efficient cutting. Varying sized carbide blocks prevent shaft wearing directly in front of the reamer body; while it is hard-facing on all other wear areas and includes curved, hard-faced backup blades for added wear-resistance during pushbacks. Three carbide cutter styles maximize reaming production in a wider variety of tough conditions, with a built-in swivel also available. Shark-tooth, conical aggressive and conical dome cutter options are available in cutting sizes from 8 to 48 inches. **800-558-7500; www.melfredborzall.com**



Tunneling

Akkerman 1525B/D



The 1525B/D hydraulically driven high-pressure pump from Akkerman is used for effective pilot tube and other pipe jacking operations particularly on larger diameter bores. The large 525-gallon tank offers in-tank agitation for continuous mixing, independent agitation, or agitate and pump to maintain optimal mud viscosity. It displaces a Marsh Funnel viscosity as high as 50 seconds with pump flow up to 10 gpm at 2,500 psi. It is powered by a 20.7 hp diesel engine with an 8-gallon fuel tank. Like its 325-gallon counterparts, it is simple, safe and reliable. There are few moving parts, no belts and a shrouded agitator. The stepped platform makes it easy for operators to access and fill the tank. **800-533-0386; www.akkerman.com**

McLaughlin Group McL-60 Workhorse

The McL-60 Workhorse auger boring system from McLaughlin Group is designed for demanding diameter power, communications, water/sewer and pipeline casing installations. Powered by a 218 hp Volvo turbocharged engine, it can install steel casing up to 60 inches in diameter and perform bores up to 700 feet in length. A low-profile engine design allows the unit to easily glide beneath standard trench box spreader bars, and an Eskridge gearbox generates torque up to 126,000 ft-lbs. A remote-control feature lets the operator control the machine from outside the excavation pit, and the onboard Rabbit Travel feature eliminates the need to use the cylinders of the machine to install the product pipe or to pull augers, creating faster performance. **800-435-9340; www.mclaughlinunderground.com** ▼



“We ask questions. We have a protocol form. If the customer can answer all questions and we have **clarity** as to what the project is and what they expect of us, that is helpful. We like to walk it with the client — to understand all hazards.

We are often working with volatile utilities we need to work around. That is our job.”

Jose Santos, President
Hydro Spy, LLC
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The Difference Between Life and Death

FOR CONTRACTORS, HAVING A PLAN IN PLACE FOR EMERGENCIES IS A MUST FOR SAVING LIVES AND KEEPING EVERYONE ON THE SAME PAGE

BY JARED RANEY

If your crew member was pressure testing a pipe when suddenly the plug was blown out and that worker was thrown from the ladder and became pinned inside a manhole, would you know what to do?

For the crew at Horizontal Boring, that's not a hypothetical scenario. It happened to one of its crew members, and thankfully, they knew exactly how to handle the situation.

"They had to execute the emergency action plan to remove the injured employee from the manhole, bring him up to safety, get the ambulance and safety manager on site and assess the injury," says Ernie Romero, owner of the company, based in Phoenix.

As a result, the employee escaped the situation with no more than minor injuries, showing that emergency action plans can be the deciding factor in whether an employee lives or dies on a work site accident.

DRAFTING A PLAN

With all the paperwork and red tape attached to job sites, it can be easy to overlook planning for hypothetical emergency situations. But it's an item that must be crossed off — if not to avoid penalties, then simply for peace of mind.

"That's the last call you ever want to get — an injury on site," Romero says. "At times there are sites that may have some varying circumstances that require we implement an emergency action plan."

Beyond simple best practice, if caught without an emergency action plan, your company will be fined by OSHA. The safety and health regulations for construction require emergency action plans in writing for each construction site, which "must cover those designated actions employers and employees must take to ensure employee safety from fire and other emergencies."

Penalties can range from \$10,000 to over \$100,000. There are different standards of violation; for example, initial posting requirement violations are listed as \$12,934 per violation, but a willful or repeated violation jumps to \$129,336 per violation.

OSHA provides information through its website on emergency action plans and requirements, including an eTool to help companies develop plans.

"It's typically going to consist of the possible emergencies on any given site, what may happen if that does take place, and then we'll address actionable steps to follow, and we'd have the written procedures for that," Romero says. "We're going to have exit routes — we usually like to set two meeting points for everybody if an emergency takes place, a primary and a secondary, to ensure if the emergency takes place at the primary meet point, then we have the secondary to meet at. Those are really the general points we're looking to cover in our action plans."

Emergency action plans can be as in-depth as outlining the specific safety duties of each employee on site, even down to subcontractors involved in the work, as well as safety inspection procedures, accident investigation and reporting.

TAKING THE LEAD

The supervisor in charge of setting up the emergency plan will look at what reporting agencies are nearest, as well as the closest hospitals, so workers know who to contact and where to go.



Ernie Romero is the owner of Horizontal Boring, based in Phoenix. Romero's company had to use its emergency plan at a job site a number of years ago, and he says every construction company needs to have one and make sure their employees know it.

"THAT'S THE LAST CALL YOU EVER WANT TO GET — AN INJURY ON SITE."

Ernie Romero

"I think it's very important to have somebody involved — whoever's dealing with your safety plans and your emergency action plans — who understands the OSHA requirements, to have a background in safety, and to really understand the requirements and the actions necessary should certain events occur," Romero says.

Horizontal Boring has a dedicated, full-time safety manager with 30 years' experience in safety management and a comprehensive safety-first program, ensuring that safety requirements like emergency action plans don't fall through the cracks.

That manager runs monthly companywide safety meetings, as well as weekly on-site meetings for each specific work site. The company's overall safety program is constantly evolving.

IT WORKS

Horizontal Boring's case of its employee who was injured in the blowout is proof that having a plan in case of emergencies can save lives.

"They were prepared for it, and it's always good to see," Romero says. "We're all responsible for safety, all of us out on site, and we take it extremely seriously. Accidents do happen and things happen that are outside of our control; but when it does happen, you just want to ensure that you have the best plans in place and everyone is best prepared to deal with those situations." ▼

Setting Prices or Staking Out Territories With Competitors Can Be a Felony Offense

COLLUSION IS A CLEAR AND PRESENT DANGER WHEN NEIGHBORING COMPANIES GET TOGETHER AND TALK BUSINESS. HANDLE THESE RELATIONSHIPS CAREFULLY.

BY ERIK GUNN

Working together is a wonderful thing — except when it's against the law.

Let's say you have a great customer base on the north side of the interstate highway bisecting your county that gives you enough work to keep you busy.

There's another company with similar services south of the interstate. They seem pretty busy, too, in their half of the county. You get along with each other well enough at your state trade association meetings. Maybe you've even gotten a call from them to help out one of their customers because they were so busy they couldn't respond to one more emergency.

Imagine you run into the owner at an industry show. He invites you out to dinner and offers a suggestion:

"I know you do good work, and you know I do good work. You're busy, and I'm busy. And we probably both worry about some newcomer expanding into this county and poaching our customers. What do you say, how about we just make a gentleman's agreement that you stick to the north side and I'll stick to the south side?"

With that last sentence, the two of you are at risk for breaking the law.

RULES ARE RULES

You might think only corporate giants need to worry about antitrust laws and other regulations that punish businesses for squelching competition. Not so. The specific laws might not be the same, but small businesses like yours are subject to laws against collusion and anti-competitive behavior just as much as big ones, says Peter Carstensen, a professor emeritus at the University of Wisconsin Law School, where he teaches antitrust law, is a senior fellow of the American Antitrust Institute, and has published widely on the law and business competition.

"Antitrust law applies to every business," Carstensen says. "Almost every state has a state antitrust law that is roughly similar to the federal antitrust law. So if the feds don't get you, the states will."

While you might not get prison time, if you get caught, you could wind up with a felony conviction. And because big business is on the federal radar when it comes to anti-competitive shenanigans, states are more likely to keep their eye on small and midsize companies.

"Antitrust lawyers are not cheap," he warns. "But secondly, it takes so much of the energy and mental attention of managers of a business if they get caught up in an antitrust case." That's energy and attention that you should be using to build and improve your business.

Why do these rules exist at all? Our economic system is founded on the idea that fair competition provides the best deal for consumers. So if competition isn't fair, consumers suffer. And that's when government steps in.

So when two or more independent businesses carve up a territory and agree not to compete, "that's pretty much a hardcore violation," Carstensen says.

And colluding over a territory isn't the only way businesses — even small ones — can run afoul of antitrust laws. Agreements among competitors over how much they'll charge for a service are another "straight-up no-no," he says.

WHO'S WATCHING?

It's not always the customers who complain, either. Other competitors, if they figure out you're up to something, will be just as ready to turn you in.

A number of years ago, Carstensen recalls, real-estate agents in a particular market got together and agreed to raise their commission rates. Their plan

OUR ECONOMIC SYSTEM IS FOUNDED ON THE IDEA THAT FAIR COMPETITION PROVIDES THE BEST DEAL FOR CONSUMERS. SO IF COMPETITION ISN'T FAIR, CONSUMERS SUFFER. AND THAT'S WHEN GOVERNMENT STEPS IN.

didn't get very far, though. "At least three of the brokers left the room and called the Justice Department," he says.

Another form of collusion that sometimes crops up is when competitors cooperate to cut one of their number out.

For instance, suppose there are five businesses in the same industry in a particular region and they all use the same supplier. Then, for whatever reason, four of the five decide they want to force the fifth company out of business. (Let's call the blackballed business XYZ Construction.)

So those four go to the supplier. "Stop selling to XYZ Construction," they say. "If you don't, the four of us will stop doing business with you."



In a case similar to that example, Carstensen says, the supplier agreed and stopped selling to the target company. The blackballed company in turn sued the supplier and won damages.

GRAY AREAS

Sometimes it's hard to tell if industry infighting is a case of honest whistleblowing or a conspiracy to restrict competition.

If a group of businesses complains to a supplier about one of their competitors, they might genuinely want to sound the alarm about a bad apple. On the other hand, Carstensen says, "Many times people will infer there is an agreement among those guys to complain."

The bottom line: If you have evidence that another business really is a bad actor, it's your right, even your professional duty, to make sure that the appropriate authorities know.

But if you are trying to run someone else out of business and you gang up with other competitors to try to do that, you're breaking the law. "You can't agree to attack a competitor," Carstensen says. "Those are things a business needs to watch out for whenever you're interacting with another business: Why is this happening? Is this lawful?"

Another gray area can arise in supplier dealings.

Suppose your regional trade group hires an engineer from the local university to evaluate a series of alternative products. The engineer produces a report and rates the various technologies for their effectiveness, ease of application or other criteria. The report is made available to the trade group, recommending some products and not others.

By itself, Carstensen says, that's perfectly appropriate: Each member of the association can still choose which product to use.

"Where we get the problem is when they say, 'We ought to standardize on something so we don't confuse customers by giving them all these options.' Now they've fenced out all the other suppliers. The customer is not given a choice."

THE RIGHT WAY

That doesn't mean competitors can't cooperate at all. Trade associations represent the entire industry, providing training, serving as a voice for member businesses in dealings with the public and with government agencies, and promulgating best practices.

Other forms of cooperation are also permissible, so long as they don't harm competition. For instance, if two or more competing companies agree to a joint venture so they can purchase their supplies in larger quantities at a lower price, that's perfectly acceptable, Carstensen says.

By all means, cooperate when doing so doesn't mean you'll interfere with competition and when you'll serve the interests of all your competitors as well as your customers and the community. Work through established, reputable trade groups.

Carstensen says agencies such as the Federal Trade Commission and the U.S. Department of Justice are often willing to advise business owners as to what arrangements will be viewed as legitimate and what ones look questionable. But, he warns, ask *before* you embark on any collaboration of that sort.

If you're going to take that step, even if you don't have any questions, consult with a lawyer versed in both state and federal laws that govern competitive business practices. That can be a challenge, he acknowledges; lawyers with antitrust experience don't come cheap.

But if you have a regular business lawyer (and you really should), the state bar association should be able to direct him or her to an antitrust expert willing to do a one-time phone consultation at no charge.

That way you can be sure you don't fall into the collusion trap. ▼

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BY CRAIG MANDLI



Prechlorinated pipe bursting provides new water mains without disturbing residents

PROBLEM

Bloomfield Village in Oakland County, Michigan, was ready to replace water mains, but it wanted to do so with minimal interruption of water service to local residents. Space along street right-of-ways was also limited, so officials wanted to limit excavation.

SOLUTION

The village specified prechlorinated pipe bursting replacement in its plans and chose to upgrade the existing mains with 8- and 12-inch HDPE pipe. Pipe bursting specialist Bidigare Contractors was chosen for the job. For bursting operations, Bidigare Contractors used its own hydraulic pipe bursting machine from the **HammerHead Trenchless HydroBurst** line. Although the machine was capable of up to 100 tons of pulling force, Bidigare Contractors says the average burst required only about 20 tons.

RESULT Bidigare Contractors replaced between 200 and 500 feet of pipe a day using this method. Residents were never without water service aside from the day the work was done.

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The G400WCU-T4F mobile generator from Doosan Portable Power has a prime power rating of 402 kVA packaged in a compact footprint to meet a broad range of applications. It is powered by a Tier 4 Final Cummins QSG12, 513 hp diesel engine and is equipped with a 505-gallon fuel tank. The tank is paired with two diesel exhaust fluid tanks to ensure DEF supply matches the available fuel supply. The easy-to-use operator panel includes the powerful TG410 controller and is complemented by a full array of analog gauges, simplifying machine control and monitoring. The optional Deif AGC4 power management system greatly enhances the capability of the G400 and broadens its capability to support large, critical power projects. **800-633-5206; www.doosanportablepower.com**

2. John Deere 655K and 755K crawler loaders

Featuring a Final Tier 4 John Deere PVS 6.8-liter engine, the 655K and 755K crawler tractor loaders from John Deere exhibit a rise in overall horsepower. The 655K's net power has increased from 145 to 155 hp, while the 755K's net power has increased to 194 hp from its previous 190 hp. The loaders have hydrostatic transmissions that allow for infinite speed control, power management, live power turns, counter rotation while staying in gear and dynamic braking. Inside the cab, onboard hydrostatic and hydraulic pressure sensors make it easy to read pressures in both the hydrostatic and hydraulic systems without the need for external gauges. Auto idle automatically lowers engine speed when the machine is not moving and no functions are being activated. **800-503-3373; www.johndeere.com**

3. Felling Trailers FT-30-3 triple-cable reel trailer

The FT-30-3 triple-cable reel trailers from Felling Trailers have three A-frame reel stands to provide accessibility for the operators to load cable reels by use of a forklift versus loading with a boom truck. The bolted-on stands can be moved when there is a need to adjust the tongue load, ensuring proper weight distribution when towing. The custom air tank is located in the hitch with a pressure gauge, shut-off valve and air line for the operation of the air brake system. The catwalk feature runs the length of the trailer and is constructed with grip strut with an approximate width of 10 inches. Bracing runs underneath with a rear lip to prevent fall through. **866-213-2948; www.felling.com**

4. Vacall AllJet truck-mounted jetter

The AllJet truck-mounted jetter from Vacall uses a fuel-saving, single-engine PTO design, a 1,600-gallon UV-resistant polyethylene water tank and Vacall's AllSmartFlow CANbus control system. The controls, protected inside a weather-resistant cabinet, help optimize efficiency with controls for water pump speed and pressure, hose reel adjustment, chassis engine and more. The hydraulically powered triplex plunger water pump is capable of 87 gpm at 2,000 psi, to effectively jet blockages in sewer lines and routinely maintain flow, with other power options available. The hose reel telescopes out 54 inches from a retracted position and swivels 200 degrees to properly direct the 600-foot, 1-inch-diameter jetting hose. **800-382-8302; www.vacall.com ▼**

This Issue's Feature:

Bring a versatile pull head to the job site

BY CRAIG MANDLI

Fusing pipe in the trench is often a time- and labor-intensive process. Wet, dirty and sometimes even unsafe trench conditions make for a less-than-ideal location to fuse pipe. Regardless of the method being used to pull HDPE pipe, the **QuickConnect universal pull head** takes fusing out of the trench, making the operation faster and safer.

The company's newest universal pull head brings versatility to the job site by eliminating the need for multiple pull heads to accommodate different pipe types or trenchless applications. The idea behind the efficient unit came in the field, according to Clint Baumgartner, QuickConnect product manager.

"We are trenchless contractors who are designing products for other trenchless contractors," he says. "Whether you're pulling HDPE pipe, PVC or multiconduits, the QuickConnect pull head will get the job done."

There are three QuickConnect pull head products currently available: the Universal Pull Head for HDPE Pipe, Universal Pull Collar for FPVC/PVC Pipe and Universal Multipipe Puller. The QuickConnect universal pull head for HDPE pipe makes connections easier, keeps mud and drilling fluids out of the pipe, accommodates both IPS and DIPS pipe diameters and is designed to withstand forces in excess of two times max pull force, depending on product pipe.



"Whether it's HDD, pipe bursting or any other method of pulling HDPE pipe, the QuickConnect will save contractors time — which will ultimately make their operations faster and more efficient," Baumgartner says.

The QuickConnect Universal Pull Collar makes the connection process with FPVC or PVC fast and easy. The pull collar is designed to create a closed seal to keep drilling fluids clear of the pipe. The QuickConnect Universal Multipipe Puller permits drillers to configure multiple pipes — gas, telecom and electric conduits — without needing additional cable pullers, creating convenience and timesavings on the job site.

"When you're out doing the job every day, you're bound to encounter new problems and challenges," Baumgartner says. "The feedback from our customers has been really positive and has been a reflection of the reason we sought out to create the product — to save time in the installation and cleaning of the pipe, to save money by reducing the need for multiple pull heads and to increase safety by eliminating the need to fuse in the trench."

833-774-2365; www.pullhead.com

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THE LATEST: News

Imperial Industries announces promotion of Mannel to president

Kurt Mannel was announced as the new president of Imperial Industries. Formally the vice president of Imperial Industries, he brings more than 27 years' septic hauling experience to the role. Prior to becoming vice president, he served as the company's plant manager and ran his own business, Mannel's Septic Cleaning, for more than 10 years. His experience also includes a stint as the welding instructor at Northcentral Technical College, rounding out a solutions-oriented understanding of the engineering and operation of septic hauling equipment.



Kurt Mannel

Felling Trailers hosts Sen. Klobuchar

Felling Trailers hosted Minnesota U.S. Sen. Amy Klobuchar during her central Minnesota manufacturing road trip. She spoke to the company's ownership and management about issues such as health care and workforce shortages that manufacturers are facing. During Klobuchar's visit, she spoke about the measures being taken at the federal level to strengthen local workforces.

Felling Trailers is building relationships with area high schools and colleges to introduce modern manufacturing to students and expose them to the career opportunities that exist. Along with offering tours, Felling Trailers also offers a selection of student programs: Careers in the Community provides welding training to high school juniors and seniors, Youth Welding Camp provides basic weld-

ing safety and training for elementary to junior high ages, and most recently, Felling Trailers offered a Women in Welding course. All courses are offered free of charge.

VMAC sponsors Nanaimo's Education and Career Fair

VMAC sponsored Nanaimo's Education and Career Fair in December. ECF is responsible for British Columbia's largest career development fair, attracting over 10,000 attendees over five different locations each year. Students visiting the VMAC booth learned about a wide range of career paths, most notably engineering, fabrication, machining, marketing and quality control. Those specifically interested in learning more about VMAC and its in-house manufactured products were given a tour of the demo truck, equipped with various air compressor and multipower systems.

Fancher to retire from Muncie Power Products

Chris Fancher, senior vice president of IT and administration, retired from Muncie Power Products at the end of December. With the company since 1978, Fancher served in various roles including shipping and receiving clerk, bench assembler, accounting clerk/manager, internal auditor and inventory control, data processing manager, corporate controller, vice president and corporate controller, and senior vice president of finance and administration. He had also served on the company's board since 2006. ▼



Chris Fancher

DOWN & DIRTY

What's Your Story?

Dig Different welcomes news about your tough excavation, pipe bursting, trenching, boring or tunneling job for the Down & Dirty column.

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Happenings

CALENDAR

March 14-116

National Utility Contractors Association (NUCA) Annual Convention, Naples Grande Beach Resort, Naples, Florida. Visit www.nuca.com/convention

March 17-21

North American Society for Trenchless Technology's No-Dig Show, Donald E. Stephens Convention Center, Chicago. Visit www.nodigshow.com

March 19

Association of Equipment Management Professionals (AEMP) 37th Management Conference & Annual Meeting, Rosen Plaza Hotel, Orlando, Florida. Visit www.aemp.org

March 26-28

Common Ground Alliance (CGA) Excavation Safety Conference & Expo, Tampa Convention Center, Tampa, Florida. Visit www.cgaconference.com

March 28-30

Mid-America Trucking Show, Kentucky Exposition Center, Louisville, Kentucky. Visit www.truckingshow.com

April 6-7

National Heavy Equipment Show, International Centre, Mississauga, Ontario. Visit www.nhes.ca

May 3-9

4th ITA-AITES General Assembly and World Tunnel Congress (WTC), Mostra d'Oltremare, Naples, Italy. Visit www.wtc2019.com

May 21-23

NUCA Washington Summit, Holiday Inn Capitol, Washington, D.C. Visit www.nuca.com/summit

June 16-19

Rapid Excavation and Tunneling Conference (RETC), Chicago. Visit www.retc.org

Dig Different welcomes your contributions to our Happenings column. To recognize members of your team, please send notices of new hires, promotions, service milestones, certifications or achievements. We also invite your national, state or local associations and organizations to post notices, news items and learning opportunities. Send contributions to editor@digdifferent.com. ▼

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