CODIFFE REPLACE

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WITH THE WEATHER CHANGE COMES A NEW CONSTRUCTION SEASON. THE BUSY TIME OF THE YEAR — SUMMER — IS COMING UP FAST AND YOU'RE ALL READY TO GO, RIGHT? ARE YOU SURE?

### Busy Times Ahead. Are You Ready? It's time to tune up the trucks, fire up the crews, and get ready to roll into a profitable year

BY CORY DELLENBACH, EDITOR

arch is already here. Hopefully the cold weather is starting to make its way out where you are, and the snow cover is starting to diminish. With the weather change comes a new construction season. It's time to get those hydroexcavators digging again and time to start locating utility lines before those

big projects begin. The busy time of the year — summer — is coming up fast and you're all ready to go, right? Are you sure?

#### **GET THE FLEET IN SHAPE**

This is the time to check over the equipment that's been stored over the long winter months. Check over those trenchers and make sure everything is running smoothly. Get your tunneling machine ready to dig. Make sure your hydroexcavator is operating at peak efficiency.

What do you check on a hydroexcavator? A good place to start would be the blower and bag filters. Industry experts give you some tips on what to look for in our Machine Shop feature this month. They'll go over when to do specific maintenance on each component and some warning signs to look out for as you operate the vehicles.

#### **KEEP YOUR TEAM SAFE**

OK, so you've checked over your vehicles and they all look good. This is also a great time to meet with your staff for some safety refreshers. Many of your crews are out there working with electric utilities, gas lines and other hazards on a daily basis.

Set up a meeting with your crews about what hazards to look for at work sites and how to avoid them.

Ontario Excavac — profiled this month — makes each of its employees go through extensive orientation and training before they step foot on a hydroexcavator. Crews are gathered every quarter for training sessions to keep them updated on new procedures.

Owner Barry Wood says it's important for his crews to know about safety as the company works closely with one of the largest gas utilities in the Greater Toronto Area.

#### TAKE CARE ON THE ROADWAYS

Vehicles inspected? Check. Crews refreshed on safety?

Check. Now it's time to get to work on that busy highway where you'll be installing belowground utilities.

This would be a good time to make sure you have all the equipment you need to work on roadsides safely: orange cones, barricades and maybe even flaggers.

Roadside safety can easily be overlooked, but it shouldn't be. The Bureau of Labor Statistics reports that there were 105 worker fatalities at road construction sites in 2013, while in 2012 there were 133 fatalities reported. According to the U.S. Department of Transportation Federal Highway Administration there is one work zone injury every 14 minutes (96 a day), or about four people injured every hour.

Our Safety First feature looks at ways to make sure you are ready for your roadside work sites and know what you need to do to keep everyone safe — including passing motorists.

#### LET'S HEAR FROM YOU

So, now that you've been thinking about how to keep your crews safe and having your vehicles ready for the new season, how about looking back over your business career? One item always interesting to contractors: tough challenges and how they were met. What has been the most difficult work site you've been called out to? What made it difficult and how were you able to solve the problem? Share your stories with others who "dig different" by sending me an email at editor@digdifferent.com.

Enjoy this issue of *Dig Different* and remember, think outside the bucket! **•** 

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The no-dig pipe replacement process is gaining more and more interest from contractors nationwide. Your out-of-the box bursting stories encourage others to take the pipe-bursting plunge, so we've taken a closer look at some of your toughest jobs. digdifferent.com/featured

#### NAXSA **All About Safe Shoring**

A new international trade association — the



North American Excavation Shoring Association (NAXSA) - was recently formed to help promote worker safety and the effective use of shoring practices. "With the formation of NAXSA, these workers now have a national network of peers that they can rely on, network and interact with," says NAXSA President J. Dana Woudenberg. digdifferent.com/featured

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#### **INSIDE LOOK** Underneath Arlington National

Murphy Pipeline crews were challenged with working in an operational national landmark that would not be closing to tourists averaging 11,000 per day. Find out how they replaced nearly 39,000 feet of water pipelines under Arlington National Cemetery with minimal disruption to the park's visitors or its pristine grounds.

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# Caring for Your Hydroexcavator

#### PROPER MAINTENANCE ON BLOWERS, FILTER BAGS CAN ENSURE PROBLEM-FREE OPERATION

#### **BY KYLE ROGERS**

ith their ability to dig more safely and efficiently, hydroexcavators are a popular tool of the trade. Of course, they can only be effective if the various components are working properly.

Imagine being on the job and your machine loses some of its powerful suctioning ability. The tendency may be to crank the machine up to a higher rpm, says Gary Poborsky, founder and owner of GapVax. But that won't do much good and will only burn more fuel. The culprit in this case could be dirty filter bags.

"It's just like a shop vac you use around the house," Poborsky says. "You can tell when the filter starts to get blocked. You can tell you're losing suction on the end of the hose. You take that filter out, clean it and put it back in, and it makes a big difference. It's the same thing with a hydroexcavator. You're going to lose performance [with dirty filter bags]."

There are many components to a hydroexcavator, but filter bags — along with blowers — are two key ones to focus on since they are tied directly to the machine's vacuuming ability. Without that function working at an optimum level, you're not taking full advantage of the benefits of hydroexcavation.

#### **BLOWER MAINTENANCE**

In terms of preventive maintenance, a hydroexcavator blower should require nothing more than checking oil levels and changing out that oil at regular intervals. Keeping up on that basic maintenance practice could lead to tens of

thousands of operating hours on the hydroexcavator without major problems.

"We have many customers way in excess of 20,000 hours and some of them 40,000 hours whose blowers still function and perform excellent," Poborsky says. "OUR HYDROEXCAVATORS ARE NOT ONLY A HYDROEXCAVATOR BUT ALSO AN INDUSTRIAL TRUCK, SO THEY CAN BE USED IN STEEL MILLS AND CEMENT PLANTS AND POWER PLANTS. THEY GET **USED IN THE WORST CONDITIONS THERE ARE OUT THERE."** 

Gary Poborsky

At Vac-Con, the company's national service manager Mike Selby has seen the same.

"We have a contractor that does hydroexcavation along with combination sewer cleaning, and the unit has over 30,000 hours on it," he says. "It really depends on what the contractor's equipment replacement cycle is, but it's not uncommon to see anywhere from eight to 12 years of solid operation."

The recommended interval for changing out blower oil can vary among equipment manufacturers and also depends on how exactly the machine is being used.

"It depends on how severely they're operating the unit and then it also depends on the operating temperature. So what we recommend is to follow



the manufacturer's guidelines," Selby says. "As a general rule of thumb, what we recommend is basically 250 hours."

Poborsky says a maintenance schedule accompanies every GapVax machine sold. Those recommendations include checking blower oil levels prior to each job to ensure there's enough oil for operation and changing it every 800 hours when using mineral oil or every 1,600 hours when using synthetic oil. GapVax recommends that the initial oil change occur after the first 200 hours.

Another blower-related preventive maintenance item is regularly greasing the drive shaft if that's what drives the blower, as is the case with GapVax hydroexcavators. Poborsky says that should be done weekly.

Such practices could mean a reliable machine over the long term as GapVax's suggested maintenance intervals were all devised with extreme working conditions in mind, Poborsky says.

"Our hydroexcavators are not only a hydroexcavator but also an industrial truck, so they can be used in steel mills and cement plants and power plants. They get used in the worst conditions there are out there," he says. "The conditions we were keeping in mind were running the trucks hard, around the clock, 24/7."



#### **FILTER BAG REPLACEMENT**

The purpose of filter bags is to get dirty as they serve as a last line of defense to protect the blower from all the debris being sucked up during operation. Thus, the maintenance required on filter bags is pretty straightforward: They will need to be replaced from time to time.

Poborsky recommends replacing filter bags annually or every 1,500 to 2,000 operating hours. That interval takes into account the cyclones on GapVax machines that remove most of the moisture and debris from the airstream before it even reaches the filter bags and blower.

#### **RUNNING A RESTRICTION TEST**

Selby says putting a specific interval on filter bag replacement is difficult though because it's largely dependent on the machine's application.

"In hydroexcavation, the whole idea is to use the water that is on board — or the hydro portion — to break up and liquefy the ground enough so that you have adequate separation in the tank," he says.

But more material will remain in the airstream, reach the filter bags and clog them more quickly in a dry application. That's why the best way to determine exactly when it's time to replace filter bags is running a restriction test, Selby says. Turn on the machine, pull free air through it without vacuuming any material and look at the reading in inches of mercury on the vacuum gauge.

"A majority of machines out there will be 18 inches all the way up to 28 inches. So, as a rule of thumb, if you're pulling free air and it's over half of what the rating of the unit is, then the bags need to be cleaned," Selby says.

A restriction test is a good way to identify possible problems even if the airflow in a machine is designed in a way that doesn't require filter bags.

"I always go back to the reading on that vacuum gauge," Selby says. "If there is a restriction, whether it being filters in the airstream or something else in the piping going to the blower, you're going to see elevated mercury levels."

A restriction test doesn't need to be a daily maintenance item though. Poborsky says if a sudden problem arises involving the filter bags, it will be noticeable in the machine's operation.

"With the filter bags, there's really nothing that needs to be checked over on a daily basis," he says. "With contractors on the industrial side who get into some hot material, there could be a situation where a bag breaks or is destroyed. But you would know. It would start blowing dust through the exhaust. Those are the two signs filter bags should be replaced: High restriction and any dust coming out the exhaust."

#### WATCH THE EXHAUST

Selby says the exhaust is something that hydroexcavator operators should always keep an eye on, whether vacuum is being generated via positive displacement or a centrifugal compressor. Not only is material coming out of the exhaust a sign of a problem occurring elsewhere on the machine, noticing it immediately can reduce the amount of damage done to the blower.

"If there is material coming out of that exhaust, that means you're running material through the blower, which is thus causing damage to the blower," Selby says. "A centrifugal compressor is much more forgiving on carryover particulate because it doesn't rely on clearance to generate vacuum [compared to a positive displacement machine]. But regardless of what generator it is, if you start pulling material you're going to do wear [on the equipment]. That's really it." ▼



HYDROEXCAVATION

Profile

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Hydro Spy operator Hugo Jimenez (right) uses a NorthStar Trigger Spray Gun/Lance Combo (Northern Tool + Equipment) to excavate at an industrial site. Technician Olalekan Durojaiye works the hydraulic boom, checking for underground pipes and monitoring the vacuuming (GapVax HV-56).

D

#### Hydro Spy, LLC Houston, Texas

83.1

OWNERS: Richard Young and Jose Santos FOUNDED: 2009 EMPLOYEES: 12 SERVICE AREA: Entire Gulf Coast region SERVICES OFFERED: Hydroexcavating for wide variety of industries and situations

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"WHEN THE SPOUSE OR SIGNIFICANT OTHER HAS SKIN IN THE GAME, **BOOTS HIT THE FLOOR ON TIME FOR WORK** EVERY MORNING." Richard Young

A COLOR A COLOR



# TOUGHTIME WAS THE BEST TIME

#### HYDRO SPY TURNED A DEEP RECESSION TO ITS ADVANTAGE IN STARTING AND BUILDING A SUCCESSFUL HYDROEXCAVATION COMPANY

STORY: PETER HILDEBRANDT PHOTOS: JON SHAPLEY

Conventional wisdom says the middle of a recession is the wrong time to start a business. For Richard Young, co-owner of Hydro Spy Vacuum Excavation Services, it was exactly the right time.

The company started operations during the Great Recession of 2008. Early on, lenders were reluctant, and it was tough finding work and finding the right employees. So instead of trying to land as many jobs as possible, Young worked on marketing his business and putting all the pieces into place to make the company thrive.

By the time the economy bounced back the company had made a name for itself. "Things just took off from there," Young says.

"If we had started out when economic times were good, we would have been overwhelmed by demand and dismissed as unreliable. Customers may not have taken any chances on a startup, and we certainly wouldn't be where we are today."

#### **BUILDING A FOUNDATION**

Headquartered in Houston, Hydro Spy has built itself into a well-respected company providing hydroexcavation and air excavation services to contractors and engineers in the oil, gas, chemical, civil construction and municipal industries.

The company serves the Gulf Coast region and has expanded to include services such as potholing, line locating, trenching, pipeline excavation, line cleaning and tunneling. Hydro Spy added a new office in Corpus Christi, Texas, and aims to add up to eight more locations over the next few years.

"In the heart of the recession proved to be the best time to start up a business," says Young, CEO and president. "We weren't ready to compete. We didn't have any equipment, so we mostly focused on marketing, branding and our corporate infrastructure. There were no lenders, so we wound up renting our equipment and paying cash up front anytime we needed a hydroexcavator."

Hydro Spy has grown to 12 employees, including coowner and vice president Jose Santos, and Young. Santos is in the field concentrating on quality control.

#### **DIFFICULT WORK SETTINGS**

Hydro Spy has five GapVax hydroexcavation units

Hydro Spy vice president and co-owner Jose Santos (left) and president and co-owner Richard Young stand near one of their company's GapVax HV-56 vehicles at their Houston facility.

# Custom-designed equipment is perfect fit for Hydro Spy

Four GapVax HV-56 hydroexcavators are key pieces of machinery for Hydro Spy.

Two are on Volvo chassis (a 2007 and a 2010), and two are on Peterbilt 367s (2011 and 2012).

For co-owner Richard Young, the custom-designed trucks' ease of operation makes them valuable: "You don't have to be a brain surgeon to operate the equipment, but you do need to operate it the same way every time."

While Young praises the GapVax vehicles and the work they can perform, he's always looking at ways to improve them. He is particularly interested in increasing the units' carrying capacity — but doing it legally.

"Being legal when you go over the road remains one of the biggest challenges," Young says. "Getting stopped by a state trooper and then having the truck be overweight means that all of your profits for that day are out the window immediately." The HV-56 has a Hibon blower that delivers 5,250 cfm/28 inches Hg vacuum. It features ultra-quiet exhaust and intake vertical silencers, a 12-inch stainless steel liquid shut-off float ball, a 15-cubic-yard debris body, a 20-inch body-access manway, a 50-gallon hydraulic tank and a 1,000-gallon water tank.

The company's fifth GapVax unit, a GapVax HV-46 built on a 2002 Volvo chassis, has a 14.5-cubic-yard collector body with a 3,800 cfm/28-inch Hg vacuum blower and a 1,600-gallon external aluminum water tank.

"It is still in great shape and is what we call our trench king because it has one of the largest water tanks of any hydroexcavator on the market," says Young. "When other trucks have to disassemble and get more water, this truck can continue working until the debris tank is full. It has a smaller blower than our HV-56 models, but it is perfect for trenching long distances." within its fleet – four HV-56 models and one HV-46 model. The company also has two semis — an International (Navistar) and a Freightliner — and five service pickup trucks.

A sixth GapVax unit was destroyed in a traffic accident in July 2013; Young plans to replace that truck this year.

The hydroexcavators' hose attachments and vacuum power turned out to be useful on many jobs.

For example, when crews had to dig trenches, pit boxes and pier shafts during substation upgrades in Uvalde, Texas, there was no way to get the trucks close enough because of the overhead hazards such as high-volt-

"IF WE HAD STARTED OUT WHEN ECONOMIC TIMES WERE GOOD, **WE WOULD HAVE** BEEN OVERWHELMED BY DEMAND AND DISMISSED AS UNRELIABLE. CUSTOMERS MAY NOT HAVE TAKEN ANY CHANCES ON A STARTUP, AND WE CERTAINLY WOULDN'T BE WHERE WE ARE TODAY." Richard Young

age wires. Instead, workers parked trucks more than 900 feet away from the substation and used hose attachments to reach the work site.

The trucks also proved their worth for a New Jersey-based construction company and the Army Corps of Engineers, excavating a cofferdam for the installation of a municipal wastewater pump station.

The general contractor faced two hurdles: First, completing a 30-foot vertical excavation in a 23- by 18-foot box with a trackhoe, and second, removing excess water from the soil before the excavation process.

The general contractor drove sheet piles into the ground to form the box and installed wet wells around the box to manage the groundwater. Hydro Spy hydroexcavated the pit instead of using the trackhoe.

The crew reached an initial target depth of 20 feet in less than two days.

"The excavation process was

interrupted for two days to allow the general contractor to install wales and braces around the interior of the sheet piles," Young says. "We then resumed excavating, finishing the entire cofferdam pit in just three and a half days."

The crew excavated more than 480 cubic yards of soil.

#### **CHALLENGES OF THE BUSINESS**

While getting work is no longer a challenge for Hydro Spy, finding the right employees has been.

"Our biggest hurdles involve personnel issues — finding men and women





The Hydro Spy field crew includes, from left, Pablo Vasquez, operator; Adam Karraker, technician; Iram Beltran, supervisor; Anthony Young, technician; and Jeremiah Perez, Hugo Jimenez and Frank Vasquez, operators.

#### "WE KNOW THIS LINE OF WORK BECAUSE WE DID IT AS TECHNICIANS AND OPERATORS FOR YEARS. **WE TAUGHT OURSELVES, TAUGHT OTHERS AND THEN EVENTUALLY MOVED ON** WITH NAME RECOGNITION TO MAXIMIZE OUR POTENTIAL IN THIS INDUSTRY." Richard Young

who can follow rules and commit to working hard every day for every client," Young says. "This is dirty, dirty work and a job requiring you to stay unclean all the time tends to result in a revolving door for the technicians and service people we hire."

Another challenge is that employees don't like long hours spent on the job and away from their families. One way in which Young counters that is by "sending the ladies of Hydro Spy" (each employee's significant other) on a oneweek group vacation each year.

"When the spouse or significant other has skin in the game, boots hit the floor on time for work every morning," Young says.

Then there are some things employees just have to get used to.

"There is always going to be mud," Young says. "No matter how efficient we try to be, at the end of the day the guys are still going to be dirty. The key is finding people who can meet our standard of performance while living the mud life."

#### **STRONG BUSINESS ATTITUDE**

Young takes pride in being available to customers whenever needed. During the last six years the company has earned over \$500,000 more in business by being available at all times.

"Being able to answer the phone, even if it's first thing on a Sunday morning, has led to a lot of opportunities for us," Young says. "We will not let calls go to an answering service."

The company has a strong presence online with its website, Facebook page

and Twitter feed, and that exposure has pulled in work.

"We try to stay up-to-date with new client possibilities coming into our area, whether they are pipeline contractors, civil engineers, transportation projects or whatever," Young says.

The industry has become extremely competitive recently, and Young's goal for the company is to be known as the one that consistently provides quality service.

"Our philosophy is that it's simply not wise to get a client mad with bad service; nothing good comes out of that. Sometimes that involves not taking on more than you can chew. If a client is going to be mad I'd rather it be because we weren't available to Featured products from:

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service their project than because of poor service putting their project behind schedule."

Young says calls from potential clients often lead to an education process. The company gets a clear picture of a project before committing to the work.

"We ask questions. We have a protocol form. If they can answer all ques-



#### Poetic license helps in business as well

When he's not busy running his business, Hydro Spy CEO Richard Young can be found working on one of his two writing projects.

Young, who holds a Master of Arts in Literature, is working on a technical manual on hydroexcavation technology and methodology, and on a creative piece promoting the lifesaving benefits of hydroexcavation.

In the creative piece, a main character promotes how safe hydroexcavation is compared to other forms of excavation. The main character decides to do this after his 9-year-old daughter is one of several children killed near a small construction site when a careless backhoe operator strikes and ignites a gas line.

"I suppose this would be a great educational tool for young people in schools as well," Young says. "It's great to get the word out to people of all ages that excavations do not need to be risky enough to cause loss of life. Our employees are heroes in that sense."

Young hopes to have both publications in print by summer.

"These two projects have actually been in the fire for several years. It was just a matter of making the time to get them done. Between running the company, being a husband and grandfather, I had to get the writing in whenever and wherever I could."

tions and we have clarity as to what the project is and what they expect of us, that is helpful," he says. "We can't always get someone out there. 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."

#### FOR THE CUSTOMERS

Young and Santos worked in the industry before starting their own business. "We know this line of work because we did it as technicians and operators for years," Young says. "We taught ourselves, taught others and then eventually moved on with name recognition to maximize our potential in this industry."

The company has also added additional procedures to do backfilling, pipeline repair, tie-ins and installation of pipe.

"We're always looking for ways to serve our customers," Young says. "They need to come first."  $\blacktriangledown$ 

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# Wheels vs. Tracks

#### COMPACT TRACK AND SKID-STEER LOADERS EACH OFFER ADVANTAGES, AND ASKING THE RIGHT QUESTIONS CAN HELP YOU CHOOSE THE BEST OPTION

#### **BY PETER KENTER**

ompact track loaders (CTL) and skid-steer loaders (SSL) have become essential earth-moving tools for excavation professionals. Making an intelligent choice between a CTL and an SSL requires potential buyers to assess just what they want the vehicle to do and under what conditions it will need to operate.

Bobcat Company's first SSL was introduced in 1959. Its first CTL was launched in 1999, a relatively recent addition to the product lineup. Mike Fitzgerald, loader product specialist with Bobcat, says customers are driving the evolution of loaders.

"We keep adding attachments that allow the equipment to do something different, but whether we use tires or rubber tracks that convert the skid-steer into a dedicated CTL, we never change the cab, upper frame, engines, lift-arms or the hydraulic and hydrostatic pumps," he says. "The main difference is that on the skid-steer, the chain case drives the axle and the axle drives the wheels. On track loaders, two motors drive the sprockets that drive the rubber tracks."

#### **CHOOSE FOR THE JOB**

Fitzgerald says contractors don't generally come into a dealership conflicted over a tough decision between an SSL and a CTL.

"They walk in saying they have a job to do and want to know what will do it best, given the application and the ground condition of the projects," he says. "In the most general sense, leveling and digging and excavating primarily lend themselves best to a CTL, while multiuse machines that may require pallet forks, versatile on firm soils, allowing contractors to more easily work in tight locations. CTLs, on the other hand, can move on wet soil during spring thaws or after rain without disturbing customer landscaping.

#### MENU OF ATTACHMENTS

Although all attachments for the CTL and SSL are mechanically interchangeable, Fitzgerald says it's best to check which attachments are approved and recommended for each machine by the manufacturer. Common attachments include buckets, dozer blades, augers, trenchers and levelers.

"Perhaps 5 to 10 percent of the attachments aren't interchangeable," he says. "A CTL weighs more than an SSL and can better take advantage of attachments that require a pushing force. A good example is a dozer blade that works best on a CTL because of

#### Removable tracks: the best of both worlds?

While contractors may find themselves choosing between skid-steer loaders and compact track loaders, some suppliers offer removable tracks that can be fitted over skid-steer wheels.

While they don't offer the same maneuverability as a full-fledged CTL or "float" quite as effectively on soft soils, the removable tracks can provide contractors with a niche solution that may offer the best of both worlds.

Mike Fitzgerald, loader product specialist with Bobcat, says it will take two to three hours for a contractor to fit the tracks over the wheels the first time. A specialized tool offered with each set of tracks helps to connect the track ends efficiently.

"After the first time, the steel tracks can be installed in under a half hour and removed in less than 10 minutes," he says.

"IN THE MOST GENERAL SENSE, **LEVELING AND DIGGING AND EXCAVATING PRIMARILY LEND THEMSELVES BEST TO A CTL,** WHILE MULTIUSE MACHINES THAT MAY REQUIRE PALLET FORKS, GRAPPLES OR TRENCH LOADERS, FOR EXAMPLE, ARE GENERALLY BEST SERVED BY AN SSL." Mike Fitzgerold

grapples or trench loaders, for example, are generally best served by an SSL."

The capital cost of the equipment is an obvious consideration. Buyers will need to calculate the advantage of buying one type of loader over another and factor cost into the type of contracts they'll be able to complete with it.

"Buyers will look to spend 25 to 35 percent more for a CTL over a skidsteer," Fitzgerald says. "For contractors who know just how they're going to use them, they can make up the extra cost by extending their construction season by weeks or months because they have those tracks at their disposal."

SSLs are somewhat lighter and faster than CTLs. However, the type of terrain in which the loader will be operating is also a significant consideration. Fitzgerald says contractors performing the same type of work in two different states might choose differently.

"If you're working in the sandy soil of Florida or your region has its share of mud and slopes, you'd be better off with a track loader, where more track on the ground gives you better traction and flotation," he says. "If you're excavating in California, New Mexico or the adobe clay of Arizona, the hard ground will favor a skid-steer. Rocks, abrasive soil and even consistent contact with asphalt will cause premature wear to CTL tracks."

While CTLs are more maneuverable on soft or muddy soils, SSLs are more

the way that the track engages with

the ground to create friction. Occasionally, attachments such as certain combination buckets are recommended only for the skid-steer."

Much of the maintenance of CTLs and SSLs is entirely similar, from greasing to oil changes to changing oil filters. However, the chain case on SSLs and the drive motors on track loaders require individualized attention. The loader tracks need to be cleaned of muck, rocks and grime daily.

"You also need to ensure that the track tension on CTLs is set properly," Fitzgerald says. "We have a recommended track tension to provide the loader with best performance. If it's too loose, the track could jump, but if it's too tight, you will require more power to turn the track and could potentially cause premature wear to the sprockets."

Fitzgerald says that while SSLs continue to outsell CTLs at Bobcat, the CTL market continues to grow.

"That doesn't mean we expect the compact track loader to replace the skidsteer," he says. "It means that buyers are beginning to understand the way they can use CTLs to maximize business opportunities. Into the near future, one machine will never handle all of your possible needs, so there's plenty of room in the market for both types of loaders."  $\checkmark$ 



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#### HYDROEXCAVATION CONTRACTOR ESTABLISHES STRONG MARKET POSITION BY SPECIALIZING IN EMERGENCY SERVICE AND SOLVING CUSTOMERS' PROBLEMS

STORY: CORY DELLENBACH PHOTOS: BRUCE BELL

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Barry Wood has seen his company evolve since it was started nearly two decades ago. One thing has never changed — being available at a moment's notice in any emergency.

"We are trusted and renowned for exceptional responsiveness to our customers' needs," says Wood, CEO for Ontario Excavac, offering hydroexcavation and other services from its home base in Mississauga, Ontario. "Our growth has been propelled by a hard-earned reputation for the desire to fulfill customer needs 24/7 and 365 days a year." Crews have found themselves at local airports, construction sites, houses and industrial sites handling emergencies at all hours of the day and night.

"Our responsiveness sets us apart from everyone else," Wood says.

The company, founded in 1996, pioneered the use of hydroexcavation to do keyhole repairs from above ground on water curb stops in the Greater Toronto Area, but has since grown significantly into hydroexcavation, subsurface utility engineering, debris removal Ontario Excavac driver-operators Kevin Noble (left) and Kevin Serventi use a digging wand and the hose from a Transway Systems hydroexcavator while on a job site in the Greater Toronto Area.

ENGO,

#### Ontario Excavac Mississauga, Ontario

**OWNERS:** Barry Wood, Phil Lafleche, other investors

#### **FOUNDED:** 1996

EMPLOYEES: 70 plus

- SERVICE AREA: Greater Toronto Area and south-central Ontario
- SERVICES OFFERED: Hydroexcavation, daylighting, site restoration, clean-outs, debris removal, cathodic protection, water valve/curb-stop replacement

WEBSITE: www.ontarioexcavac.com

# Transway trucks are a must for Ontario Excavac

Ontario Excavac CEO Barry Wood knew he wanted hydroexcavators that would fit in well with his company's services, but he was struggling to find a manufacturer that could deliver.

Ontario Excavac reached out to Ontario-based Transway Systems to design a truck that would become Transway's first hydroexcavation unit. "They built their first hydrovac for us and we gave them, kind of, the blueprints for what we wanted," says Wood.

Since then Ontario Excavac has made modifications and improvements, changing components with every new truck received. The company took possession of its 28th truck in October 2014.

Many of the features now on Transway Systems trucks came because of Ontario Excavac — adding larger blowers to get to 6,400 cfm so they can work from a longer distance away, changing gearing to reduce engine rpm required for power take-off systems and adding fall arrest anchor points.

The two companies also worked together to enhance noise-reducing cabinetry to the trucks. "If we're working in an area where there's concern about the noise of the equipment, we would use those trucks," Wood says. "The noise is cut down by 10 decibels or more."

The trucks also reach farther than other units in the fleet.

"If we need to work remotely, we can access sites hundreds of feet away,"

Wood says. "We've worked as far as 900 feet away from the vehicle on job sites." Trucks are also equipped for Toronto's cold climate: The water pump and tank compartments are warmed by two diesel-fired heaters.

Other features include a Robuschi RB-DV145 6,400 cfm blower with OMSI transfer case, a Giant LP600 water pump that delivers 10 gpm at 6,000 psi and a 3,000-gallon debris tank with a hydraulically operated hoist.

and daylighting services. Customized equipment, including hydroexcavators that are quieter and use larger blowers to extend their reach, have augmented the company's capabilities.

#### **ALWAYS AVAILABLE**

More than anything else, eagerness to respond has helped Ontario Excavac establish its strong market position. An emergency at the Toronto Pearson International Airport illustrates the point.

Operations manager Brett Tye received an emergency call at 1 a.m. from the airport's maintenance manager. A water main had broken under the road in the tunnel where the luggage conveyors run.

"The conveyor area was very tight and the airport staff could not use a backhoe to dig to the main because of height clearance," Tye says. Upon inspecting the site he found that the tunnel was only 12 feet tall.

Tye dispatched a driver to bring the company's shortest hydroexcavator to the site — it stands 11 feet, 8 inches high. The truck arrived by 4 a.m.

"We squeezed it into the tunnel," Tye says, but the limited clearance didn't allow them to use the truck's boom. The crew used the hydrovac hose by hand to dig to the water main and was able to complete the job by the middle of the day. They removed four loads of water and debris, allowing a general contractor to repair the break.

Ontario Excavac's newest Transway Systems hydroexcavator is set up prior to a job in the Greater Toronto Area.



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The company's eagerness to respond is the main factor behind its strong market position.

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IMPORTANT THAT OUR PEOPLE ARE WELL TRAINED AND UNDER-STAND HAZARD ASSESSMENT AND HAZARD IDENTIFICATION AND UNDERSTAND WHAT PROPER STEPS SHOULD BE TAKEN WHEN THEY GET TO A SITE." Barry Wood

#### **SPECIALIZED EQUIPMENT**

A wide array of hydroexcavators help the company respond quickly to customer needs. There are 28 hydroexcavators in its fleet — mainly from Transway Systems and Vactor Manufacturing, but also some older-model Presvac Systems and Supervac 2000 units in the mix.

"We like the Transway trucks because we can custom-

ize them — we do a lot of customization on those," Wood says. "We buy Vactor, too, because it's a well-known name. The trucks are reliable, and we've got a good distributor relationship here in the form of Joe Johnson Equipment."

The company's utility-locating jobs require the use of high-pressure water jets to break into the ground. The company uses specialized equipment for those jobs as well.

Unlike a number of hydroexcavation companies that use straight-tip high-pressure water jets, Ontario Excavac uses only rotating nozzle spinnertips. The company has found that straight tips used at high-pressure can cause considerable damage around the dig site and slice through buried infrastructure.



"We've found that the rotation nozzle spinner tips are just far safer," Wood says. "It's also a requirement of the Technical Standards and Safety Authority (TSSA) in Ontario."

Unlike a straight tip, spinner tips rotate inside a small metal housing and shoot water out in a circular fashion. The water strikes hard but then brushes off, causing no damage to utility infrastructure.

#### **EXPANDING OFFERINGS**

The use of hydroexcavation, along with its own customers' growth, helped Ontario Excavac grow its services. Taking on two large customers in the last eight years has also helped Ontario Excavac prosper. *(continued)* 



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The first of the two new major customers was Enbridge Gas, a major gas distributor in southern Ontario. "That has now developed into one of our largest customer relationship," Wood says. "We're doing locates for them and exposing infrastructure for repair and damage prevention."

The other major customer is the City of Toronto, and its Toronto Water Division with the Water Meter Program. The program was launched five years ago to install new water meters in 475,000 homes and businesses in the city. The project is 97 percent complete with 460,000 meters installed to date.

"We go to properties where the water service valve is not working," Wood says. "We're called upon to shut the water off and fix the water service valve

"OUR GROWTH HAS BEEN PROPELLED BY A HARD-EARNED REPUTATION FOR THE DESIRE TO FULFILL CUSTOMER NEEDS 24/7 AND 365 DAYS A YEAR." Barry Wood so the new meter can be installed." The city also calls Ontario Excavac to perform emergency curb-stop repairs when required.

Ontario Excavac doesn't stop at belowground work: The company has done clean-outs of elevator shafts, stormwater systems and conveyor assemblies at industrial plants and mining operations.

"We're actually just completing a job for the Greater Toronto Airport Authority where we are cleaning out

their stormwater control facilities," Wood says. "They've got interceptors for hydrocarbons and things of that nature that spill."

The company used hydroexcavators to reach belowground stormwater catchment facilities at the airport to clean out silt and similar debris.

#### SAFETY FIRST

Safety is a priority for Ontario Excavac. New employees receive extensive orientation and training before stepping foot into a hydroexcavator.

"The new employees will receive several days of orientation training," Wood says. "There are eight or nine core areas that they'll receive training on right off the bat." The company's health and safety officer, Lori Robinson, conducts the orientations, but training doesn't stop there. The company also holds regular rotations of training each quarter for all employees.

"We deal with emergencies more frequently than all of us would like to," Wood says. "It's important that our people are well trained and understand hazard assessment and hazard identification and understand what proper steps should be taken when they get to a site."

#### **GROWING COMPANY**

With over 70 employees, Wood says his company has a wide scope of experience to help customers meet their excavation needs safely and reliably.

"Some of these people have been with the company from its inception or joined shortly after," Wood says.

"There is a wealth of accumulated knowledge and experience about hydroexcavation."

Ontario Excavac isn't done growing and is looking at different ways to diversify. Instead of subcontracting out restoration of soft and hard surfaces as in the past when doing curb-stop repair work, the company has brought some of that work in-house.

"We're looking at areas where we can do more work in the holes we dig," Wood says.

The company is also looking at expanding into sewer, water main and emergency water main work. Another field being looked at is repairing utility cross bores — the intersection of one underground utility by a second utility, most notably the hazardous condition when a natural gas line is cut through a sewer line.

Ontario Excavac is also considering growing organically, looking at acquisitions, according to Wood.

"The United States, for us, is certainly an area of interest and we may look at that in the future."  $\blacksquare$ 

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# Hydroexcavation Manufacturers DIRECTORY 5

nyuroexu		MODEL NAME	Style	Debris Body Capacity (cu. yards)	Debris Door (dimensions)	Debris Door (dump angle)	Water Tank Capacity (gallons)	
	<b>Fast-Vac</b> Contact: Greg Klema 21209 Durand Ave., Union Grove, WI 53182 p: 262-878-0756 tf: 800-558-2280 f: 262-878-4019 www.fast-vac.com sales@fast-vac.com	Fast-Vac	Chassis & Trailer	20 + gross		50 degree	1,500	
	Foremost Contact: Tom O'Brien 1225 64 Ave NE, Calgary, AB T2E 8P9 Canada p: 403-295-5851 tf: 800-661-9190 f: 403-295-5810 www.foremost.ca/vactrucks_tom.obrien@foremost.ca	Foremost SVS2000	Chassis	13	48″ x 52″		2,000	
See ad page 51	GapVax Inc. Contact: Kate Blair 575 Central Ave., Johnstown, PA 15902 814-535-6766 tf: 888-4GAPVAX f: 814-539-3617 www.gapvax.com kdoyka@gapvax.com	HydroVax	Chassis	12 1/2 or 15	70″ w/full open door	50 degree	400-1,200	
	Hi-Vac Corporation	X-6	Chassis	6	67″	90 degree	500	
See ad page 25	117 Industry Rd., Marietta, OH 45750 p: 740-374-2306 tf: 800-752-2400 f: 740-374-5447	X-12	Chassis	12	67″	90 degree	1,140	
	www.x-vac.com sales@hi-vac.com	X-15	Chassis	15	67″	90 degree	1,425	
See ad page 29	<b>LMT Inc.</b> Contact: Mike Fenneman 1105 SE 2nd St., Galva, IL 61434 p: 309-932-3311 tf: 800-545-0174 f: 877-471-2564 www.vaxteel.com info@vaxteel.com	Smart-Dig HX-4000	Chassis	6		48 degree fully automatic	396	
	<b>Oakley Vac</b> Contact: Jamie Di Francesco 111 Coldwater Rd., Waubaushene, ON LOK 2C0 Canada p: 705-538-1459 tf: 800-663-1624 f: 705-538-1776 www.oakleyvac.com jamie@oakleyvac.com	CR2900-800	Trailer	4.6091	48″	55 degree	350	
TOPNADO	Petrofield Industries Contact: Mark Gilkyson	Tornado F2SL	Chassis	9	48″ x 48″		1,000	
See ad page 13	7015 Macleod Tr SŴ, Ste. 510 Calgary, AB T2H 2K6 403-204-6327 www.tornadotrucks.com mgilkyson@petrofield.com	Tornado F4SL	Chassis	13	48″ x 52″		2,000	
Diffield Equipment Ec.	Premier Oilfield Equipment Contact: Warren Lindgren 2550 East Bijou Ave., Fort Morgan, CO 80701 p: 970-542-1975 www.poequip.com sales@poequip.com	CV Series Hydrovac	Chassis	13.5		sweep or slope assisted offload	1,620 - 2,040	
///PRESVAC	Presvac Systems Contact: David Sipkema 4131 Morris Drive, Burlington, ON L7L 5L5 Canada p: 905-637-2353 tf: 800-387-7763 f: 905-681-0411 www.presvac.com sales@presvac.com	Presvac Hydro-Excavator	Chassis	14.5	78″	80 degree	1,200	

Standard Water Pump (gpm & psi)	Standard Blower (hg & cfm)	Filtration Type	Boom Size (ft.)	Degree of Rotation	Offloading Type	Controls Location	Wireless Y/N	Accessories Available	Other
variable flow 3,000 psi	28″ hg 6,600 cfm	80 dry & 8 wet bags	15+ ft.	330	gravity w/ optional auger	in cab and outside enclosure & 40 ft. pendant	N	winterization lighting tool boxes racks cabinets	
10 gpm 2,800 psi	4,000 cfm	cyclone & cartridge	26 ft.	340	sloped debris floor w/wash bar	passenger side rear tool box	Y	winterization lighting tool boxes racks cabinets	
5-40 gpm 3,000 psi	28″ hg 5,250 cfm	wet/dry single mode	25 ft. reach from center	270	dump, sludge pump, auger or pressure off	driver's side & curb side	Ŷ	winterization lighting tool boxes racks cabinets	lift axles, tube or hose trays, tube storage, automatic transmission, water heater (boilers), heated pump enclosures
12 gpm 3.000 psi	16″ hg 2.100 cfm	cyclone and inlet filter	6 ft.	270	45 degree dump	right side	Y	winterization	
18 gpm 3,000 psi	27″ hg 5,250 cfm	dual cyclones and inlet filter	8 ft.	270	45 degree dump	right side	Y	lighting tool boxes racks	
18 gpm 3,000 psi	27″ hg 5,250 cfm	dual cyclones and inlet filter	8 ft.	270	45 degree dump	right side	Y	cabinets (all)	
7 gpm 3,000 psi	14″ hg 1,300 cfm	4 x PTFE coated, pleated, washable filters	16 ft. hydraulic 25 degree up & down	270	gravity	passenger side	Y	winterization lighting tool boxes racks cabinets	400,000 BTU AquaBlast hot water system
10.5 gpm 4,000 psi	28.5″ hg 3,670 cfm	cyclonic	16 ft.	270	hydraulic	rear	N	winterization lighting tool boxes racks cabinets	
10-25 gpm 0-3,000 psi	27″ hg 4,000 cfm	cyclone	26 ft.	342	Slope floor	rear passenger	Y	winterization lighting	
10-25 gpm 3,000 psi	27″ hg 4,000-6,200 cfm	cyclone	26 ft.	342	Slope tank push assist	rear passenger	Y	tool boxes racks cabinets (both)	
20 gpm 3,000 psi	27″ hg 6,200 cfm	3 stage	26 ft.	270	patented sweep or slope assisted	remote & truck mounted	Y	winterization lighting tool boxes racks cabinets	
18 gpm 100-3,500 psi	27″ hg 5,300 cfm	dual cyclone & 10 micron final filter	8″ hose x 23 ft.	270	optional pressure off-load	curbside	Y	winterization lighting tool boxes racks cabinets	optional code construction (DOT 412 / TC 412) stainless steel 316 debris tank

# Hydroexcavation Manufacturers DIRECTORY

TIYUIUUNU	Multon Multolucioners Director	JJJ		Debris Body	Debris Door	Debris Door	Canacity	
	MANUFACTURER	MODEL NAME	Style	Capacity (cu. yards)	(dimensions)	(dump angle)	(gallons)	
Svstems Inc. Custom Built_Driven by You See ad page 11	<b>Transway Systems Inc.</b> Contact: Gary Robinson 314 Lake Ave. N., Hamilton, ON L8E 3A2 Canada p: 905-578-1000 tf: 800-263-4508 f: 905-561-9176 www.transwaysystems.com gary@transwaysystems.com	Transway Terra-Vex	Chassis	15	full open door	40 degree	1,200	
VAC:CON See ad page 7	Vac-Con Inc. Contact: Stephanie Lee 969 Hall Park Rd., Green Cove Springs, FL 32043 p: 904-284-4200 www.vac-con.com vns@vac-con.com	X-Cavator	Chassis	3.5 - 16	72″	50 degree	1,500	
See ad page 3	Vactor Manufacturing Contact: Ben Schmitt 1621 S. Illinois St., Streator, IL 61364 p: 815-672-3171 ff: 800-627-3171 f: 815-672-2779 www.vactor.com sales@vactor.com	Vactor HXX Prodigy Vactor HXX Hydro Excavator	Chassis Chassis	6 12		50 degree 50 degree	1,300 1,200	

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	Vacuum Sales Inc. Contact: Raphael Knoll or James Redstreake 51 Stone Road, Lindenwold, NJ 08021 p: 856-627-7790 tf: 800-547-7790 f: 856-627-3044 www.vacuumsalesinc.com sales@vacuumsalesinc.com	VACALL, Presvac

"There are different ways to excavate soil. Most people think you're just spraying water on the ground, but it's a science — there's a right way to do it.

"We're here to stay. We've got a good reputation, and that

makes me want to work even harder. The guys and I all have something to prove."

Mike Morehouse, Owner Davids Hydro Vac White Bear Lake, Minn.



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Standard Water Pump (gpm & psi)	Standard Blower (hg & cfm)	Filtration Type	Boom Size (ft.)	Degree of Rotation	Offloading Type	Controls Location	Wireless Y/N	Accessories Available	Other
10 gpm 6,000 psi	27″ hg 6,400 cfm	cyclone	8" x 26 ft.	320		curb side	Y	winterization lighting tool boxes racks cabinets	walk-in heated acoustical enclosure
20 gpm 3,000 psi	14″ hg 8,000 cfm	centrifugal	10 ft.	270	fully opening door gravity drain	p/s mid-ship	Y	lighting tool boxes racks cabinets	
10 gpm 2,500 psi	16″ hg 3,200 cfm		6 ft. top mount	320		curb side	Y	winterization lighting	
10 gpm 2,500 psi	28″ hg 5,250 cfm		7 ft. hydraulic extendable top mount	320		curb side	Y	racks cabinets (both)	



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# Dual Assist

#### PIPE BURSTING HELPS TEXAS CONTRACTOR UPSIZE SEWER WITHOUT DIGGING UP PARK

#### **BY SCOTTIE DAYTON**

he Trinity River Authority of Texas wanted to upsize a 24-inch reinforced concrete sewer interceptor to accommodate projected development in the City of Fort Worth. The 43-year-old pipe, which ran through Stone Creek Park, also had root intrusion, bellies and offset joints.

Engineers specified pipe bursting to preserve a playground, a concrete trail and as many trees as possible. No-DigTec of Dallas won the bid to install 1,175 feet of 28-inch, 1,826 feet of 32-inch and 260 feet of 34-inch DR-17 high-density polyethylene pipe. Shorter runs of the latter reduced turbulence where other lines connected to the 32-inch interceptor.

"The 34-inch bursts were a first for HammerHead Trenchless Equipment and us," says No-DigTec owner John Newell. "Besides logistical and site challenges, upsizing the bursting head five times and the weight of the pipe - 2 tons per 50-foot stick stressed men and equipment. There was nothing we could move by hand." Newell's 10-member crew battled



PROJECT:

massive tree roots, constricted work areas and a two-month delay to meet the April 30 deadline to vacate the park.

#### **BY THE NUMBERS**

Every phase required approval from the city's Parks Department. Officials told No-DigTec to stake out the location of entry and pulling pits, but the dense underbrush was impassable. Workers hacked their way through it with machetes. "The area had 3-inch-long thorns that punctured rubber tires," says Newell. "One even went through a guy's shoe." The injury was minor.

Per instructions, senior project manager Jason Williford of Mountain Cascade Construction in Mansfield, Texas, hired an arborist to grub out 15-footwide paths and trim or cut down trees. Newell often found trees trimmed too low for the two Komatsu PC200 LC tracked excavators to pass without tearing off limbs or paths not large enough to accommodate the machines' 30-foot turn radius.

"Damaging trees carried penalties of \$400 per inch of trunk circumference," says Newell. "To protect them, we laid timber matting over root zones, spread mulch on paths, wrapped wood armor around trunks and fenced off restricted areas." Clearing paths took two months.

#### THE RIGHT STUFF

The project's multiple upsizes required a pipe pilot to center the new pipe, a specially sized bursting head/full body expander and a rear-mounted assist hammer. Twin blades on the pilot broke the host pipe's 3-inch-thick wall and 5-inch-thick bells.

HammerHead engineer Mark Randa recommended a 38-inch expander head, a 26-inch pneumatic Mole rammer driving at 122 beats per minute and the lubrication system. "The larger rammer slipped inside the head while my 20-inch Mole rammer ran through casing and attached to the rear of the HDPE pipe to help push it and alleviate drag," says Newell.

A No-DigTec crew loads the rear 20-inch Mole pneumatic rammer into its casing and checks air hoses.





No-DigTec owner John Newell prepares to start the HammerHead lubrication system. The pipe pilot and 38-inch bursting head/full body expander are attached to the pipe.



A chain saw is used to separate the bursting assembly from the 32-inch DR-17 high-density polyethylene pipe.

The system was powered by three Sullair portable air compressors blowing instrument-quality air to help cool the rammers. Two 1600H (1,600 cfm/150 psi) compressors drove the larger rammer while a 750H (750 cfm/150 psi) unit drove the smaller unit. "Heat causes expansion, which causes power loss because the rammers no longer fit tightly against the seals on the strikers," says Newell. "Cooling the rammers increased our chances of completing bursts without stalling."

The lubrication system mixed environmentally safe dishwashing liquid with water, then pumped it to a nozzle at the back of the bursting head. "The solution squirts out and runs down the HDPE pipe to reduce drag," says Newell. "It works as well as a polymer lubricant at a third of the cost."

#### **PLANNING AHEAD**

Four No-DigTec workers arrived on March 10 and began fusing pipe in a large open area 1,000 feet from the nearest entry pit (the farthest was 2,500 feet away). Each joint took an hour to complete. Meanwhile, a second crew built two bridges across a creek running through the park. They laid three 12-inch pipes lengthwise in the shallow water, then cut down the 10-foot-high banks with a Komatsu PC200 excavator, compacting the soil to form a road.

The PC200 excavators were almost as wide as the paths, requiring someone on foot to help guide the driver to entry or exit pit locations. Digging took three times as long as usual. The operator dumped each bucketful behind the excavator, then swung around for the next scoop. Another operator with a loader stockpiled the sandy soil in a designated area for use as backfill.

The 60-foot-long entry pits and 36-foot-long exit pits were 10- by 15-feet deep. The project required 10 pits, five at manhole locations. After some pulls, workers enlarged the exit pit to serve as the entry pit for the next burst.

The narrow paths necessitated moving equipment into position before dragging in the pipe. "It was impossible to inch anything past it," says Newell. "If we forgot something, we were in trouble."

"BESIDES LOGISTICAL AND SITE CHALLENGES, UPSIZING THE BURSTING HEAD FIVE TIMES AND THE WEIGHT OF THE PIPE — 2 TONS PER 50-FOOT STICK — **STRESSED MEN AND EQUIPMENT.** THERE WAS NOTHING WE COULD MOVE BY HAND." John Newell

#### SUCCESS AT HAND

To prevent the 8,780-pound HydroGuide HG20 20-ton winch from sinking in the sand, workers laid steel plates to distribute the weight. Other times they positioned the trailer-like unit over a trench box, then lowered the adjustable boom that guided the 7/8-inch swage cable.

Workers threaded the cable by pushing a BES FiberSnake duct rodder to the entry pit. "The rodder navigates root intrusion and has enough power to drag back a 3/8-inch cable," says Newell. "Then we attach the smaller cable to the larger one and pull it to the entry pit with an excavator." Each burst took a week of preparation.

Although Newell preferred pulls of 400 to 500 feet, something was always in the way. Of the 10 bursts, the longest was 325 feet of 34-inch pipe and the two shortest were 200 feet of 32-inch pipe. The latter also were the most critical, passing beneath mature trees with massive living roots encasing the host pipe.

Newell's greatest concern was if the roots stretched instead of tore during the burst. Then they would return to their original shapes, squeezing the replacement pipe and creating drag. "There was no room for error," he says. "If we stalled out and had to excavate, I'd be hanging from the remaining tree."

Beginning both pulls as close to a tree as possible enabled Newell to concentrate all the rammer's power on breaking through the root bundles. The winch is rated at 28 feet per minute, but the bursts were so difficult that pulls progressed at 12 inches per minute with the pressure holding at 15 tons of pulling force.

"It was a great relief to complete the project, and Mark's equipment recommendations and support were vital to our success," says Newell. "We have a new appreciation for his pipe-bursting system."  $\checkmark$ 

## THE LATEST: Products



#### 1. Fluid Conservation Systems pressure controller

The electronic controller for pressure-reducing valves (PRVs) from HWM and available through Fluid Conservation Systems provides detailed multi-port PRV control without a flowmeter, either by flow or by time, together with intelligent closed-loop control. The controller permits immediate control of pressure within a distribution network and automatically adapts to network changes and events by analyzing data from up to three critical points.

800/531-5465; www.fluidconservation.com.

#### 2. RIDGID SeekTech SR-24 line locator

The SeekTech SR-24 line locator from RIDGID uses integrated Bluetooth communication to transmit locating data to either a third-party survey grade GPS or mobile device. GPS and locating data can be recorded to an onboard micro SD card. The locator can be programmed to detect any active frequency from 10 Hz to 35 kHz. **800/769-7743; www.ridgid.com.** 

#### 3. Vermeer ride-on service plow

The PTX44 ride-on service plow from Vermeer is designed primarily for the installation of fiber-optic cables, electrical and gas services, and irrigation systems. Powered by a 46.8 hp Kubota water-cooled gasoline engine, the plow delivers 88.7 ft-lbs of torque and features the option to utilize a forward-mounted trencher and/or bore attachment. The plow has a maximum installation depth of 24 inches. The optional trencher attachment has a maximum trenching depth of 42 inches and width of 6 inches. The optional bore attachment has a rotational torque of 620 ft-lbs. **641/628-3141; www.vermeer.com.** 

#### 4. Sensoray eight-channel frame grabber

The Model 1012 eight-channel mini PCI-Express frame grabber from Sensoray, designed for video surveillance, simultaneously captures eight channels of NTSC/PAL video plus optional eight channels of mono audio. Each video channel captures at full frame rate 30 fps (NTSC) or 25 fps (PAL). **503/684-8005; www.sensoray.com.** 

#### 5. Gateway Safety eyewear

Parallax protective eyewear from Gateway Safety features a temple design for all-day comfort. The eyewear has a single wraparound lens for protective coverage. An integrated brow guard protects against debris from above. The soft gel nosepiece works with the temples to ensure the glasses stay securely in place. The glasses meet ANSI Z87+, CSA Z94.3 as well as the ballistic impact resistance requirements for eyewear as per U.S. military performance specification MIL PRF-31013. **800/822-5347; www.gatewaysafety.com.** 

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#### 6. Valeron sewage pipe rehabilitation pre-liner

The Valeron IL pre-liner for CIPP rehabilitation from Valeron Strength Films, a division of Illinois Tool Works, is designed to prevent ground water contamination of the liner resin. It also shields the environment from non-cured resins used in the hardening process. Suitable for various pipe shapes, the pre-liner can be inverted by pressurized air or water, or pulled into place.

800/825-3766; www.valeron.com.

#### 7. Trelleborg Sealing Solutions D-shaped ring

The Glyd Ring D-shaped seal from Trelleborg Sealing Solutions is made from Zurcon Z13 polyurethane to resist pressures up to 7,250 psi at both sides of the seal and temperatures up to 248 degrees F. Applications include mobile cranes, forklifts and other equipment involving mobile hydraulics. **800/626-2180; www.trelleborg.com.** 

#### 8. McElroy low-force fusion machine

The Acrobat 160 low-force fusion machine from McElroy Manufacturing is designed for 63 mm to 160 mm polypropylene pipe. The machine can be configured from four to three jaws without tools. The narrow jaws allow fusions for flanges to outlet branches of tees and most fittings. Features include a hydraulic power unit and inserts for common butt-fused polypropylene pipe sizes and data logger to document key parameters. The facer and heater can be loaded from the top or bottom in the three-jaw configuration. **918/836-8611; www.mcelroy.com/fusion.** 

#### 9. Komatsu articulated dump truck

The HM300-5 Tier 4 Final articulated dump truck from Komatsu America features 324 net hp, a 30.9 U.S. ton payload and GVW of 117,892 pounds. The truck has a 9-foot, 2-inch loading height and two single-stage body lift cylinders that provide a 70-degree dumping angle. Selectable working modes enable the operator to choose between economy and power to match work applications.

847/437-5800; www.komatsuamerica.com.

#### 10. General Pipe Cleaners video inspection system with Wi-Fi

The Gen-Eye SDW video inspection and location system from General Pipe Cleaners features a Wi-Fi transmitter inside the command module that sends video to a smartphone or tablet. A free app enables operators to view and record video inspections from a range of 300 to 500 feet. Older SD systems can be upgraded with Wi-Fi. Weighing 12 pounds, the inspection system has a 10.4-inch LCD screen, built-in waterproof keyboard, integral SD recorder and heavy-duty Pelican case. **800/245-6200; www.drainbrain.com.** 

#### 11. KOHLER 24 kW standby generator

The 24RCL 24 kW standby generator from KOHLER Power Systems has a 1,800 rpm, 2.2 liter in-line four-cylinder engine and delivers 60 Hz single-phase and 60 Hz three-phase (208, 240 and 480 volts) using natural gas or LP.

800/544-2444; www.kohlerpower.com.

#### 12. Benlee roll-off trailer warning

The 12- by 12-inch "Look Up" warning plaque from Benlee mounts behind the controls and is designed to remind operators of overhead dangers, such as power lines. Other safety features include upward/rearward-facing work lights on all tarp systems and hoist-up alarm. **734/722-8100; www.benlee.com.** (continued)

### This Month's Feature:

#### **Compact horizontal directional drill** works in tight locations

#### **BY ED WODALSKI**

Powered by a 66 hp air-cooled Tier 4 final Deutz diesel engine, the **JT9 horizontal directional drill** from the **Ditch Witch** organization is 146 inches long, 48 inches wide and 74 inches tall. It has a 3-inch bore diameter, 10- to 14-degree entry angle and 18-degree angle of approach and departure.

"It's a lot of power in a compact footprint, so it gives you the ability to set up in areas and do things that you can't with a larger machine," says Seth Matthesen, Ditch Witch product manager. "If you're drilling from a sidewalk to a house or you're trying to get into a certain position, the length of the machine is pretty key; instead of having to close the whole road you can close one lane. So it gives you the ability to get into tighter spots. When you get into backyards you're dealing with easements on private property, which may have limited setup area and landscaping. Having that short, compact footprint is important."

The drill delivers 9,000 pounds of pullback force (188 fpm), 186 rpm maximum spindle speed, holds 300 feet of drill pipe on board and features turf-friendly tracks to minimize surface disturbance.

"This unit has the capability both in the pullback and the drill outmode to have assisted makeup. What that does is whenever you're making and breaking pipe it keeps from scarring and jamming ends together. That makes your pipe last longer and it makes you more productive."

The operator station slides forward and back for optimal position near the center of the pipe rack. It includes an ergonomic seat and integrated



display with single-hand

pullback and thrust. Open-top vise wrenches are

angled toward the operator to provide a clear view of the pipe.

"It's designed for curb-to-home, shorter shots and confined spaces like alleyways and rear lots," he says. "Typically you're not going to use a large back-reamer, that's where you need the largest machines. You can pull a fairly large reamer but it's soil dependent. What limits you is the fluid flow rate. Typically this machine can be used for 200- to 300-foot bores with 4-inch pipe and less."

The onboard drilling fluid system with 18-gallon hydraulic reservoir has a maximum pressure of 750 psi and maximum flow of 13 gpm. The drill has no grease zerks with all daily maintenance points in one location.

"We know somebody is going to miss something," Matthesen says. "We designed the machine so the operator doesn't have to spend 10 or 15 minutes each day crawling around with a grease gun."

800/654-6481; www.ditchwitch.com

## THE LATEST: Products

# 







#### 13. Holland air suspension, slider axle trailers

SAF CBX46 and CBX50 series air suspension/slider axle system trailers from SAF-Holland feature 5.75-inch diameter axle technology, increased capacity and cast steel suspension. The CBX46, rated for 46,000 pounds, and CBX50, rated for 50,000 pounds, are available with the SAF Integral air disc brake axle system and optional P89 wheel end package that accommodates up to 2-inch offset wheels.

231/777-8501; www.safholland.com.

#### 14. Doosan portable light tower

The L20 light tower and 20 kW mobile generator from Doosan Portable Power feature four 1,000 watt metal halide lamps mounted on a vertical mast that extends to 25 feet, 8 inches. Stowed height is 8 feet. Each lamp adjusts with a locking-pin system. The light head can be adjusted horizontally and vertically. Each light fixture can be maneuvered independently for optimal illumination. The generator is powered by an Isuzu 4LE2 direct-injected engine with a single-phase Leroy Somer alternator. **800/633-5206; www.doosanportablepower.com.** 

#### 15. Kenco concrete barrier lift

The barrier lift from Kenco Corp. can be used on any concrete median barriers, sound walls, curbing and piling. Fully automatic grab-and-release action allows for hands-free operation. The 6- by 36-inch elastomer pads grip sidewalls, even in wet conditions. Pad angles swivel to match the slope of the wall to be lifted. Capacities range from 1,500 to 40,000 pounds. Self-aligning guides are available.

#### 800/653-6069; www.kenco.com.

#### 16. AlturnaMats clear ground protection

The clear ground protection mat from AlturnaMats enables sunlight to pass through for less grass burn. The mats have a 120-ton rating. 888/544-6287; www.alturnamats.com.

#### 17. Water Cannon pressure washers

Pressure washers from Water Cannon meet or exceed 2014 EPA and California regulations relating to fuel tanks, vents and carbon canisters. The pressure washers feature low-permeation fuel tanks and fuel lines. Fuel caps vent to the engine's air cleaner rather than the atmosphere. Model 17H85 has a Honda GX 690 electric start engine, 15-gallon fuel tank, roll cage protection and triplex plunger pump that delivers 4 gpm and 7,000 psi. **800/333-9274; www.watercannon.com.** 

#### 18. Schonstedt XTpc+ pipe, cable locator

The XTpc+ multi-frequency pipe and cable locator from Schonstedt Instrument Co. features a lightweight, compact receiver and 5-watt transmitter. **800/999-8280; www.schonstedt.com.** 

#### 19. McLaren rubber tracks for mini-excavators

NextGen TDF Series rubber tracks for mini-excavators from McLaren Industries feature SpoolRite belting technology for increased tensile strength. The prestressed, aligned, nonoverlapping, continuous belting system provides equal tension, reducing the chance of link ejection and structural track damage.

800/836-0040; www.mclarenindustries.com. ▼

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"We ask questions.

We have a protocol form. If [the customer] can answer all questions and we have **CORITY** 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."

> Richard Young, President Hydro Spy, LLC Houston, Texas



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# Watching for Hazards

#### CREWS WORKING ROADSIDE NEED TO WEAR PROPER GEAR. **KNOW THE SURROUNDINGS**

#### **BY GREG BATES**

orking along a roadside can present many challenges for contractors. It is ideal if jobs can get done on time and without issues. Sometimes, however, the job itself isn't the only thing workers have to worry about as traffic zips past.

It's safe to say drivers are less attentive these days with so many distractions: changing the radio station, making calls, fidgeting on their phone or even texting — which in most states is illegal.

"A driver being distracted is always an issue," says George Kennedy, the vice president of safety for the National Utility Contractors Association. "You get a salesman on the phone or some idiot texting, then you've got a problem. There's always still a certain amount of reaction time."

#### **ACCIDENTS WILL HAPPEN**

According to the U.S. Department of Transportation, there were 5,419,345 roadway crashes in 2010, and 87,606 of those happened in work zones. So only 1.6 percent of crashes occurred in work zones. Of those work zone crashes, 576 (0.6 percent) were fatal.

By comparison, there were 609 work zone deaths in 2012. Texas accounted for the highest figure at 125 and California was a distant second at 67. Alaska, District of Columbia, New Hampshire, Rhode Island and Wyoming all remarkably didn't have any fatalities in work zones.

Fatal occupational injuries at road construction sites have fluctuated in the last decade. In 2013, there were 105 deaths compared to 133 the previous year, according to the Bureau of Labor Statistics. From 2003-13, there were on average 120.2 fatal occupational injuries.

#### **PROPER WORK ATTIRE**

With the possibility of a work zone crash, contractors need to be aware of the dangers of a roadside job and how they can stay safe. Being prepared is half the battle.

On site, workers should wear hard hats, safety glasses and high-visibility clothing — in the form of yellow, orange or yellow-green vests or jackets — so they can be seen easily by drivers. Most importantly, workers need to be in compliance with the Department of Transportation's Manual of Uniform Traffic Control Devices (MUTCD). Some states require certain on-site attire, so workers have to make sure they are aware of the laws.

#### **AN ESCAPE ROUTE**

Safety begins immediately when the worker arrives on the job site. Contractors should park in a designated area and be wearing the high-visibility

Ken Scott, a field technician for Michael and Son Services in Alexandria, Va., operates a Ditch Witch JT922 directional drill during a residential waterline replacement. While operating the equipment on the side of the road he wears a safety vest to be visible to passing motorists.

clothing when they leave their vehicle.

Kennedy advises that workers should assess the work site right away and formulate a plan in case something goes awry.

"When you're working near the road, you should try to avoid turning your back to traffic and know where you're going to run or escape to if something goes wrong," Kennedy says. "Try not to put yourself into a situation where you're blocked in traffic. We just tell people to have an escape route."

#### SIGNS AND BARRICADES

Surrounding the working site, there should be plenty of signage and appropriate lighting if the project is being conducted at night or during

low-light conditions. Also, there should be plenty of barriers between the workers and the oncoming traffic. Simple delineators can be used such as cones, orange poles or barrels.

"The contractors should have a work zone plan in terms of what kind of

PHOTOGRAPHY BY KRISTIN EBERTS MACKLER

#### **Roadway** construction worker fatalities between 2005-13

YEAR	FATALITIES
2005	165
2006	139
2007	106
2008	101
2009	116
2010	106
2011	122
2012	133
2013	105
Source: Bureau	of Labor Statistic





#### "WHEN YOU'RE WORKING NEAR THE ROAD, YOU SHOULD TRY TO AVOID TURNING YOUR BACK TO TRAFFIC AND **KNOW WHERE YOU'RE GOING TO RUN OR ESCAPE TO** IF SOMETHING GOES WRONG."

George Kennedy

barricades they're going to put up, what signs they're going to put up, whether they're going to use a flagger or a portable traffic light," Kennedy says. "Many states require a police officer at the job site along the road, so they hire offduty cops to do that. Controlling speed and setting it at a reasonable limit is important."

On higher-speed roads, concrete or water-filled plastic jersey barriers should be utilized. The more cones and warning signs allow drivers to be aware of contractors at work. It also prepares the drivers to be ready to slow down and provides more time to react to what's ahead of them.

#### **BEING INFORMED**

"The bottom line is obviously the faster the traffic is going, the faster it can reach the job site," Kennedy says. "If you get a vehicle moving along at 60 miles per hour, it's actually traveling 18 feet per second, so in a couple of seconds it might take a person to respond to all of a sudden coming around a curve or something and seeing a work zone. That couple of seconds means they could go a couple hundred feet before they even get to the brake."

Most veteran contractors of roadside work know what to expect when on the job site. Younger, less-experienced contractors need to be well-schooled these days.

"Realistically, a lot of these workers are new, they're young and they may not be informed," Kennedy says. "Experience definitely plays a part in it. The main thing is following the requirements of the MUTCD."  $\checkmark$ 

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# The Dash for Cash

#### EXPERTS IN THE FINE ART OF ACCOUNTS RECEIVABLE SHARE THE LATEST TIPS AND TECHNIQUES FOR GETTING PAID NOW

#### **BY ERIK GUNN**

hanks so much! Great job! Send me your invoice and I'll send you a check!"

But when, exactly, will you get that check? And what to do if you don't get it? Small-business experts can share their wisdom on that essential part of business: getting paid in our brave new world of clicks and tweets.

#### DELEGATE

First step: Remember that not everything is your job. "Have somebody whose job it is to manage accounts receivable, who feels good when the A/R is well managed and bad if A/R is hanging around. Measure that in collection days," says Tim Berry, founder and chairman of Palo Alto Software and a business plan expert. And here's another hint: If your business is really small, your collection person doesn't have to be full time. Try an accounting student from the local community college; verify credentials through the school career placement office.

But Berry also notes that sometimes an unpaid bill isn't just an unpaid bill. "Don't let yourself get cut off from the information that collection problems might give you." Was there a problem? Some unhappy customers might just let the bill slide to the bottom of the pile rather than complain. So you and your collection person, Berry says, should "have safeguards and alerts to separate A/R problems from strategy."

#### DIGITIZE

Of course, to have accounts receivable you need invoices. "Make it easy, as easy as possible," Berry says. "Send your invoices electronically with a link to the payment facility. Keep it all clickable. The easier the credit card payment, the faster the cash flow."

"MAKE IT EASY, AS EASY AS POSSIBLE. SEND YOUR INVOICES ELECTRONICALLY WITH A LINK TO THE PAYMENT FACILITY. **KEEP IT ALL CLICKABLE.** THE EASIER THE CREDIT CARD PAYMENT, THE FASTER THE CASH FLOW." Tim Berry

Maybe you're still in the ink-on-paper world when it comes to the bills you hand out. But going digital can pay dividends.

For the ultimate in right-now invoicing, mobile card readers on smartphones or tablets can produce an invoice, process the payment and email a receipt right on the job site.

Payment systems such as Square (www.squareup.com) charge by the invoice (like a credit card swipe fee) but also offer reports and can generate reminders. Square also offers appointment scheduling and sales reports with variable levels of access for different people in your business and integrates with certain bookkeeping systems. If you're in the market for the organization and analytics Square offers, it might justify Square's slightly higher per-transaction fee.

Intuit (www.intuit.com) offers point-of-sale transactions that tie into its QuickBooks bookkeeping system; the online payment tool PayPal (www.pay-pal.com) provides a similar system. QuickBooks will also accept transactions from Square and PayPal.

Amazon.com, the online retailer of absolutely everything (OK, maybe not a hydroexcavator), now offers its own point-of-sale system, Amazon Local Register (localregister.amazon.com). All these systems — just like credit card processors — charge a per-transaction fee.

#### TAKE PLASTIC

Even without mobile card readers, credit card acceptance is just about essential. "The processing or handling fee for accepting payments by credit

card is a small price to pay compared to writing off a bad debt and trying to recover from that loss," says Kim R. Brown, a certified public accountant and principal at Mattina, Kent & Gibbons, P.C.

"The use of credit cards for receipt of payment has dramatically increased, and for good reason. If you accept and process a credit card for payment, you know that if the charge on the card is approved you will receive payment," Brown says.

With credit card acceptance comes inevitable security concerns; it's hard to look at the credit card terminal the same way after reading about data breaches at major retailers like Target and Home Depot.

One route to increased safeguards for customer data lies through EMV cards — short for Europay, MasterCard and Visa, a global standard for integrated circuit cards or "chip cards," as distinguished from the magnetic strip cards most of us have in our wallets. The major card companies now offer chip cards, usually as "chip and PIN cards," requiring the customer to use a PIN at the point of sale rather than signing a receipt.

As an incentive for major banks to issue EMV cards and merchants to invest in the proper point-of-sale equipment to accept them, this October the card networks will institute a fraud-liability shift. If a consumer's card is involved in fraud, liability will fall on the party that didn't upgrade to EMV: either the bank issuing the card or the merchant accepting it. For a FAQ on chip card technology, see www.chasepaymentech. com/faq\_emv\_chip\_card\_technology.html.

#### **STAY IN TOUCH**

For regular customers who prefer to pay by check, Berry says, "Keep it on the surface in the relationship with customers and clients, up front, that you



need working capital, and getting paid is related." Prompt communication between your accounts receivable person and a customer lagging with a payment is essential.

"Accounts receivable needs to be monitored very closely," says Brown. "Statements need to go out timely and communication with the customer needs to occur when payment terms have been exceeded."

Berry adds: "Keep it in the context of a good relationship with a client or customer. Nobody pays before a month. Watch for the normal pattern and worry about it when the normal pattern is broken."

And when that pattern gets broken and your accounts receivable manager reports that the customer is no longer taking calls and you're considering staking out the customer's house, Brown says, "Don't kid yourself; if it is noncollectable, write it off. Carrying a lot of uncollectable accounts on your balance sheet distorts your financial condition."

In these cases, again, regular communication with your accountant is critical. Brown notes that "if the business is on an accrual basis, you must attempt to collect prior to [any] write off for a tax deduction."

As always, no single system is perfect for all businesses. Use what works well for your typical customer and your business style — and may all your customers pay in 15 days.

#### ABOUT THE AUTHOR

Erik Gunn is a magazine writer and editor in Racine, Wis.





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#### **BY CRAIG MANDLI**

Hydroexcavation clears the earth around utility lines and can remove sludge, slurries, mud, gravel and other waste from a work site. As the technology increases in popularity, new specialty products, including hydroexcavation units, hose, booms, pumps and other components, continue to hit the market. Here are some of those innovative products.

# Hydroexcavation Trucks and Trailers

#### **CanAm Extreme Duty Oilfield Combo Vacuum**

The Extreme Duty Oilfield Combo Vacuum unit from CanAm Equipment Solutions has a 3,200-gallon DOT 407

waste tank with full-open rear door and front hoist in either aluminum,

stainless or carbon steel construction. It is available with

Robuschi, NVE or Hibon positive displacement blowers, providing 900 to 1,600 cfm of high vacuum for continuous duty operation. The fully heated self-contained water system includes 800 gallons of storage. A CAT pressure pump provides water delivery up to 10 gpm and pressures to 3,000 psi. The Hotsy boiler package provides more than 700,000 Btu of heating power for hot water or steam. It is available in a variety of configurations for variable and industrial liquid waste to heavy oilfield applications.

877/582-2626; www.canamequipment.com

#### **Ditch Witch MV800**

The MV800 mud vacuum excavator from Ditch Witch is designed for cleanup on horizontal direc-

tional drilling job sites. Its commercial-grade, 31 hp Briggs & Stratton Vanguard gas engine has elec-



tric start and a high-capacity remote air-intake filter. Its filtration system includes an integrated carryover chamber that eliminates contaminants before they reach the blower. It has an 800-gallon spoils tank with optional reverse flow and hydraulic-opening door to easily remove spoils. It is available with an optional water system with a 100-gallon water tank and adjustable pressure up to 3,000 psi for soft excavation tasks such as potholing utilities.

800/654-6481; www.ditchwitch.com

#### Foremost 2000

The 2000 model hydrovac from Foremost is mounted on a tridem or quad-axle chassis and

comes with 2,000-gallon water tanks, 13-yard debris bodies and a 70-inch aluminum, heated, lit and insulated van body providing ample storage room, a



shelving unit and microwave on the driver's side. It is available with either a standard Robuschi RB-DV125 blower or optional Robuschi RB-DV145. The water system includes a CAT 3560 wash pump, 740,000 Btu boiler and full winterization package. The 26-foot rear-mounted extendable boom is controlled by a wireless Omnex controller, which also allows for control of the off-loading, vacuum, wash and vehicle rpm functions. This boom is stored on the rear fender with the dig tube attached for convenient digging up to 18 feet prior to adding any extension pipe.

403/295-5800; www.foremost.ca

#### GapVax HV55 HydroVax

The HV55 HydroVax wet/dry unit from GapVax is constructed of ASTM A572 grade 50 steel and has a 12.5-cubic-yard debris body and water tank options ranging from 400 to 1,400 gallons. Its positive displacement vacuum pump is rated at 5,250 cfm with 28 inches

Hg. Its design prolongs the life of the filter bags and eliminates the threat of material entering the



vacuum pump. The tailgate is fully opening with a field-adjustable hinge and dual cylinders, and has four fail-safe, individually adjustable locks that ensure a complete seal. Options include a coldweather recirculation package, sludge pump, augerunloading system, body-pressurization system, remote pendants and wireless remotes, high-rail package and stainless steel body.

888/442-7829; www.gapvax.com

#### **Guzzler Manufacturing Guzzcavator**

The Guzzcavator from Guzzler Manufacturing has an air filtration system with 60 Dacron filter bags (70-inch) for wet/dry industrial cleaning. Designed for cleaning and recovering solids and

dry bulk powders, liquids, slurries and thick sludge, the truck can also be used for potholing, slot trenching, water valve box repair as well as locating fiber optic lines, cable and other utilities. Its 1,300-gallon stainless steel



water tank provides up to seven hours of continuous operation and removes debris by delivering up to 20 gpm of water and 2,500 psi when hydroexcavating. The multi-flow water pump provides water pressure adjustment with the push of a button for

various digging conditions. It has a full-opening rear door and rear-door-mounted sludge pump for off-loading.

800/627-3171; www.guzzler.com

#### **Hi-Vac Corporation X-15**

The X-15 hydroexcavator from Hi-Vac Corporation virtually helps eliminate the risk of underground utility strikes. It performs hydroexcavation

along with vacuum excavation, potholing and daylighting. Easy operation and simple maintenance provide



for maximum efficiency on the job. It combines a state-of-the-art water pump and vacuum technology to create ideal vacuum excavation power. 740/374-2306; www.x-vac.com

#### **Keith Huber Corporation Knight PD**

The Knight PD air-mover from Keith Huber Corporation uses a Robuschi RB-DV145 blower capable of 6,176 cfm. The Huber

Master Control allows the operator to control all functions with the push of a



button from one centralized location, including a separate baghouse and cyclone clean-out. It has a 3,000-gallon carbon steel tank with 5/16-inch shell, a DOT-approved boom mount, centrifugal ninestage cyclone, hydraulically operated full-opening rear door with integrated safety cylinder valve, tank-mounted hydraulic vibrator, 53-degree dump angle, 6-inch discharge valve (mechanical or air operated), 6-inch intake valve with internal standpipe, rear work lights, LED running lights, a backup alarm and grounding reel. Options include ASME/DOT 412, pressure off-load, Huber Lock rear door, hydraulically operated boom with 22 feet of reach and wireless operation, and a Hammerhead Armor front bumper.

800/334-8237; www.keithhuber.com

#### LMT Smart-Dig HX4000

The Smart-Dig HX4000 modular hydroexcavator from LMT can be mounted on a wide variety of new or used truck chassis. Its compact design is ideal for smaller, single-axle trucks, providing increased maneuverability and

overall efficiency. It has an onboard 85 hp Kubota diesel engine to eliminate wear and tear on truck power. The Tuthill blower provides 1,300



cfm of airflow combined with a 3,000 psi Udor water blaster and 675 gallons of freshwater. It has an easy-to-use fully hydraulic rear door and wireless-remote-control telescoping boom. A 445,000 Btu diesel-powered water heater is available for colder climates.

800/545-0174; www.vaxteel.com

#### Vermeer VX 50-500

The Vermeer VX 50-500 vacuum excavator from McLaughlin Group has a Tier 4 Final engine

and an engine enclosure to help reduce engine noise levels and vibration. The large access door to the engine enclosure provides improved acces-



sibility. Contractors can also lock the enclosure doors, helping deter potential vandalism. An improved external hydraulic door opens at an 85-degree angle, allowing for easy and rapid dumping and cleaning of the spoils tank. A mechanical cam-over locking system provides a 360-degree positive door seal, even under reverse pressure, without additional clamping requirements. The lockable control console has a color graphic monitor. Its low-profile design allows access to areas limited by height restrictions.

#### 800/435-9340; www.mclaughlinunderground.com

#### Presvac Hydrovac

The Hydrovac hydroexcavator from Presvac is designed for cold weather operation and is available in a version in full compliance with DOT collection and transportation of hazardous materials. The high-vacuum blower allows extraction of all types of soils, gravel, rock, clay, water and silt mate-

rial. A knockout feature in the debris tank minimizes carryover. Modular filtration configured to the



blower size provides blower protection and minimal maintenance. It comes with a heavy-duty 8-inch boom up to 25 feet long with six-way hydraulic power and wireless controls for all boom functions, water pump (soft start), vacuum breaker and truck engine speed.

800/387-7763; www.presvac.com

#### Sewer Equipment RAMVAC HX-12/27

The RAMVAC HX-12/27 conventionally sized hydroexcavator from Sewer Equipment has a 12-yard debris tank for when the oper-

ator can't leave a job to unload material. It comes with a temperature-controlled



environmental chamber and directional discharge system to off-load debris back into the excavation site when finished without dumping the tank. It has a long-range wireless remote, NEMA 4 electrical system, a 400,000 Btu water boiler, a threestage filtration system and a 5,400 cfm blower with 27 inches Hg. It is available with a RamAir air excavation system to avoid adding water to problem areas.

800/323-1604; www.ram-vac.com

#### Super Products Mud Dog 1200

The Mud Dog 1200 12-yard hydroexcavator from Super Products has a standard water tank

capacity of 1,000 gallons and a pump rated at 14 gpm at 3,000 psi. Its 8-inch positive displacement vacuum sys-



tem offers airflow rated at 5,800 cfm and 28 inches Hg. It has a rear-mounted, 8-foot telescoping boom capable of a 19- to 27-foot reach, 335-degree rotation and a 45-degree upward and 25-degree downward pivot allowing operators to achieve a larger work area and dig deeper without the need to halt operation to reposition the truck. It has easy-to-use ejector plate unloading technology, and its tilt-unloading ensures that liquids in the debris tank are cleared quickly and efficiently even when unloading in an up-slope/ nose-down position.

800/837-9711; www.superproductsllc.com

#### Tornado Hydrovacs F4 Slope

The F4 Slope hydrovac from Tornado Hydro-

vacs holds 13 cubic yards of mud and more than 2,100 gallons of freshwater. It includes a water boiler and



a 3,600 to 6,300 cfm positive displacement vacuum blower to pull spoils to the tank via a boom. The boom has a 342-degree rotation and a 26-foot reach. All critical components are housed in an insulated and heated aluminum van body. Its mud sweep empties the tank without hoisting, which eliminates the dangers of dumping on uneven ground and around overhead power lines.

877/340-8141; www.tornadotrucks.com

#### **Transway Systems Terra-Vex**

The Terra-Vex all-season hydroexcavator from Transway Systems has a direct-drive 6,400 cfm blower, silencers and water system contained within an insulated heated acoustical walk-in enclosure, including 23 square feet of usable storage space. The enclosure reduces sound levels by several decibels, enabling hassle-free residential work while ensuring operators and water components don't freeze. The hydraulically driven water pump delivers 10 gpm at 6,000 psi, and the 1,200-gallon HDPE water tank and 425,000 Btu burner are protected from the elements. The 3,000-gallon debris

tank comes with hydraulically operated hoist, full open rear door and locks. A 26-foot, 8-inch suction boom



is hydraulically operated with a joystick and wireless remote control. **800/263-4508; www.transwaysystems.com** 

#### Vac-Con X-Cavator

The easy-to-operate X-Cavator from Vac-Con comes with a hydrostatic drive that uses the chas-

sis engine to eliminate the need for PTO, clutch and gearbox operation. It offers water systems up to 4,000 psi and a mobile wireless remote control enabling the operator



to work the chassis engine rpm, boom, automatic vacuum breaker, dump controls and hydraulic door locks from remote areas up to a half mile away. The boom rotates up to 270 degrees.

855/336-2962; www.vac-con.com

#### Vacall AllExcavate

AllExcavate hydroexcavators from Vacall – Gradall Industries have a step-in compartment to provide operators with warmth and protection from inclement weather.

The heated compartment is roomy with enough space for an operator to change out of wet and muddy clothing. It has floor drainage, racks to hang



dry clothing, heated cabinets for the hose reel and water pumps, and boilers that can heat water for more effective hydroexcavation in frozen ground. The unit uses high-pressure jetting action to loosen soil, rocks and clay, and then vacuum forces up to 27 inches Hg and 5,800 cfm to remove the material and water slurry into a debris tank. **800/382-8302; www.vacall.com** 

#### VacStar vacuum excavator

Vacuum excavators from VacStar help reclaim directional drilling fluids; pothole utilities; clean

out manholes, catch basins, wash pits, valve and meter boxes; and wash equipment and property. A rotary vane pump



provides a strong vacuum for greater depths, distance and speed. It allows the operator to vacuum and pothole great distances, easily permitting backyard and previously inaccessible work areas. The pressure mode allows clogs to be removed from the vacuum hose and the contents to be maintained under the controlled dump mode.

319/656-3434; www.vacstar.com

#### Vactor Manufacturing HXX Prodigy

The HXX Prodigy vacuum excavator from Vactor Manufacturing is mounted on a 33,000-pound gross vehicle weight Class 7 truck chassis. It has a user-friendly control system identical to the con-*(continued)* 





provides full coverage of the working area. An optional telescopic boom is available. It hydroexcavates soil with jets of up to 10 gpm at rates from 1,500 to 2,500 psi. It has a 16-inch Hg, 3,200 cfm positive displacement blower with a filtration system that can handle both air (185 cfm at 150 psi) and water (10 gpm at 2,500 psi) without a bag house. The variable-pressure triplex pump allows the operator to adjust water pressure with the push of a button. An air-excavation system is available for applications where dry digging is preferred. **800/627-3171; www.vactor.com** 

#### Hose

#### Kuriyama Tigerflex Amphibian AMPH

Tigerflex Amphibian AMPH Series hose from Kuriyama of America has an abrasion- and oil-resistant polyurethane inner liner and resists internal wear, especially in the bends where the material hits, leading to less costly downtime. Its highly flexible Cold Flex materials and corrugated outer cover allow for ease of use wherever needed. **847/755-0360; www.kuriyama.com** 

#### Booms

#### **Custom Boom Elbows**

Custom Boom Elbows manufactures both 70- and 90-degree boom elbows

available for a range of hydroexcavating and municipal sewer work vehicles. Both feature a 25.1-inch circumference and 8-inch diameter with flanged ends. All models are built with a 1/2-inch wall thickness for longevity and endurance. **604/835-0199; www.customboomelbowsbc.com** 

#### Water Pumps

NLB Corp. 10125D The 10125D high-pressure water jet pump unit from NLB Corp. is typically



operated at 10,000 psi and a flow rate of 17.5 gpm, but easily convertible to pressures as low as 6,000 psi and as high as 40,000 psi. It has a continuousduty six-cylinder diesel engine and is trailermounted for easy transport to job sites with four-wheel electric brakes, heavy-duty axles and full DOT lighting package. All operating controls, including pressure gauge, rupture disc and bypass valve, are mounted on a separate accessory manifold.

248/624-5555; www.nlbcorp.com

#### Vacuum Pumps

#### Cat Pumps Model 3560

Engineered to maximize uptime, the Model 3560 industrial-grade high-pressure triplex pump from

Cat Pumps has lubricated, cooled seals for maximum life. Concentric, high-density, polished solid ceramic plungers provide a true wear surface that extends seal life. Pump manifolds are forged brass and 316 stainless steel for strength and corrosion resistance. Drive options include hydraulic motor and other direct drives. It is rated for 20 gpm at 4,000 psi and 25 gpm at 3,000 psi. **763/780-5440; www.catpumps.com** 

#### Moro USA PM3000 Storm Series

The PM3000 Storm Series liquid-cooled vacuum pump from Moro USA is capable of pumping nonvolatile liquids and



sludge from long distances for industrial applications with a suggested tank capacity of 3,000 to 6,000 gallons. It includes an integrated check valve, changeover valve, automatic oiling system, industrial duty bearings, Viton seals, high-flow-rate asbestos-free spark-proof vanes and a 4-inch flange connection. Its onboard liquid-cooling system incorporates a forced-circulation external water pump. It is capable of 29 psi and a continuous vacuum of 24 inches Hg, with a flow rate of 1,000 cfm and 1,200 rpm rotating speed.

800/383-6304; www.morousa.com

#### Wallenstein Vacuum Pumps 753 Series

The 753 Series vacuum pump from Wallenstein Vacuum Pumps incorporates extra-wide vanes that allow up to an inch of wear, resulting in longer service life and lower maintenance costs. It

provides 422 cfm airflow at 1,200 rpm operation and precision machining for vacuum levels up to 28 inches Hg. Options include air-, liquid- or dualcooling systems where air injection is combined with liquid cooling. A pump flushing port is included on the top valve for convenient regular maintenance. The quick-access housing endplate makes for easy internal inspection with no bearings to pull. Oil lubrication is via a mechanical piston pump driven by shaft rotation or available with a sight feed valve oil regulator system that uses vacuum/pressure to draw oil with no moving parts. **800/801-6663; www.wallenstein.com** 

#### Sludge Pumps

#### Gorman-Rupp Prime Aire PA4A60C-QSB2.8P FT4



The Prime Aire PA4A60C- **QSB2.8P FT4 from Gorman**-

Rupp Company offers pumping capacities to 900 gpm, total dynamic heads up to 153 feet and the capability of passing up to 3-inch spherical solids. The 4- by 4-inch pump is driven by a 74 hp, Final Tier IV, Cummins QSBF2.8P turbocharged, air-cooled diesel engine with an auto-start control panel and float switch assembly. Its priming system uses a venturi and compressor, eliminating leaks. An oversized, oil-lubricated mechanical seal allows it to run dry continuously.

419/755-1011; www.grpumps.com

#### Hydra-Tech Pump S4T-2

The S4T-2 4-inch trash pump from Hydra-Tech Pump has integral stainless steel wear plates above and below the impeller. It fits into tight spaces and can be used as a submersible pump or a tank truck flange mount for direct loading or off-loading using onboard truck



hydraulics. Requiring only 8 to 10 gpm of hydraulic flow at pressures to 2,500 psi, it is suited for operating with smaller hydraulic power units. It has a cast and machined hardened-aluminum volute, stainless steel wear plates for durability in a lighter package, and a two-vane open-channel impeller. Its stainless steel intermediate shaft has pressed-in-place upper and lower bearings attached to a gear motor with high-pressure lip seal, which combine to drive the two-vane open-channel impeller. It delivers output flows to 700 gpm, heads to 100 feet and pressure up to 2,000 psi.

570/645-3779; www.hydra-tech.com

#### Blowers

#### Jurop/Chandler Equipment CT Series



from Jurop/Chandler Equipment are available in the CT130 with an input range of 900 to 1,500

CT Series tri-lobe blowers

rpm, 760 cfm maximum output and 1,500 rpm input achieved with internal gearing. The larger CT180 has an input range of 2,100 to 3,300 rpm with a max output of 1,058 cfm. They can withstand continuous pressure of 30 psi and have a Labyrinth Titanium seal design.

800/342-0887; www.chandlerequipment.com

#### National Vacuum Equipment 5314 Top Mount

The 5314 Top Mount blower package from National Vacuum Equipment includes a cyclonic grit ridder, secondary/scrubber, prefilter to keep the blower free of foreign material, an air ballast system to keep it running cool while providing 27



inches Hg continuous operation, a water-cooled 6-inch remote four-way valve to prevent freeze-ups in frigid temperatures and an air ballast and exhaust silencer with stainless steel construction on the internals. The silencers are double-walled with internal packing to ensure quiet operation. This package has adequate airflow, 1,600 cfm and a 6-inch boom. **800/253-5500; www.natvac.com** 

#### Hydroexcavation Equipment

#### **Fast-Vac Shuttle**

The 16-cubic-yard Shuttle roll-off/liftoff vacuum loader from Fast-Vac has all the capacities and



functionality of a truck-mounted vacuum, but without the maintenance of a truck. They are ideally suited to refuse applications, industrial cleanups and spills. Multiple units may be in field service and moved with only a single truck. **262/878-0756; www.fast-vac.com** 

#### Hydra-Flex Ripsaw

The Ripsaw rotating hydroexcavation nozzle from Hydra-Flex blasts a zero-degree straight water stream at up to 3,200 psi, while rotating at a high speed to provide an 18degree cone of coverage. Its optimized stream quality results in greater impingement, allowing the operator to use a smaller nozzle



size while getting the same impact as nozzles with higher flow rates. These heavy-duty, high-impact nozzles are constructed with stainless steel housings and tungsten carbide wear surfaces. Nonconductive urethane coating on the nozzle body protects the user and sensitive underground assets. Repair kits are available.

952/808-3640; www.hydraflexinc.com

#### **NozzTeq MONRO-JET**

MONRO-JET nozzles, distributed by NozzTeq, combine the power of a solid stream pencil jet with the large coverage of a fan jet. They are lightweight



and sturdy, employing a circular water jet to generate high power at modest gpm rates. They can be used for surface cleaning, such as concrete, steel, castings and large surface areas, including line removal from runways. They can be modified for internal pipe cleaning of sewers and pipes of all types. Their orbital design enables pressures as high as 36,250 psi.

866/620-5915; www.nozzteq.com

#### Progress Tank rear-open hoist and door

The ASME 407/412 carbon steel full rear-



open hoist and door from Progress Tank is built with a specialized corrugated baffle that allows for product control during transportation and is designed to maximize solids off-loading capability. **800/558-9750; www.progresstank.com** 

#### **Soil Surgeon**

The Soil Surgeon hydroexcavating tool fits any sewer combination truck equipped with a telescopic 6- or 8-inch boom. The tool has a 1-inch water connection. The operator controls water pressure and power with truck controls. It has a 6-foot Tuff Tube with



handles to guide the unit down for potholing or side to side for trenching. Six jets boring inward cut the soil, while six boring outward bring the tube down.

949/363-1401; www.soilsurgeoninc.com

#### StoneAge Hydro-X Lance Assembly

The Hydro-X Lance Assembly hydroexcavation jetting tool from StoneAge can be used to locate utilities and precisely excavate an area with high-

pressure water. Jetted with a single replaceable

OCIH 1/4 NPT carbide

nozzle, this 60-inch lance with a 1/2 NPT male connection gives extra reach for digging deep, focused holes. The asso

reach for digging deep, focused holes. The assembly includes a guard and collar system to protect the nozzle.

866/795-1586; www.stoneagetools.com 🔻

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### THE LATEST: News

#### Perma-Liner adds China distributor

Perma-Liner of Singapore signed a partnership agreement with Pipeline Assessment and Service Company for sewer inspection, maintenance and municipal sewer rehabilitation programs.

## ASTM releases pipeline laser profiling standard

ASTM released pipeline laser profiling standard F3080-14. ASTM F3080-14 provides engineers and inspectors with an internationally accepted procedure for the measurement and/or confirming of installed pipe size and/or shape deformation.

## Pure Technologies names regional VP

Pure Technologies named David Burke, P.E., vice president for its southeast region. Based in Columbia, Md., Burke will manage business



David Burke, P.E.

development in the region and work with existing clients to develop pipeline management strategies.

## Geospatial revamps website

Geospatial Corp. has revised its GeoUnderground website, www. geounderground.com, enabling users to securely gather, share, view and edit geo-referenced information from a laptop, tablet or phone.

#### Hanson Pipe & Precast names vice president

Hanson Pipe & Precast named Cory R. Mayo vice president of operations. He succeeds Greg Minteer who retired after 33 years.

#### GapVax opens Texas service center

GapVax opened a store and service center in Deer Park, Texas, offering equipment and parts sales as well as routine module maintenance, water pump repair, hydraulic diagnostics and electrical repair. Equipment and parts include blowers, water pumps, gearboxes, vacuum tubing, hoses, hydraulic components, and vacuum and high-pressure nozzles. John Dean, Gulf Coast sales representative, will manage the Texas location.

# Exact Tools establishes repair, distribution center in Canada

Exact Tools established a warranty repair and distribution center in Canada. The Finland-based company named Quality Tool Repair of Saskatoon, Saskatchewan, its master warranty repair center for Exact's PipeCut saws in Canada. The company also established a distribution center in Simcoe, Ontario.

#### Go to Parts names business development manager

Go to Parts, Wastequip's newest aftermarket parts division, named Dean Rank business development manager. He will be responsible for account management with dealers and end users.

## Vac-Con conducts food drive

Vac-Con employee owners conducted a food drive to benefit The Food Pantry of Green Cove Springs, Fla. In addition to the peanut butterand-jelly drive, employees donated nonperishable food items. Donations totaled 527 pounds.

#### HammerHead moves to new location

HammerHead Trenchless Equipment moved to a 19-acre,



136,500-square-foot facility in Lake Mills, Wis. The move will enable the company to consolidate operations at one location.  $\blacktriangledown$ 

#### MARKETPLACE ADVERTISING



#### CALENDAR

#### March 10-12

**10th Anniversary CGA Excavation Safety Conference & Expo**, Rosen Shingle Creek, Orlando, Fla., www.cgaconference.com.

#### March 15-19

North American Society for Trenchless Technology (NASTT) 2015 No-Dig Show, Colorado Convention Center, Denver, www.nodigshow.com.

#### June 7-10

**Rapid Excavation and Tunneling Conference (RETC),** Sheraton New Orleans, New Orleans, www.retc.org.

#### Sept. 29 - Oct. 1

International Construction & Utility Equipment Exposition (ICUEE), Kentucky Exposition Center, Louisville, Ky., www.icuee.com.

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 to post notices, news items and learning opportunities. Send contributions to editor@digdifferent.com. ▼





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#### **PIPELINE REHABILITATION**

TRIC trenchless pipe burster - 25 ton. c25 Ram. 5.5hp hydraulic pump. 4" fusion machine. 4" and 6" bursting heads. 100ft. and 150-ft. cables. \$14,500. Pictures can be emailed. fodajamin@gmail.com. 740-333-7731 (C05)

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D11

(CBM)

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