



TAKING END-OF-YEAR ORDERS

Section 179 Write-Offs up to \$1MILLION in 2018!



Tax Relief Is Available in 2018, But Truck Availability Is Uncertain

2018 Section 179

Example Calculation

(assuming a 35% tax bracket)

Are you aware that this year the tax code allows you to deduct up to \$1,000,000 from your gross income for capital equipment purchases?

You may also want to know that TruckXpress has had a back-log of truck orders for the entire year, meaning if you want a truck or more before the end of the year, now is the time to order. Better to hear "sure thing" than "too late".

Scheduling your year-end truck order today will give you a sense of relief, and guarantee your 2018 tax relief as well.

| Equipment Purchase First Year Write-Off (\$1,000,000 = maximum in 2018) | | ,150,000 ,000,000 |
|---|-----|----------------------|
| 100% Bonus First Year Deduction (updated to 100% via 'tax cut and Jobs Act') | \$ | 150,000 |
| Normal First Year Depreciation (20% in each of the 5 yrs on remaining account) | \$ | 0 |
| Total First Year Depreciation (\$1,000,000 +150,000+0) | \$1 | ,150,000 |
| Cash Savings (\$1,115,000 x 35% tax rate) | \$ | 420,500 |
| Equipment Cost After Tax | \$ | 747,500 |







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September 2018



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Working in the Rocky Mountains of Colorado, Snowbridge Inc. builds a solid year-round business by adding pipe and hydroexcavation services to its septic pumping and installation specialty.

ON THE COVER: Maintaining a varied inventory of equipment allows Snowbridge Inc., of Breckenridge, Colorado, to expand its menu of wastewater and utility services. Co-owner Bill Tatro III is shown with a Vactor combination truck and a septic and commercial services vacuum truck from House of Imports running a National Vacuum Equipment pump. (*Photo by Carl Scofield*)

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Contact Jim with your comments, questions and opinions at editor@pumper.com.

The Customer Thinks You Charged Too Much. What Happens Next?

Blindsided by an angry homeowner's ultimatum, Pennsylvania pumper Philip Renno searches for a solution he can live with By Jim Kneiszel, Editor

ou know the feeling in the pit of your stomach when a customer calls to complain about your bill? The customer's voice is raised on edge; he or she might toss in a few curse words for good measure. This catches you by surprise, and for a moment you are tongue-tied and unsure how to respond.

This isn't the type of call you receive often. In fact, most of your customers love you and wouldn't think about questioning your bill or your business ethics. You're a straight shooter and an honest business owner in your community. So in the face of heated — maybe we can say irrational — criticism, you're inclination may be to apologize, waffle, even make a knee-jerk offer to reduce your bill.

Philip Renno was still reeling from such a call when he left a voicemail message for me. He said he was grasping at straws, looking for advice about how to handle his irate customer and realizing he might have made the situation worse by his initial responses that sent mixed signals and infuriated the customer even more.

While I'm not a pumper out in the field dealing with unhappy customers, I wanted to hear Renno's story and reassure him if I could. And the *Pumper* community might be able to learn something from his experience. When I called him back, I learned Renno, 41, grew up on a dairy farm and has operated Renno's Custom Spreading & Septic Service in McVeytown, Pennsylvania, for 15 years.

TOO MANY COOKS

As is probably often the case in these circumstances, Renno described a convoluted situation involving several people and probably a good deal of misunderstanding on the customer side of the service call.

He said, 'Look, you cash that check and you're never doing any business with me or my family again.'
... I've had people hot with me before, but lots of times they'll calm down if I give them a little time."

Philip Renno

Renno was called by the homeowner to clear an obstructed graywater drain. When he arrived, he was dealing with the owner's wife. This wasn't their home, but a home they rented out to a relative. The relative's girlfriend was on site and paid the bill of \$775.

The job required six hours of Renno's labor, three hours use of his Water Cannon Inc. - MWBE jetter and two hours use of his vacuum truck with

1,200 cfm blower and 5,000-gallon tank (built for the agriculture industry). The long discharge pipe was filled with thick sludge, and the blockage was eventually traced to a large root intrusion.

As Renno was working, the owner's wife was frantically authorizing him to do whatever was necessary to fix the problem. She was happy when he finally produced the stringy root mass, and the girlfriend of the tenant paid the bill without question. Unfortunately that wasn't the end of it. The relative/tenant arrived home, heard about the bill and complained to the homeowner. The homeowner then chewed out Renno.

"It just almost shocked me out of my boots. I don't like people upset with me. ... He really laid into me," a still-shaken Renno said. "If someone is not happy with me, I can't stand it and will do what it takes to make it right."

MISTAKES MADE

The property owner thought Renno's hourly rate for manpower and equipment was way out of line, and told Renno he could rent a jetter and vacuum truck and pay someone else to do the work necessary for far less money. Hmmm. That doesn't seem plausible, or rational, but that's not the point. The point is the customer was lathered up and spouting off.

"He said, 'Look, you cash that check and you're never doing any business with me or my family again.' ... I've had people hot with me before, but lots of times they'll calm down if I give them a little time," Renno said.

Looking back, Renno says he believes he made two mistakes:

- Not pausing at some point to explain that this job was more complicated and costly than usual. "The bad part was the owner was not present on the job and the relative said, 'Get it done," Renno says. "At some point two or three hours into the project, I should have discussed the price or other options."
- Falling victim to clumsy communication. Surprised by the irate customer, Renno went too far in trying to satisfy the customer by talking about lowering the price. Then a half hour later, after realizing he couldn't discount his bill without being underpaid for his labor and his equipment costs, he texted that to the customer. He says the mixed messages made the situation worse.

TURN THE TABLES

Renno thought long and hard about his next step. He even consulted the deacon at his church about how to react to a hostile customer.

On one hand, if he cashed the check for the full price, he would get paid

(continued)

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what he felt was fair, but lose a customer who he'd pumped several tanks for over the past five years. The irate customer is a prominent person in the community who could also tell his friends and family to no longer use Renno's services, which could have a detrimental impact on his business.

On the other hand, he could negotiate a lower price and not be paid adequately for his service. But doing that devalues the important hard work of pumpers who invest so much time and money in training and equipment. Success in this and any small business depends on doing a good job and ensuring you turn a profit. By lowering the price, he may keep this customer, but one might argue whether keeping a customer like this is a good thing.

Renno decided to take a different approach. He planned to write a note justifying the charges on the itemized bill and returning the uncashed check for the work. He says protecting his reputation is worth more than what any one customer is going to pay him.



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LETTER TO THE EDITOR

Reject Oil and Gas Wastewater as a Restroom De-icer

To the Editor.

The Ohio House of Representatives Energy and Natural Resources Committee has passed HB 393 out of committee that will commoditize oil and gas wastewater from conventional vertical wells, removing regulation and tracking requirements and encouraging a proliferation of surface discharges on Ohio highways as a de-icer and dust suppressant. Along with this named use, the bill also allows the use of oil and gas wastewater as a de-icer in portable restrooms, news that should concern every pumper, treatment plant operator and portable restroom operator.

The Ohio Department of Natural Resources has conducted radiation testing on these products being marketed and found they exceed effluent limits for RA-226 (radium) and RA-228, and exceed safe drinking water limits by a factor of 300.

The Ohio Department of Health has made great progress over the last 10 years controlling surface discharges from household sewage treatment systems and is now facing a great leap backward if this bill goes forward. Few wastewater treatment plants have radiation monitoring and no municipal treatment plant is designed to treat radioactive wastewater, yet this plan may allow a direct path for discharge of radioactivity to the waters of Ohio.

The oil and gas industry raced development of new production technologies but did very little planning about how to handle the billions of gallons of wastewater that is and will be produced, and has resorted to questionable methods of disposal that threaten the safety of our freshwater resources and the public health.

Ohio has been welcoming to these types of wastewaters. As volumes continue to increase, disposal becomes more complicated and oil and gas producing states and their neighboring states will eventually face this same issue.

It is time for the wastewater services industry to stand up and protect the environmental progress we have made and oppose the indiscriminate spreading of radioactive wastewater of unknown constituents and refuse to accept these wastewaters in all pollution control facilities.

Tim Kettler

Action Septic Service Inc. Warsaw, Ohio

"You (send a check) for the amount you're happy with and I'm sorry for the misunderstanding," Renno would say in the note. "Some people would say I'm admitting I did something wrong by giving him a break, but I don't feel that way. I'm leaving the choice up to him. I feel that's the best way."

WHAT WOULD YOU DO?

Ask 10 pumpers their strategy for dealing with a customer complaining about a bill and you may get 10 different answers. I'm not sure how many would go along with Renno's unconventional solution. I didn't offer him any specific advice but said I would share the story with readers and ask how they approach irate customers.

But I did leave him with one observation: It's unfortunate and unfair and it seems unjustified for consumers to assume they can bargain for services rendered by a pumper. Do you think most folks try to knock money off a bill for work by other home services provides such as a plumber, an electrician or a HVAC installer? ■



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2011 Int'l 7600

Int'l, 430 HP, Fuller RTO-16908LL Trans., Air Ride Suspension, 201,403 Miles, FA 18,000, RA 40,000, Full Lockers, 4500 Gal. Tank with Blower, NEW Engine



2005 Sterling 9501

MBE 460, 450 HP, RTO-16908LL Trans., Air Ride Suspension, 483,573 Miles, FA 20,000, RA 40,000, 3200 Gal. Tank with an NVE 360 Pump, Locking Differential



2002 Kenworth T800

Cat C12, 425 HP, Fuller 8LL Trans., 725,000 Miles, FA 22,000, RA 46,000, 4650 Gal. Steel Tank, 425 CFM Jurop Pump, 3" Intake, 6" Discharge

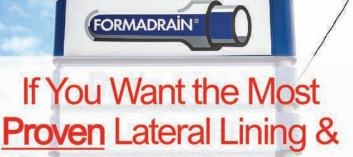


2002 Mack RD688S

Mack E7, 400 HP, Mack Trans., Camelback Suspension, 318,042 Miles, Tri-Axle, FA 18,000, RA 44,000, 4500 Gal. Steel Imperial Tank, Masport HXL400 Liquid Cooled, 400 CFM Pump

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Left: The company's newest hydroexcavation unit, a Transway Systems Terra-Vex 125 built on a 2018 Western Star chassis, stands ready to work at a job site.

Below: A Fairway Utilities crew member unloads a Vermeer horizontal directional drilling machine at a job site.

In 2017, hydroexcavating work — mostly daylighting to expose underground utilities or complex excavating in and around sensitive underground utilities — accounted for about \$1 million in gross revenue, about 5 percent of the company's \$20 million in sales. But Herd says he expects that percentage to increase in the coming years.

"The first year (2015), we didn't even do \$200,000 in sales," says Herd, pointing out that the company's first hydroexcavating truck was a used Vacall built on a 2012 Freightliner chassis. Because a typical new hydroexcavating truck costs \$400,000 to \$500,000, he figured it would be more prudent to buy a reliable used truck and see how things panned out.

"At that point, I really wasn't thinking about a second truck," says Herd,

We rented a second truck because we had so much work coming in. The work didn't let up, so we eventually bought a second truck in January 2017. And in March, we took delivery of our third truck.

JASON HERD

who co-owns the company with his father, Cal Herd, and three long-time business colleagues: Andrew Bush, Peter Langdon and Thomas Waite. "But 14 months later, we rented a second truck because we had so much work coming in. The work didn't let up, so we eventually bought a second truck in January 2017," he continues. "And in March, we took delivery of our third truck."

NEW TERRITORY

Herd led the business-diversification effort in 2015, after he became a co-owner of the company his father founded in 1991. After earning an electrical-engineering technician's degree, Herd worked full time for his father starting in 2004.

Two primary considerations spurred the market shift. For starters, the commercial electrical-contracting industry keeps getting more and more competitive, which drives down profit margins and makes it increasingly difficult to win contracts. Moreover, Herd realized the company's reliance on either renting equipment or hiring subcontractors to do HDD or hydroexcavating work was hurting the company's bottom line.

"We were spending obscene amounts of money subcontracting out those services, plus it's inefficient if you have to wait for them to arrive on a job site," he explains. "In the electrical trade, it's always better to run a wire from A to B without joints. ... With joints, you introduce a point of failure. FARWAY UTILITIES VALUE MANDAU V

You also can apply that concept to subcontracting. So we decided to avoid that point of failure and keep as many services in-house as possible.

"Dad was on board," adds Herd, a self-described risk-taker. "Sure, there was a little bit of apprehension. It was a big risk, investing about \$700,000 in a drill and a used hydrovac truck. But it felt right to me."

Ironically enough, the significant investment in equipment was a positive as well as a risk. Why? It presented a high barrier to market entry by more competitors. Sure, there were already other local companies doing hydroexcavation work. But there aren't many who are so diversified, Herd explains.

"We are somewhat unique because we can offer services from A to Z — serve as a one-stop shop for our clients," he says. "When we worked on street-lighting projects, we found that not only were we calling subcontractors to help us out with daylighting or excavating holes for streetlights, so were the general contractors for whom we worked. We thought that was silly. Now we have the best of both worlds because we can work in-house or get hired as subcontractors for hydrovac work."

MEETING CUSTOMERS' NEEDS

So what's the takeaway here? Always be on the lookout for ways to not only work more efficiently, but provide better service for customers, too, Herd suggests. Furthermore, when making investments in equipment, don't expect growth to occur overnight.

"It took time for our business to develop," he explains. Getting the word out to general contractors the company already knew, plus leveraging contacts developed from memberships in different professional organizations, helped generate business. "Or contractors would see the truck

(continued)



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rolling down the road," he adds. And hydroexcavating jobs sometimes led to electrical-contracting work, too — another benefit of offering diverse services, he notes.

Another key to success: strategically timing the purchase of additional trucks. "It was a challenge to navigate growth on the utility side of the business — ensure we didn't get too far ahead of ourselves and buy equipment before we had enough need for it," Herd says. "You get excited about this one job and expect you're going to get five others right after it, but that's usually not how it works."

To avoid buying expensive hydrovac trucks and then watching them sit idle, Fairway typically rents equipment when increased demand starts to outstrip the company's capacity. The purchase of additional trucks and other equipment comes only after company officials determine as best they can that the increased workload is sustainable.

"Sometimes we also hire subcontractors," Herd adds. "It can make you grind your teeth a little bit because you're handing over a check when

Scoring big on stadium project

It's not unusual for a small and growing company to land a big project more large jobs. At Ontario-based Fairway Electrical Services, that particular job involved installing all the lighting plus the underground civil work for electrical and telecommunication lines at the \$145 million Tim Hortons Field, home of the Hamilton Tiger-Cats in the Canadian Football League.

The company was awarded the \$13 million contract in 2013, and it posed challenges from the start. The first hurdle: The field was scheduled to addition, the company had to hire roughly 110 new employees, bringing its staff to around 150 people at the peak construction period, says Jason Herd, vice president-director of business development and a co-owner of the

"It was an insane amount of pressure to get that project done," Herd says. "We never dreamed of competing on such a large project. But we put worth of work in 18 months."

The scope of the work included installing all the field-of-play and parking lot lights, plus all the excavating for underground electrical and telecommunications infrastructure. The company's hydroexcavators were utilized to expose underground lines to place new electrical lines. Employees laid more ground wiring alone, Herd says.

"We scrambled to find people wherever we could, and we also had to keep up with our work for our regular clients," Herd points out. "We only had 40 employees when we won the bid. It was wild. I moved my office down to the stadium along with a couple of our other project managers.

"It was controlled chaos," he adds. "But on the other hand, it really project like that. We ultimately got the job done, thanks to a very good onsite project management team and the tremendous skills of our workforce."

Herd says the company's success on the project led to other big contracts, such as a \$3.5 million contract to wire a train-layover facility in Kitchener in 2015; a \$13 million street-lighting retrofit project for the region of Waterloo, which involved changing over 42,000 street lights from con-LED street-lighting retrofit project for the city of Hamilton (converting 27,000 lights in 10 months) in 2017 and 2018, he says.



you could be making a payment, but sometimes that's the best short-term strategy."

FRIENDLY COMPETITORS

Technician Matthew Krznaric reviews details of a directional drilling project as he completes a job hazard analysis.

The use of subcontractors raises another point: Good relationships with competitors can pay off in unexpected ways. For instance, if a hydrovac truck breaks down or Fairway is so busy it can't take on a project for a good customer, it helps to have friendly competitors who can pick up the slack.

"If need be, we'll call a competitor and give them the business, just to

If need be, we'll call a competitor and give them the business, just to ensure we don't let our customers down. And it works both ways - sometimes they call us when they're in the same situation.

JASON HERD

ensure we don't let our customers down," Herd notes. "And it works both ways — sometimes they call us when they're in the same situation."

To bolster customer service, the company hired Eric Langdon, a dedicated hydroexcavating and HDD operations manager who is customers' go-to contact for service. Langdon has a wealth of experience, and having him as a sole point of contact makes it easy for customers to get what they need with one phone call. "He has a dedicated extension on our phone system and customers know that whatever they need, they can call him practically 24/7," Herd says.

To provide great customer service also requires investments in reliable equipment. For hydroexcavating,

the company relies on two Vacall AllExcavate models, built out on Freightliner and Western Star chassis with a 12-cubic-yard debris tanks, a 1,300-gallon water tank and a Roots blower from Howden. The third hydrovac unit is a Transway Systems Terra-Vex 125 built on a 2018 Western Star chassis.

The company also owns a Vermeer 20x22 HDD machine with 20,000 pounds of thrust and pullback force; 15 mini-excavators made by Bobcat; two rubber-tire backhoes made by Caterpillar and John Deere; five Bobcat skid-steers; two digger-derrick utility trucks built on International and Freightliner chassis and outfitted with Altec Industries augers; seven dump trucks with dump bodies made by Voth Truck Bodies: six GMC 3500s; one Freightliner M2 that doubles as a dump truck and roll-off



Technician Scott Langdon pauses to give instructions to Justin Levert as the pair operate a Vacall AllExcavate hydroexcavator with a Roots blower from Howden.

truck; and four Ford F-550 bucket trucks, each outfitted with a 37-foot Altec Industries articulating boom lift.

MORE GROWTH AHEAD

Herd says the company's exponential growth — from \$6 million in gross revenue in 2013 to \$20 million in 2017, just four years later — was a pleasant surprise. "We're very happy to be where we are," he observes. "I'd be lying if I told you five years ago I was expecting the growth we've had. ... It's very rewarding to be able to look back and say, 'Remember when we were that small?"

Looking ahead, Herd says he expects further growth. If business continues as it has, he says buying a new hydrovac truck every year isn't out of the question. Along the way, company officials also are discussing hiring a full-time mechanic to cut the turnaround time on repairs, which the company currently outsources.

I'd be lying if I told you five years ago I was expecting the growth we've had. ... It's very rewarding to be able to look back and say, 'Remember when we were that small?

JASON HERD

"In five years, I see our company becoming even bigger and better than we are today," he says. "Now that we've hit \$20 million in sales, I'd like to hit \$25 or even \$30 million. It's totally doable as long as we continue our focus on diversification and niche markets — develop a customized book of services that's aimed at suiting whatever our clients need."

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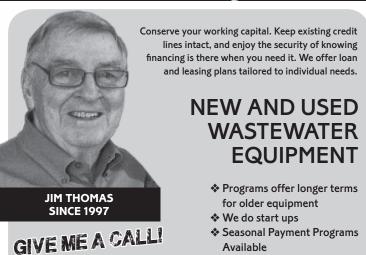


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New York Legislature Considers Ways to Cut Onsite System Costs

By David Steinkraus

site systems for state residents. One would remove the requirement that a professional engineer or architect handle the design of an advanced onsite system to reduce nitrogen pollution, as long as the system meets certain guidelines and is on

hree bills before the New York Legislature could reduce the cost of on-

a health department list of approved technologies. This change could cut about \$3,000 of the cost of such installations.

A staff member of The Nature Conservancy on Long Island tells a news reporter that requiring engineer involvement for some onsite systems is like having an engineer certify the installation of a refrigerator. A professional engineer took issue with the idea, noting that advanced systems are essentially miniature wastewater treatment plants with components that need to be chosen by someone with expertise.

The bill was introduced by Rep. Fred Thiele, I-Sag Harbor, and Sen. Kenneth LaValle, R-Port Jefferson. The pair prepared two other bills that also address wastewater issues.

One would allow municipalities to establish septic system replacement loan programs. Property owners could borrow to help pay for the installation of a nitrogen-removing onsite system. The loan would be repaid through a charge on property tax bills.

The other bill would allow communities around the eastern end of Long Island to establish loan programs that draw on their Community Preservation Funds. Loans would be intended to bridge the gap between a septic system replacement rebate and the cost of advanced nitrogen-reducing systems. A 2 percent tax on real-estate transfers bankrolls the funds, which pay for water-protection programs and purchase land for preservation as open space.

"We're looking for ways to make septic system upgrades more affordable and give an incentive for people to participate in septic system upgrades," Thiele tells the Newsday newspaper.

Although they represent a very wealthy part of the country, communities on the eastern end of Long Island depend heavily on cesspools for wastewater treatment. Water-quality problems have led those communities to recognize the need for better treatment, especially nitrogen reduction. As a result, several communities passed laws requiring advanced onsite systems for new construction or significant remodeling.

Florida

The Brevard County Commission voted 3-2 in May to impose a fivemonth ban on the installation of conventional septic systems along the county's beachfront, on Merritt Island, and any inland location within 165 feet of the Indian River Lagoon and its tributaries.

Commissioner Jim Barfield proposed the moratorium in April as a first

step. The county will next begin looking at permanent policies to reduce septic system pollution. Nitrogen from onsite systems is being blamed for algae blooms in the lagoon that runs for miles between the eastern shore of Florida and its barrier islands.

Although septic system installations would be on hold, developers and homeowners would still be able to install advanced onsite systems that remove at least 65 percent of the nitrogen in wastewater. Homeowners with an existing contract to install a traditional septic system would be exempt from the moratorium.

Among people testifying before the commission was Roxanne Groover, executive director of the Florida Onsite Wastewater Association. According to Florida Today, she asked commissioners to slow down the process to ensure that the policy coming out would be good law, and she asked them to consider alternative technologies for onsite systems.

In the meantime, reports the Brevard Indian River Lagoon Coalition, the Florida Health Department is approving septic permits for system removals and upgrades at double the rate specified in the lagoon cleanup plan.

Ohio

Portable restroom operators may have a new anti-icing fluid if a bill in the Legislature becomes law. HB 393 would allow the sale of used water from oil and gas drilling as a de-icer, for snow control, dust control, portable restrooms, or any other purpose approved by the chief of the state's Division of Oil and Gas Resources Management.

There are some conditions. Water could come only from vertical wells, and not horizontal wells, according to an analysis prepared by legislative staff. The water would also have to be processed to remove dissolved volatile organic compounds and other contaminants. Once a seller submits the appropriate documentation, the oil wastewater would be exempt from state regulations covering brine, although the division must collect no more than four samples of the oil wastewater per year to ensure the water meets regulations.

In testimony before the House Energy and Natural Resources Committee, Rep. Michael O'Brien, D-Warren, one of the bill's co-sponsors, said the wastewater is not like that from horizontal fracking wells. Wastewater from vertical wells contains salt and low levels of oil and natural gas, and the bill will encourage people to find ways to use brine rather than disposing of it in an injection well, he says. (The other co-sponsor is Rep. Anthony Devitis, R-Green.)

The Sierra Club of Ohio disagrees with the assessment of oil wastewater. "There's been some great research on this, showing it does not matter what kind of oil and gas well this fluid comes from, it has hazards in it," Cheryl Johncox, an organizer with the group, tells public radio station WOSU.

"We're opposed to this bill opening up for additional broader use on roads in the state of Ohio."

California

The owner of Diamond Environmental Services, a large portable restroom company in San Diego, will serve five months in federal prison for illegally disposing of wastewater in cities in Southern California.

Arie Eric De Jong III pleaded guilty last year to felony charges and was sentenced in May. In addition to the prison term, a judge ordered him to pay a \$15,000 fine and serve three years on probation.

Warren Van Dam, the company's chief operating officer, was given five years' probation and ordered to work 250 hours of community service.

Last year, the company's safety and compliance manager, Ronald Fabor, was convicted of two counts of perjury before a grand jury. He received five years' probation and a \$500 fine.

Assistant U.S. Attorney Melanie Pierson tells Judge Roger T. Benitez that De Jong was a thief.

"This is a scheme to dump portable waste down the sewer to save money. This is his idea. He planned it. He experimented with it. Then he implemented it across all of his facilities," she says, according to *The San Diego Union-Tribune*.

Prosecutors say the company saved millions of dollars in costs by illegally emptying pumping trucks into municipal sewer systems instead of paying fees to use a dumping station.

Indiana

Rush County now requires certifications for people who install, repair or replace onsite wastewater systems. Certifications can be obtained by showing proof of Indiana Onsite Wastewater Professionals Association certification or by taking a 60-question, open-book exam offered at the Health Department. Recertification will be required annually. Homeowners who want to work on their own onsite systems must also be certified.

Virginia

Cost-sharing reimbursements from the Culpeper Soil and Water Conservation District have increased for a variety of onsite work. Payments cover 50 percent of the cost of pumpouts, repairs, and new systems up to these limits: \$150 for a pumpout, or \$240 for lower-income families; \$1,000 for a pumpout and inspection, or \$1,600 for a low-income family; \$2,500 for repair of a conventional system, or \$4,000 for low-income families; \$4,000 for a conventional system, or \$6,400 for low-income households; \$5,000 for a conventional system with a pump, or \$8,000 for low-income households; and \$12,000 for an

alternative system, or \$19,200 for a low-income family. The district covers Culpeper, Rappahannock, Madison, Orange and Greene counties.

California

Sonoma County officials asked for an extension of state deadlines for developing new rules for septic systems. Officials faced opposition from rural residents who feared they would be forced to undertake costly repairs and upgrades. The Board of Supervisors will ask for a six-month

extension. It was not clear when the State Water Resources Control Board might make a decision on the county's request.

The rules are intended to reduce pollution in the Russian River. State estimates say about 10,000 onsite systems in the Russian River watershed will need upgrading, and about 5,000 will need to be replaced. There are about 53,000 onsite systems in the county.



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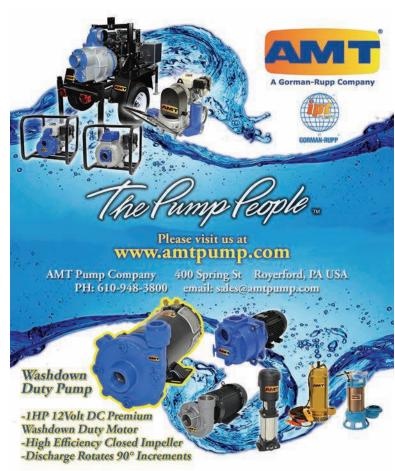














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7 Tips to Capture Momentum Heading Into the Final Quarter of 2018

A positive outlook and attitude can help you meet business goals and finish the year strong By Brigette Hyacinth

e are entering the stretch drive of 2018, and for me — and maybe you, too — it's been a bumpy ride. Sometimes it felt like every step forward I made I was actually moving two steps backward. I've managed to clear a few hurdles, while others blindsided me. In spite of the many ups and downs, I plan on finishing the year strong.

I know you want your small business to finish strong, too. So with a few months left to make a difference, ask yourself a few key questions. How are you doing on accomplishing your goals for the year? Were you a risk-taker or did you remain in your comfort zone? Or are you about where you were at this point last year? Think about both the business and your personal life.

If you're on track to reaching your goals for revenue, new customers, and adding new equipment, services, or employees, then congratulations! If you're not there yet, it's never too late to redouble your efforts. Here are my seven steps to finish out the year on a positive note:

1. Set goals

It's never too late to set new goals. Write them down. If you don't set goals, you will be drifting aimlessly to wherever the winds take you. You must form a plan. Eradicate time wasters. Take risks. Have a clear road map to avoid going around in circles and to ensure you reach your destination in the most efficient and effective manner.

2. Run you own race

Gauge the course, and set your own pace. Maybe it's time for you to redefine success. Don't look to the left or right to see how others are doing. Look straight ahead to the finish line. Focus on beating your personal best. Sometimes it may appear others are progressing faster than you. Don't worry about others. There is a season and time for everything. Have patience. Don't fret over things you can't control. Even if you fail, remember it's not the end of the world. Tomorrow is another day, so pick yourself up and head back to the drawing board.

3. Focus on your skills and talents

Embrace your distinctiveness. Learn from others, but don't try to imitate them. You will be a poor replica. Find your gift. What is your core purpose? What is it that no one else can do better? Allow your reason for being here to lead you to do the amazing things you were destined to do. Focus on your strengths and work on improving your weaknesses. Always seek personal development (spiritual, emotional, mental, social and physical).

4. Be positive

Stop doubting yourself. Replace negative thoughts of inadequacy with positive affirmations. Changing your perspective on difficult situations will lead you to a more successful life. Keep on smiling. Happiness increases your focus and fuels your passion. Forget the naysayers. You will face many obstacles along the path including fear, failure, rejection, financial woes, fatigue, loneliness and despair. You may get disappointed, but don't be discouraged. Press on with increased fervency. It may be rainy right now, but just remember the sun is shining above the clouds. Keep moving forward one step at a time; slowly but surely, you will get there.

5. Form strategic partnerships

Work as a team. Find a mentor or coach. It doesn't matter how talented you are, you may still need a coach to achieve your full potential. Look for opportunities others may overlook. Seek out those who have traveled the path before, and align yourself with those whose skills complement yours. Surround yourself with the leaders in your field — those who will champion you and encourage you to keep running.

6. Work hard

Train hard. There are no shortcuts in life. These all lead to dead ends. Success takes a huge commitment, and you will have to make the necessary sacrifices. How badly do you really want it? If I want something, I give it everything I've got. You cannot lose if you have done everything on your part. Be persistent. Stop procrastinating or wishing; start doing. Action fuels success. I try to do at least two activities a week that will push me closer to achieving my goals. Even if it's a small step forward, it's still a step forward.

7. Enjoy the journey

Life is not a 100-yard dash, but a long distance race. Prioritize, and remember to take time to stop and smell the roses. Take breaks. Spend time with those closest to you. Show them how much you appreciate them. Additionally, don't wait for huge victories; celebrate small successes. Help others along the way. True success can be found in our quiet selfless service to others. In our quest for success, it's the simple things we take for granted that really matters, like being a person of integrity, a good parent, a trusted friend.

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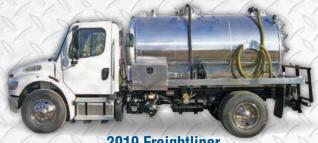
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Careful tracking of labor and other assets helps you boost profits and get jobs done faster and more efficiently

By Cory Dellenbach

ometimes a good, long look at how your company is operating, and what you could eliminate, can lead to more business.

Barry Wood, CEO of Toronto-based hydroexcavation company Ontario Excavac, has found that out. Wood, who has a manufacturing background, got involved in lean thinking a number of years ago with the U.S.-based Association for Manufacturing Excellence.

"In a nutshell, it's about flow and valueadded removal of waste," Wood says. "You look across your operations and you start by asking yourself: What is value in the eyes of the customer? Look across your processes, flowchart them, and evaluate where there are opportunities to eliminate nonvalue-added activity."

Wood looked at his company using lean thinking and found several areas he could eliminate. While scary at first, the moves proved to be profitable as the company earned more business because of it.

FINDING THE WASTE

Things to eliminate by applying lean thinking include duplication of services and transportation of wastes, but it shouldn't stop there.

"There are sources of waste that are epidemic in the construction sector," Wood says. "Wait time for example is rampant. People are waiting for the preceding steps to be done before someone starts to work."

Wood points to his own company as an example. While working with one of its largest customers, his crews would go out at the same time as the customer's crews did. Ontario Excavac crews would excavate and then move aside and watch as the customer's crews did their work. After the crew was done. Ontario Excavac crews would then start restoration work.

That was one of the first and easiest things for the customer and Ontario Excavac to change.



"Instead of us going out on a job site along with a customer's crew, we now go to the job site the day before and do the excavation work then," he says. "The next day, the customer's crew comes along and does their work, and then we'll go back after they're done and do the restoration. There is no waiting around at the job site anymore."

Both companies are increasing productivity just by sequencing operations that way.

"We dealt with that time waste by changing the order of steps and disconnecting a successive step from the previous one," Wood says. "We no longer have people that are just standing around and waiting."

Several other wastes in the construction industry can be eliminated by applying lean. Here are some Wood found in his own company:

- Defects Improper installation or repair, billing errors, change orders.
- Overproduction Requesting too many locates to complete in a given time. Multiple forms with same information.
- Waiting Equipment failure, missing work tools or personal protective equipment, not sequencing work and resources effectively.
- Nonutilized or underutilized resources and talent — Journeymen being used to operate a backhoe or dump truck.
- Transportation Disposal of hydrovac debris many miles from both the site and
- Inventory Field and office supplies, items stored on vehicles, email.

A technician for Ontario Excavac dumps a load from a hydroexcavation truck manufactured by Transway Systems.

- Motion Trying to find tools, misplaced items, wrong order of work steps.
- Excess processing Insufficient use of alternate locate agreements. Failure to use keyhole technology.

"You can save a ton of money if you focus on applying lean practices," Wood says. "We're putting a big focus on eliminating waste and optimizing processes. The whole nature of moving more centrally into the city that we did a year and half ago, then putting the soil recycling facility here, it's all about eliminating waste transportation travel time and wait time."

APPLYING LEAN THINKING

Wood admits that when he and other company officials began applying lean thinking, what they found was a little shocking.

"When we were analyzing billings to customers, we saw that on some days as much as 40 percent of what the customer was being billed was related to traveling to the site, to the disposal site, and then back to the shop," Wood says. "We saw that as probably the biggest initial opportunity for eliminating waste."

By adding a hydroexcavation recycling facility in a centralized location, Ontario Excavac knocked out over 30 percent of that travel time.

"We've taken four hours out of a bill and put

(continued)

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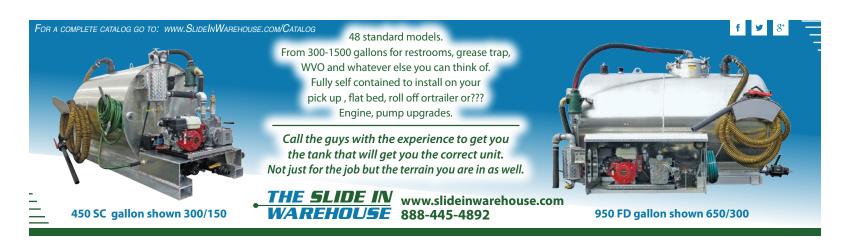
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Lean Applied to the Utilities Sector — Examples from Ontario Excavac

| Task | Lean improvement(s) implemented | Benefits obtained |
|---|--|--|
| Ordering locates | Alternate locate agreements, preliminary inspections tightened locate area and dig zone | Quicker access to field, less locate fieldwork, bigger execution time window improves planning opportunities |
| Work planning and scheduling | Sequential work planning based on task cycle-time, self-directed excavation (done without utility crew in attendance, e.g., day prior) | Elimination of wait time, more optimized usage of equipment, level-loaded work schedule |
| Vehicle daily inspection | Standard two-copy inspection form, use of Vehicle Maintenance Request Form, air brake and wheel lug nut visual status flags | Consistent, documented completion of inspection, prioritization and tracking of repairs; accurate and quick indicators of brake/wheel compliance |
| Work equipment and tools | Crewman's checklist to verify personal protective equipment, traffic controls, equipment and tools on board | Ready to excavate when arrive at site |
| Site setup | Site hazard checklist, tailgate checklist, use of green cones for overhead wires/overhead wire signs | Consistent, thorough evaluation of site potential hazards and how risks are being mitigated, visual reminder of overhead wire risk |
| Fieldwork — hydroexcavation, working on underground plant, restoration services | Standard operating procedures documented. Use of keyhole tools | Consistent order of steps, use of best technique to reduce cycle-time, smaller excavations, no need to get into excavation, consistent paperwork, safer operations, easier to train new people |
| Travel each day to and from work site to disposal site | Move to more central greater Toronto area site, build and operate a hydrovac soil recycling facility at the shop | Elimination of significant nonvalue-added transportation saving labor and fuel costs, reduction in carbon footprint, reuse and recycling of soil and water materials. |
| Inventory control and usage | Use of kanban/vendor managed inventory (VMI) via vending machine for PPE | VMI vending machine controls min/max inventory levels, tracks usage by employee |
| Fuel cost and air/ noise pollution | Reduction in gearing on PTO has engine running at lower revolutions per minute, use of acoustic cabinets | Lower operating cost, less air and noise pollution |
| Hydrovac vehicle design and layout | Storage cabinets designed for ease of access, auto-lube feature | Cycle-time reduction for setup, work execution, cleanup, ease of maintenance |

Instead of us going out on a job site along with a customer's crew, we now go to the job site the day before and do the excavation work then. ... Then we'll go back after they're done and do the restoration. There is no waiting around at the job site anymore.

Barry Wood

it down to like two hours for travel to and from," Wood says. "Those are the type of savings we're seeing. It's substantial."

FOR THE CUSTOMER

It was a leap of faith for Wood and his company, not knowing how their major customer would take the news of applying lean practices.

"We told them we know they pay us for every minute that we're out from door to door, but in the long-term best interest for their business and ours, it just made sense to remove this nonvalueadded time," Wood says.

Wood hoped that on seeing the reduction in bills, their customer would reward Ontario Excavac with more work. "That's exactly what happened," he says. "We just executed an extended alliance agreement with this customer. They've been pleased with our active efforts to contain costs."

Wood says other company owners and managers have to trust that customers will reward them for applying lean thinking.

"I was pretty confident because we've worked with many customers for years," he says. "We were definitely taking a chance to do it because you can just sit there and be fat and sassy and say they can pay for all the travel time and we'll just keep billing them, but at some point, that was going to change. Somebody was going to change that model, and we decided it had to be us."

MAKING IT A COMMITMENT

Any utility construction company can make the changes Ontario Excavac made — it just takes the right mindset.

"It starts with a mindset that you're going to examine your business and eliminate waste," Wood says. "It can be employed by service industries, manufacturing and construction. Construction is just a slow adopter. The industry is slow to adopt new practices and new ways of doing things, and lean is just one of them.

"You have to realize it's easy to talk about, but doing it is harder than talking about it. We have our own struggles here. It's change and a shift in culture and how we do things; and it takes time and effort and discipline and commitment to do it."

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Working in the Rocky Mountains of Colorado, Snowbridge Inc. builds a solid year-round business by adding pipe and hydroexcavation services to its septic pumping and installation specialty

By Ted J. Rulseh

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

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

Their pipe services touch the residential, commercial and industrial sectors. Their two Roto-Rooter franchises serve five counties

Snowbridge Inc. Breckenridge, Colorado

OWNERS: Bill Tatro III (CEO) and Chris Tatro (president)

FOUNDED: 1976 EMPLOYEES: 16

SERVICES: Septic system pumping and installation; pipe cleaning, repair, inspection; hydroexcavation

SERVICE AREA: Colorado and parts of surrounding states

AFFILIATIONS: National Association of Wastewater

Technicians, NOWRA - National Onsite Wastewater Recycling Association, Colorado Professionals in Onsite Wastewater, NEHA - National Environmental Health Association

WEBSITE: www.snowbridgeinc.com

around Breckenridge, west of Denver in ski resort country. They do it all with an experienced 16-member team, which they retain with competitive pay and a complete benefit package.

O

Colorado

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

(continued)



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877.771.6041 www.aquaben.com sales@aquaben.com Clockwise from right: Ever Leon prepares a Vactor truck to pothole for a gas line. The combination truck allows the company to provide a wider variety of services in and around Breckenridge, Colorado; technician Danny Spiecher handles the Crust Busters tank agitator while Ever Leon stands by; Bill Tatro III collects supplies from a van carrying 4,000 psi/9 gpm Brute jetter from Jetters Northwest and a COXREELS hose reel.



A LONG HISTORY

Snowbridge traces its history back to 1976, when Bill Tatro Jr. and wife, Cheryl, bought a vacuum truck with a Cusco tank on a Ford chassis and started a septic tank pumping business. "My dad was kicking around ideas to start a business," Bill Tatro III says. "When the old guy who was pumping septic tanks here retired, my dad decided to do that.

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

back to finish a degree with an agriculture major in animal science at Colorado State University.

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

Everything operates from a single location in Breckenridge. The septic service business is focused on Summit County and Eagle County, about 80 and 100 miles west of Denver. In that large, but sparsely populated territory, the company pumps about 250 septic tanks a year. "Here in the central mountain region, we get a lot of snow," Bill Tatro III says. "Our septic tank pumping season is basically May through October, and sometimes we can't start in some places until June. It's a pretty tight window to get all the tanks pumped."

CHALLENGING GEOGRAPHY

Working in the mountains brings unique challenges. "Our office is at about 9,600 feet," Tatro says. "In our service area, we have an operating floor at about 7,500 feet. We pump some tanks at ski areas that are at 11,000 to





In the main counties we serve, the septic business is shrinking, and over time it's going to shrink even more. ... So we're really trying to grow other areas of our business.

BILL TATRO III

12,000 feet. At these altitudes, the air is less dense, so vacuum pumps don't work as efficiently as at sea level. So,

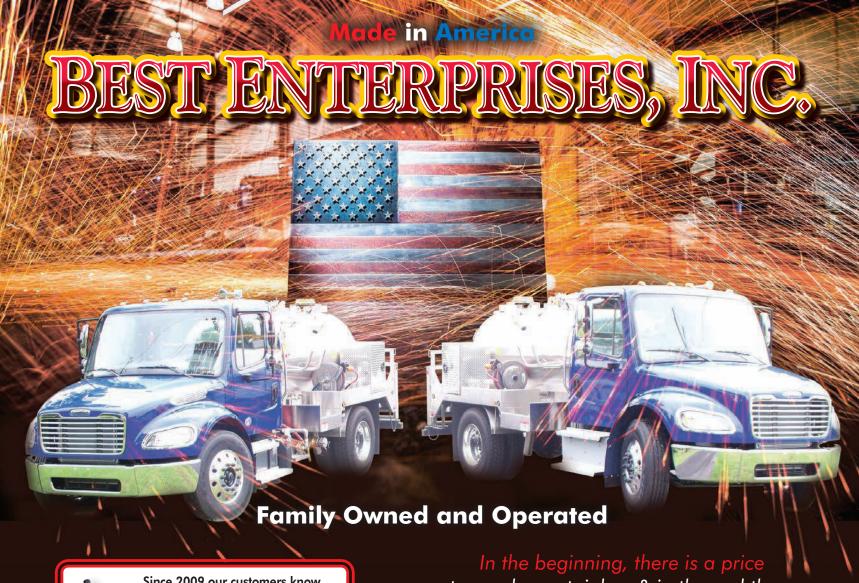
when we buy pump trucks, we definitely oversize our vacuum pumps."

The mountain topography is challenging, too "Quite often, we have steep lots where the tank is well downhill from where we can park the truck, so it's a steep lift from the tank up to the truck. If it's really steep with a lot of lift, we can be there for hours." Sometimes they use an electric sewage pump to lift the wastewater; other times they deploy an electric pump and the truck-mounted pump in combination.

Then there are sites where the tank lies well above the truck. "We can pump those tanks at the speed of sound," Tatro says. "You start pumping and you basically create a siphon. It pumps the tank in a few minutes."

The pumping business also includes grease traps at restaurants and hotels in the resort areas, along with preventive maintenance and pipe cleaning for those establishments. The company pumps about 250 grease traps per year. Septage and grease are emptied from the trucks into a semitank trailer on the Snowbridge property; contractor McDonald Farms hauls the filled tanks away to its private treatment facility in Denver. "We have a couple of wastewater treatment plants where we can take septic waste if we need to," Tatro says. "None of the treatment plants in this area will take grease trap waste."

(continued)



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INSTALLATION SIDE

The company's pumping competitors are mostly small, single operators, although a couple of larger companies also vie for the septic business. Snowbridge charges higher prices than competitors based on its full-service approach: "We offer a lot of services that

Above: Technician John Beyer clears a drain in a large convention center kitchen.

Right: Bill Tatro III pauses on a job site. Ever Leon and Danny Spiecher work in the background.

our smaller competitors don't. A lot of them are just pumpers; they may do some drain cleaning. We do everything from pumping the tank, to clearing the drains, repairing broken components and replacing whole systems."

Most of the company's onsite installation business revolves around repairs of existing systems. Crews replace about a dozen tanks per season and do three to four full system replacements. "We do hardly any new-construction installations," Tatro says. "The systems we put in are pretty big, with sand filters or sand mounds, pumps and controls."

In Summit County, homeowners are required to have a dosing mechanism — either an electric pump or a siphon. Most new systems have a pressure-dose component, so most of those have pumps. Most of the company's drainfields use rock media. Where sites require aerobic treatment units, Snowbridge uses mainly AdvanTex systems (Orenco Systems), as well as some BioMicrobics units. For ATUs, the company provides maintenance agreements, which the county codes require as a condition of issuing an operating permit.

CASTING A WIDE NET

Snowbridge owners determined long ago that onsite treatment services alone did not make a sound business model. Tatro's parents established the two Roto-Rooter franchise 30 years ago. The Roto-Rooter business and the Snowbridge septic services feed business to each other. "We may go out to a septic system for a drain call, and the tank might end up needing to be pumped," Tatro says.

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

- A truck-mounted 4,000 psi/25 gpm Rockstar jetter (US Jetting)
- \bullet A van-mounted, propane-fueled 4,000 psi/9 gpm Brute unit (Jetters Northwest)
 - \bullet A trailer-mounted Harben 4,000 psi/10 gpm jetter.

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

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

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

The vacuum truck fleet includes two units built by House of Imports:

- 2006 International 8600 with 3,300-gallon waste and 400-gallon freshwater tanks and 520 cfm National Vacuum Equipment Challenger pump.
- 2006 Freightliner M2 with 2,200-gallon and 200-gallon freshwater tanks and 363 cfm National Vacuum Equipment Defender pump.

Snowbridge uses a Crust Busters tank agitator.

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

Home base for all services is

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

(continued)

Serving industry

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

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

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

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



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This year's theme is...





DELIVERING QUALITY

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

- Ever Leon, project supervisor focused on municipal service.
- John Beyer, senior service technician, drain cleaning specialist and trainer.
- Service technicians Mike Streicher, Todd Franzen, Phil Gudlewski, Danny Spiecher and Derrick Floyd.

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

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

The company makes its mark by leaving as few marks as possible on customers' homes and properties: "When going into somebody's house, we always use shoe covers (Shubee). We use carpet protectors when we have

@pumper.com

To learn more about Snowbridge Inc., go to www.pumper.com and view a video profile. to walk through houses or bring jetter hoses inside. When pumping tanks, we try to be careful about driving into someone's driveway so we're not damaging the asphalt or the driveway edge."

Recruiting new team members has been challenging in a locality with a strong economy and abundant jobs in the construc-

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Crust Busters 888-878-2296

www.crustbusters.con (See ad page 87)

Cused

800-490-3541 www.wastequip-cusco.com (See ad page 29)

Envirosight 866-936-8476

Harben, Inc. 800-327-5387

House of Imports 305-691-4778 www.vacuumtruckusa.com (See ad page 11)

Jetters Northwest 877-901-1936 LMK Technologies 815-640-9302

National Vacuum Equipment, Inc.

800-253-5500 www.natvac.con (See ad page 3)

Orenco Systems, Inc. 800-348-9843

RIDGID 800-769-7743

Roto-Rooter Corporation 800-848-3375

Shubee 877-974-8233

US Jetting 800-538-8464

Vactor Manufacturing 800-627-3171 www.vactor.com

tion and service sectors. Tatro rarely finds applicants with direct pumping or drain cleaning experience, so he looks for people with mechanical skills. Failing that, he's willing to take on people who have an interest in learning.

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

ON A GROWTH TRACK

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

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

It's a formula that certainly seems to be working. ■

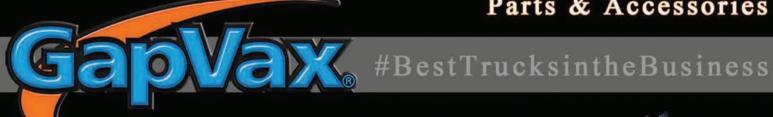
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| 2018 DIRECTORY | | Debris Body Capacity | Debris Door | Debris Door | Water Tank Capacity | Standard Water Pump | | |
|---|--|-------------------------|----------------------|-------------|------------------------|------------------------|-------------|------------------------------------|
| | Model | Туре | Style | (cu. yards) | (dimensions) | (dump angle) | (gallons) | (gpm & psi) |
| Cusco Fabricators LLC 305 Enford Rd. Richmond Hill, ON L4C 3E9 tf: 800-490-3541 | Cusco Hydro Excavator | Hydro | Chassis | 15 | | | 1,000 | 20 gpm 3,000 psi |
| p: 905-883-1214 www.wastequip-cusco.com SEE AD, PAGE 29 | Cusco Sewer Jetter/Hydro Excavator SJ-X | Hydro | Chassis | 12.5 | Half Door Full Dump | | 1,400 | 18 gpm 2,900 psi |
| Fast-Vac 21209 Durand Ave. Union Grove, WI 53182 tf: 800-558-2280 p: 262-878-0756 f: 262-878-4019 www.Fast-Vac.com sales@Fast-Vac.com | Fast Vac | Hydro | Chassis & Trailer | 20 + Gross | | 50 degrees | 1,500 | Variable flow 3,000 psi |
| GapVax Inc. 575 Central Ave. Johnstown, PA 15902 | HV33 HydroVax | Hydro | Chassis | 6 | Fully Opening | 90 degrees | 600 | 12 gpm 3,000 psi |
| tf: 888-442-7829 p: 814-535-6766 f: 814-539-3617 www.gapvax.com Inquiry@gapvax.com | HV55 HydroVax | Hydro | Chassis | 12.5 | Fully Opening | 90 degrees | 400 - 1,400 | 5 - 40 gpm 2,000 - 5,800 psi |
| SEE AD, PAGE 49 | HV56 HydroVax | Hydro | Chassis | 15 | Fully Opening | 90 degrees | 400 - 1,200 | 5-40 gpm 2,000 - 5,800 psi |
| Guzzler Manufacturing 1621 S Illinois St. Streator, IL 61364 tf: 800-627-3171 • p: 815-672-3171 www.guzzler.com sales@guzzler.com SEE AD, PAGE 73 | Guzzler Guzzcavator | Hydro | Chassis | 16 or 18 | | 50 degrees | 1,300 | 10 gpm 2,500 psi |
| Imperial Industries Inc. 550 W Industrial Park Ave. Rothschild, WI 54474 tf: 800-558-2945 p: 715-359-0200 • f: 715-355-5349 www.imperialind.com info@imperialind.com SEE AD, PAGE 18-19 | Hydro 3600 Hybrid Excavator | Hydro | Chassis | 15 | 72" | 42 degrees | 215 | 20 gpm jetter 4,000 psi |

| Standard Blower (hg & cfm) | Filtration Type | Boom Size (ft.) | Degree of Rotation | Offloading Type | Controls Location | Wireless Y/N | Accessories Available | Other |
|----------------------------------|--|--|-----------------------|---|--|-----------------|--|---|
| 27" hg 5,184 cfm | Dual 20" cyclones 30" final filter | 8" x 25' extended | 270 | Non-pressure | Driver's side | No | Winterization Lighting Tool Boxes Cabinets | |
| 27" hg 3,800 cfm | 30" final filter with 20" cyclone and 12" drop box | 8" x 26' extended | 270 | Optional - Pressure off-load | Passenger side and front panel | Yes | Winterization Lighting Tool Boxes Cabinets | |
| 28" hg 6,600 cfm | 80 dry and 8 wet bags | 15'+ | 330 | Gravity with optional auger | In cab and outside enclosure and 40' pendant | Yes | Winterization Lighting Tool Boxes Racks Cabinets | |
| 27" hg 4,000 cfm | Wet/dry single mode | 14' - 18' reach 18' 10" up 4' 6" down | 270 | Decant and fully opening tailgate Auger and sludge pump options available | Curbside | Yes | Winterization Lighting Tool Boxes Racks Cabinets | Onboard scales with digital readout stops loading when set target is reached (optional); 26 filter bags; inverted tailgate to reduce length; 200 cfm air pump; 4,500 cfm, 18" hg blower |
| 28" hg 5,250 cfm | Wet/dry single mode | 17' - 25' reach from center of truck | 270 | Decant and fully opening tailgate Auger and sludge pump options available | Driver's side curbside controls vary depending on options | Yes | Winterization Lighting Tool Boxes Racks Cabinets | 34 Filter bags, 5 cyclones for superior filtration; safe working area on top of truck; various options available |
| 28" hg 5,250 cfm | Wet/dry single mode | 17' - 25' reach from center of truck | 270 | Decant and fully opening tailgate Auger and sludge pump options available | Driver's side curbside controls vary depending on options | Yes | Winterization Lighting Tool Boxes Racks Cabinets | 200 cfm air pump; 6,600 cfm, 28" blower optional |
| 27" hg 5,250 cfm | Cyclone and baghouse with 60 filter bags | | | Dumping, tilting debris body, optional sludge pump | Passenger side | Yes | Winterization Lighting Tool Boxes Racks Cabinets | |
| 27" hg 1,600 cfm | Grit ridder | 6" 10' - 15' reach | 180 | Full rear opening door | Remote/user's pocket | Yes | Lighting Tool Boxes Racks Cabinets | Available in code and non-code |

| 2018 DIRECTORY | , | | Debris Body Capacity | Debris Door | Debris Door | Water Tank Capacity | Standard Water Pump | |
|---|------------------------|----------------|-------------------------|-------------|--|------------------------|------------------------|--|
| | Model | Туре | Style | (cu. yards) | (dimensions) | (dump angle) | (gallons) | (gpm & psi) |
| LMT Inc. 1105 SE 2nd St. Galva, IL 61434 | Smart-Dig HX-2100 | Hydro | Trailer | 3.5 | 48 | 90 degrees | 300 | 8 gpm 2,200 psi |
| tf: 800-545-0174 p: 309-932-3311 f: 877-471-2564 www.Imtmfg.com info@Imtmfg.com SEE AD, PAGE 40 | Smart-Dig HX-4000 | Hydro | Chassis | 5 | 48-degree tilt | 90 degrees | 400 | 8 gpm 2,200 psi |
| PRESVAC SYSTEMS Presvac Systems 4131 Morris Dr. Burlington, ON L7L 5L5 | Presvac HydroX Mini | Hydro | Chassis | 7 | Full Diameter Full Opening | | 800 | 18 gpm 3,500 psi Adjustable Flow and Pressure |
| tf: 800-387-7763 p: 905-637-2353 f: 905-681-0411 www.presvac.com sales@presvac.com | Presvac HydroX | Hydro | Chassis | 15 | 78" Full Opening | 90 degrees | 1,000 | 18 gpm 3,500 psi Adjustable Flow and Pressure |
| RIVAL HYDROVAC Rival Hydrovac Inc. Box 5 | Rival T7 | Hydro | Chassis | 8 | 54" Full-Opening Rear Door Two-Stage Hoist | 70 degrees | 800 | 13 gpm 2,850 psi |
| Major, SK S0L 2H0 tf: 844-467-4825 p: 403-550-7997 www.rivalhydrovac.com tdell@rivalhydrovac.com SEE AD, PAGE 30 | Rival T10 | Hydro | Chassis | 10 | 54" Full-Opening Rear Door Two-Stage Hoist | 70 degrees | 1,200 | 13 gpm 2,850 psi |
| Super Products TRUCK MOUNTED VACUUM EQUIPMENT Super Products LLC 17000 W Cleveland Ave. New Berlin, WI 53151 | Mud Dog 1600 | Hydro & Air | Chassis | 16 | Full Diameter Full Opening | | 2,000 | 18 gpm 3,000 psi |
| tf: 800-837-9711 • p: 262-784-7100 f: 262-784-9561 www.superproductsllc.com info@superproductsllc.com | Mud Dog 1200 | Hydro & Air | Chassis | 12 | Full Diameter Full Opening | | 1,500 | 18 gpm 3,000 psi |
| TORNADO GLOBAL HYDROVACS | F3 ECO-LITE | Hydro | Chassis | 10 | 48" x 52" Hydraulic Door with Hydraulic Latch | | 1,250 | 20 gpm 4,060 psi |
| Tornado Global Hydrovacs Ltd. #510, 7015 Macleod Trail SE Calgary, AB T2H 2K6 tf: 877-340-8141 p: 403-742-6121 | F4 ECO-LITE | Hydro | Chassis | 12 | 48" x 52" Hydraulic Door with Hydraulic Latch | | 1,400 | 20 gpm 4,060 psi |
| www.tornadotrucks.com media@tghl.ca SEE AD, PAGE 87 | F5 ECO-LITE | Hydro | Chassis | 12 | 48" x 52" Hydraulic Door with Hydraulic Latch | | 2,000 | 20 gpm 4,060 psi |

| Standard Blower (hg & cfm) | Filtration Type | Boom Size (ft.) | Degree of Rotation | Offloading Type | Controls Location | Wireless Y/N | Accessories Available | Other |
|----------------------------------|---|--------------------|-----------------------|---|--|-----------------|--|---|
| 12" hg 1,300 cfm | Drop box w/ 2 washable filters | 5" | 270 | Hoisted/gravity off-load | Curbside | Yes | Winterization Lighting | Kubota Tier 3 or Kohler Tier 4 auxilary engine |
| 12" hg 1,300 cfm | Drop box w/ 4 washable filters | 5" | 270 | Hoisted/gravity off-load | Curbside | Yes | Winterization Lighting Tool Boxes Racks Cabinets | Kubota Tier 3 or Kohler Tier 4 auxilary engine |
| 28" hg 2,650 cfm | Cyclone and inlet filter | 6" x 20' | 340 | 45-degree dump and optional pressure off-load | Passenger side | Yes | Winterization Lighting Tool Boxes Racks Cabinets | Can be built to DOT/TC Code |
| 28" hg 4,000 - 6,400 cfm | Two large cyclones and inlet filter | 8" x 25' | 340 | 45 degree dump and optional pressure off-load | Passenger side | Yes | Winterization Lighting Tool Boxes Racks Cabinets | Can be built to DOT/TC Code |
| 27" hg 2,650 cfm | Cyclone and cartridge | 6" x 20' | 342 | Tilt and pressure off | Curbside | Yes | Winterization Lighting Tool Boxes Racks Cabinets | All Accessories are Included |
| 27" hg 4,000 cfm | Cyclone and cartridge | 6" x 20' | 342 | Tilt and pressure off | Curbside | Yes | Winterization Lighting Tool Boxes Racks Cabinets | All Accessories are Included |
| 28" hg 6,000 cfm | Single final filter | 8" x 27' | 335 | Ejector and Dump | Passenger side Inside heater cabinet | Yes | Winterization Lighting | Air excavation option |
| 28" hg 6,000 cfm | Single final filter | 8" x 27' | 335 | Ejector and Dump | Passenger side Inside heater cabinet | Yes | Winterization Lighting | Air excavation option |
| 27" hg 3,800 cfm | Three-stage system | 8 " Topgun 26' | 342 | Tornado concave and sloped floor design | Multifunction Wireless Remote with Auxiliary Levers | Yes | Winterization Lighting Tool Boxes Racks Cabinets | Water Heater: 690,000 BTU. 12 Volt with full diagnostics |
| 27" hg 3,800- 6,400 cfm | Three-stage system | 8 " Topgun 26' | 342 | Tornado concave and sloped floor design | Multifunction Wireless Remote with Auxiliary Levers | Yes | Winterization Lighting Tool Boxes Racks Cabinets | Water Heater: 690,000 BTU. 12 Volt with full diagnostics |
| 27" hg 3,800- 6,400 cfm | Three-stage system | 8 " Topgun 26' | 342 | Tornado concave and sloped floor design | Multifunction Wireless Remote with Auxiliary Levers | Yes | Winterization Lighting Tool Boxes | Water Heater: 690,000 BTU. 12 Volt with full diagnostics |

| 2018 DIRECTORY | , | | Debris Body Capacity | Debris Door | Debris Door | Water Tank Capacity | Standard Water Pump | |
|--|---------------------|-------|-------------------------|----------------------------|---|------------------------|------------------------|---|
| | Model | Туре | Style | (cu. yards) | (dimensions) | (dump angle) | (gallons) | (gpm & psi) |
| Transway Systems Inc. 314 Lake Ave. N Hamilton, ON L8E 3A2 tf: 800-263-4508 p: 905-578-1000 f: 905-561-9176 | Terra-Vex HV38 | Hydro | Chassis | 12 | Hydraulic Half Door | | 1,000 | 10 gpm 3,600 psi |
| www.transwaysystems.com sales@transwaysystems.com SEE AD, PAGE 5 | Terra-Vex HV64 | Hydro | Chassis | 12 | Hydraulic Full Open Door | | 1,000 | 10 gpm 3,600 psi |
| VAC-CON MORE POWER TO YOU Vac-Con Inc. 969 Hall Park Rd. Green Cove Springs, FL 32043 p: 904-284-4200 | X-Cavator | Hydro | Chassis | 3, 5, 9, 11, 12, 14, 16 | | 60 degrees | 1,300 | 10 gpm @ 4,000 psi optional 20 gpm @ 4,000 psi |
| p: 904-264-4200 www.vac-con.com vns@vac-con.com | XX-Cavator | Hydro | Chassis | 16 | Flat Industrial Style, Hydraulically Opening | | 1,300 | 20 gpm @ 4,000 psi |
| SEE AD, PAGE 39 | Mudslinger | Hydro | Trailer | 4 | Full Opening Hydraulic door | 55 degrees | 325 | 4 gpm @ 4000 psi |
| VAC-TRON- EQUIPMENT Vac-Tron Equipment LLC | HTV PTO 573 | Hydro | Chassis | 2.5 | 48" | 60 degrees | 300 / 400 | 4 gpm 4,000 psi |
| 27137 S Hwy. 33 Okahumpka, FL 34762 tf: 888-VAC-TRON p: 352-728-2222 www.vactron.com cori@vactron.com | HTV PTO 873 | Hydro | Chassis | 4 | 48" | 60 degrees | 300 / 400 | 4 gpm 4,000 psi |
| | LP 573 / 873 SGT | Hydro | Trailer | 2.5 / 4 | 48" | 60 degrees | 200 / 300 | 4 gpm 3,500 psi |
| | LP 573 / 873 XDT | Hydro | Trailer | 2.5 / 4 | 48" | 60 degrees | 200 / 300 | 4 gpm 3,500 psi |
| SEE AD, PAGE 77 | LP 573 / 873 SDT | Hydro | Trailer | 2.5 / 4 | 48" | 60 degrees | 200 / 300 | 4 gpm 4,000 psi |

| Standard Blower (hg & cfm) | Filtration Type | Boom Size (ft.) | Degree of Rotation | Offloading Type | Controls Location | Wireless Y/N | Accessories Available | Other |
|-----------------------------------|--|--|-----------------------|--|-----------------------------------|-----------------|--|---|
| 27" hg 3,800 cfm | Cyclone with washable poly filter | 8" x 26' | 320 | Telescopic hoist and optional pressure off | Curbside | Yes | Winterization Lighting Tool Boxes Racks Cabinets | Fully-insulated enclosure for blower and water system, hydraulic drive |
| 27" hg 6,400 cfm | Cyclone with washable poly filter | 8" x 26' | 320 | Telescopic hoist and optional pressure off | Curbside | Yes | Winterization Lighting Tool Boxes Racks Cabinets | Fully-insulated enclosure for blower and water system, transfer case drive |
| 3-stage fan or PD blower | Hurricane separator | 6' or 10' front- or rear- mount telescopic boom w/optional PowerFlex | 270 | Hydraulic-opening rear door with 60-degree dump angle Optional hi-dump | Curbside operator's station | Yes | Winterization Lighting Tool Boxes Racks Cabinets | |
| Twin Roots 721 DVJ Blowers | Filter element | 8" x 10' | 270 to 310 | Debris body tilt 50-degree dump angle | Curbside operator's station | Yes | Winterization Lighting Tool Boxes Racks Cabinets | |
| PD Blower 16" hg 1,200 cfm | Dry filter package | 9' with 24" of hydraulic extension to 11' | 270 | Water and air-tight quick dump | Passenger side fender | No | Winterization Lighting Tool Boxes Racks | |
| 16 hg 1,000 cfm vacuum pump | Pleated poly fabric washable & reusable | Optional 6-way hydraulic boom | 330 | Reverse pressure to offload | End cap | Yes | Winterization Lighting Tool Boxes Racks Cabinets | |
| 16 hg 1,000 cfm | Pleated poly fabric washable & reusable | Optional 6-way hydraulic boom | 330 | Reverse pressure to offload | End cap | Yes | Winterization Lighting Tool Boxes Racks Cabinets | |
| 15 hg 1,000 cfm | Pleated poly fabric washable & reusable | Optional 6-way hydraulic boom | 330 | Reverse pressure to offload | Curbside | Yes | Winterization Lighting Tool Boxes Racks Cabinets | |
| 15 hg 580 cfm | Pleated poly fabric washable & reusable | Optional 6-way hydraulic boom | 330 | Reverse pressure to offload | Curbside | Yes | Winterization Lighting Tool Boxes Racks Cabinets | |
| 15 hg 1,000 cfm | Pleated poly fabric washable & reusable | Optional 6-way hydraulic boom | 330 | Reverse pressure to offload | Curbside | Yes | Winterization Lighting Tool Boxes Racks Cabinets | |

| 2018 DIRECTORY | Debris Body | Dobyio Dooy | Dahria Daar | Water Tank | Standard Water Burer | | | |
|--|--|-------------|-------------|-------------------------|--------------------------------|---------------------------------|---------------------------------|---|
| | Model | Туре | Style | Capacity (cu. yards) | Debris Door (dimensions) | Debris Door (dump angle) | Capacity (gallons) | Water Pump (gpm & psi) |
| (continued) VAC-TRON- EQUIPMENT | AIR 573 / 873 SDT | Air | Trailer | 2.5 / 4 | 48" | 60 degrees | 200 / 300 | 4 gpm 4,000 psi |
| Vac-Tron Equipment LLC 27137 S Hwy. 33 Okahumpka, FL 34762 tf: 888-VAC-TRON p: 352-728-2222 www.vactron.com | JTV (Jetter Truck Vac) PTO Series | Hydro | Chassis | 4 | 48" | 60 degrees | 300 / 400 | 15 gpm 3,000 psi |
| cori@vactron.com SEE AD, PAGE 77 | MC (Mini Combo) Series Hydro Vac & Sewer Jetter | Hydro | Trailer | 2.5 / 4 | 48" | 60 degrees | 200 / 300 | 15 gpm 1,000 psi |
| Vacall 406 Mill Ave. SW New Philadelphia, 0H 44663 tf: 800-382-8302 ● f: 330-339-8468 www.vacall.com mtnorman@gradall.com SEE AD, PAGE 81 | AllExcavate | Hydro | Chassis | 10 or 12 | | 42 degrees | 1,300 | 10 gpm 3,000 psi |
| Subsidiary of Federal Signal Corporation Vactor Manufacturing 1621 S Illinois St. | Vactor HXX ParaDIGm | Air | Chassis | 675 | | 50 degrees | 300 Air only: 100 gallons | 8 gpm 2,500 psi Air only: 4 gpm @ 2,500 psi |
| Streator, IL 61364 tf: 800-627-3171 p: 815-672-3171 www.vactor.com sales@vactor.com | Vactor HXX ProDIGy | Hydro | Chassis | 9 | | 50 degrees | 600 | 10 gpm 2,500 psi |
| | Vactor HXX Hydro Excavator | Hydro | Chassis | 12 | | 50 degrees | 1,200 | 10 gpm 3,000 psi |
| | Vactor HXX Mid-Size | Hydro | Chassis | 12 | | 50 degrees | 1,200 | 10 gpm 3,000 psi |
| Vector Technologies Ltd 8301 W Parkland Ct. Milwaukee, WI 53223 tf: 800-832-4010 p: 414-247-7100 • f: 414-354-4314 www.vector-vacuums.com inquiry@vector-vacuums.com SEE AD, PAGE 68 | Mudslinger MS800 | Hydro | Trailer | 4 | Full Opening Hydraulic Door | 55 degrees Hydraulic Dump | 325 | 4 gpm 4,000 psi |

| Standard Blower (hg & cfm) | Filtration Type | Boom Size (ft.) | Degree of Rotation | Offloading Type | Controls Location | Wireless Y/N | Accessories Available | Other |
|-------------------------------------|--|--|-----------------------|--------------------------------------|--|-----------------|--|-------|
| 15 hg 1,000 cfm | Pleated poly fabric washable & reusable | Optional 6-way hydraulic boom | 330 | Reverse pressure to offload | Curbside | Yes | Winterization Lighting Tool Boxes Racks Cabinets | |
| 16 hg 1,000 cfm | Pleated poly fabric washable & reusable | Optional 6-way hydraulic boom | 330 | Reverse pressure to offload | End cap | Yes | Winterization Lighting Tool Boxes Racks Cabinets | |
| 15 hg 1,000 cfm | Pleated poly fabric washable & reusable | Optional 6-way hydraulic boom | 330 | Reverse pressure to offload | Curbside | | Winterization Lighting Tool Boxes Racks Cabinets | |
| 27" hg 2,812 cfm | Inline suction strainer on pump inlet | 6" x 8' | 330 | Dump and Decant | Enclosed cabinet control box, recessed CAN bus boom control joystick | Yes | Winterization Lighting Tool Boxes Racks Cabinets | |
| 15" 2,200 cfm | Dual cyclone and 5-micron polyester final filter | 6" x 5' | 225 | Dumping, tilting debris body | Right side | Yes | Winterization Lighting Tool Boxes Racks Cabinets | |
| 16" 3,200 cfm | Cyclone and polyester final filter | 6" diameter | 320 | Dumping, tilting debris body | Right side | Yes | Winterization Lighting Tool Boxes Racks Cabinets | |
| 28" hg 5,250 cfm or 6,176 cfm | Dual cyclone and polyester final filter | 8" x 7' | 320 | Dumping, tilting debris body | Right side or Wireless | Yes | Winterization Lighting Tool Boxes Racks Cabinets | |
| PD 18" hg 4,970 cfm | PD - Cyclone and polyester final filter Fan - cyclone | 8" diameter 7 ft. extension | 320 | Dumping, tilting debris body | Right side | Yes | Winterization Lighting Tool Boxes Racks Cabinets | |
| 16 hg 1,200 cfm | Dry filter package | 9' with 24" of hydraulic extension to 11' | 270 | Water and air tight quick dump | Passenger side fender | No | Winterization Lighting Tool Boxes Racks | |







For More NORTH AMERICA Information Contact

Thom Calvin (763) 398-7564 thomasc@arnorthamerica.com



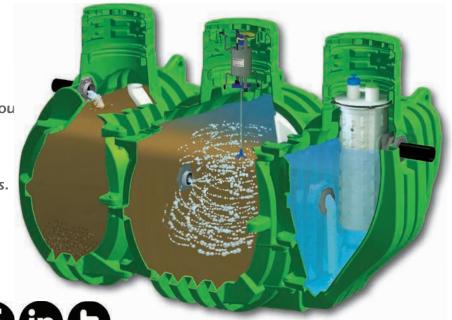


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Based in Racine, Wisconsin, Erik Gunn writes for magazines on business and other topics.

Shop Around for the Best Credit Card Processing Deal

More of your pumping customers want to pay with plastic. Follow these tips to navigate the murky waters of financial services and collect payments safely, efficiently and for the least amount of money. By Erik Gunn

hen Sean Dolan switched careers a few years ago and bought Sanitary Pumpers in Eagle River, Alaska, he made one change right away: He began taking credit cards.

"I knew which direction business was going," Dolan says. "Everybody's using credit cards now. That's the majority of our transactions."

And that's why you might want to consider taking credit cards for your business if you don't already: Increasingly, consumers use them or credit card-style debit cards to pay even routine bills.

With plastic you also get your cash that much faster. Properly equipped, you can make it easy for the customer to pay you on the spot and have the funds in your account within a day, instead of waiting for a check to clear.

Of course, all that convenience comes with a price. And accepting credit cards is a big step if all you've ever known is the cash-or-check transaction. But it is probably less complicated than you might think.

GETTING STARTED

Step one is to get a merchant account — the financial service that processes credit card payments and transfers the funds to you. You'll pay the account provider a fee on each transaction, and you'll probably pay other charges as well, starting with a sign-up fee.

Local banks were often the starting point for a merchant account, but they might not be your best option, says Phillip Parker, who operates www.cardpaymentoptions.com, an informational website that compares merchant account providers.

(Parker's business offers its ratings and reviews free to website users. When visitors sign up with a particular provider, the site gets a referral fee. But Parker says he does not let that skew the rating process or the reviews, and he has delisted some providers for bad practices.)

For one thing, he says, even if you get your merchant account through your local bank, it's probably no longer the actual provider.

"Most banks, including huge banks, actually refer that service out to another company," Parker says. "You are typically not dealing with your bank when you are using their merchant services."

That also can mean that no matter how well your personal banker knows your business, you won't be able to count on that with the third-party merchant account personnel. "You're not actually working with someone super knowledgeable."

Going through your bank is also likely to cost you more than going directly to an account service provider, he says.

SHOP AROUND

The ballpark fee you'll pay every time a customer pays you with a credit card is 3 percent. But those rates, along with other fees, can vary by provider.

"The minimum you should really expect to pay would be about 2 percent," says Parker, who considers 2.5 percent fair. If the fee is over 3 percent, "You're probably getting kind of ripped off."

Transaction fee structures can be complicated and not always clear. There's an industrywide base fee and then other layers the merchant account providers add. The amount of those additional fee segments can depend on things like whether the particular card being processed includes reward points for the cardholder. Merchant account providers aren't always transparent in how their fees are made up, Parker says.

How you process the card can also affect your fee. If the buyer is using a debit card — even one branded as a credit card — and you can process it by having the buyer use a debit-card PIN, merchant fees are lower.

I figure if I can get my money from the customer rather than sending a bill out every month for six months, it's worth it.

Bill Hardee

Another factor is how the card information is entered. If it's on a website or by telephone, the transaction fee might be higher than if the physical card is swiped through a reader. "The banks see it as there's less chance for fraud if you're actually swiping their credit card," Parker explains.

There may be monthly or annual fees, too. "In my opinion," Parker says, "you shouldn't have to pay any more than \$15 to \$20 a month in monthly fees, on top of processing fees."

One fee Parker says you should always avoid is an expensive rental or purchase price for a credit card reader. You don't have to get the reader through your merchant account provider just because it's offered. Compare the price with readers available on the open market, usually in the neighborhood of \$150, he says, and avoid leasing equipment altogether. And watch out for contracts you can't cancel without paying a huge penalty.

Some merchants impose a surcharge on credit card sales to recapture the transaction fees, but most simply build the cost into their overall pricing.

"I figure if I can get my money from the customer rather than sending a bill out every month for six months, it's worth it," says Bill Hardee, owner of Hardee's Septic Tank Service in North Carolina.

PAYPAL AND MORE

You've probably seen more and more businesses swiping cards with a gizmo attached to a smartphone or tablet. Square, a financial services and mobile payment processing company based in San Francisco, is probably the best-known business for mobile credit card readers, but there are a handful of other options.

The online payment processing company PayPal also processes credit card payments for owners of a PayPal account. PayPal offers a mobile reader of its own, although merchants can run credit card purchases through the service without the reader.

When Dolan set up credit card payments, he went with Square and has been satisfied with the results. Most transactions are done over the phone, but he uses the tablet-connected reader sometimes. He also uses a PayPal account for customers who want an invoice sent to them so that they can pay online.

Hardee's Septic Tank Service has been taking credit cards for more than five years, mainly via PayPal online. About 15 to 20 percent of Hardee's customers pay with plastic.

"When we complete the work, they can get on our website and go through PayPal to pay the amount," Hardee explains, even if they're actually using their credit cards for the transaction.

Because his drivers still use flip phones instead of smartphones — and because of the expense and the delicate nature of regular credit card readers — he's opted not to send machines out on the road.

"Square and PayPal are really the best for new services just starting out who don't have much of a credit card volume yet," Parker says. Their transaction fees tend to be on the higher side, though, he finds. And once your revenue from plastic rises above about \$5,000 a month, "That's when you want to start looking at a more traditional credit card processing company."

RISKY BUSINESS

No form of payment is completely risk-free. Checks can bounce, cash can be counterfeit, and credit card payments — despite all sorts of security provisions — can turn out to be fraudulent.

Parker considers the risk of fraud greater for transactions conducted entirely over the internet, where buyer and seller never meet. With face-to-face deals, scams are less common.

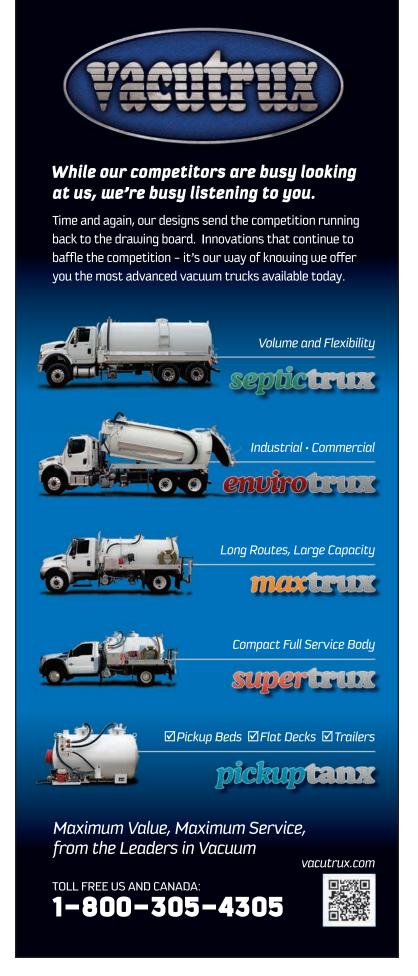
Still, sellers need to guard against them. And when someone pays fraudulently with a card that isn't theirs, the seller must return the funds and lose out on the service or merchandise that was provided in the transaction.

Providers also can impose penalties on merchants who are the victims of fraudulent transactions that result in a chargeback to the account, Parker says. And even legitimate refunds may incur a fee, depending on the merchant account provider.

DO YOUR HOMEWORK

All those risks can be managed by carefully researching your choices for a merchant account provider, examining the fine print, and then considering your customer base.

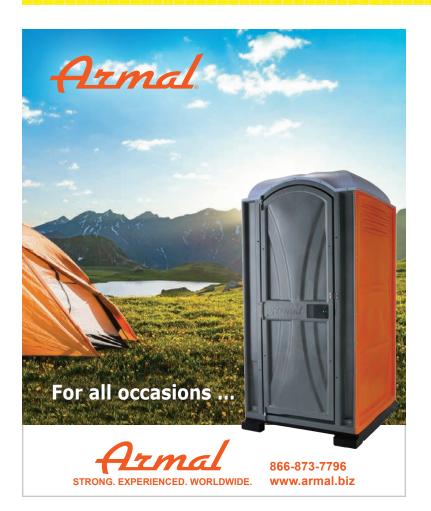
Ultimately the decision of whether to take credit cards is up to you. But with electronic payments becoming the norm these days, it's at least a decision worth thinking about.

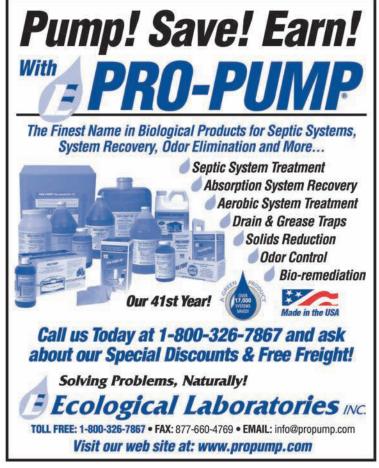


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Jim Anderson, Ph.D., is an emeritus professor at the University of Minnesota Department of Soil, Water and Climate and recipient of the pumping industry's Ralph Macchio Lifetime Achievement Award. Email Jim questions about septic system maintenance and operation at editor@pumper.com.

Effective Nitrogen Reduction Helps Public Health, the Environment

Research and new technology is continually promoting cleaner effluent to the benefit of onsite users and the decentralized wastewater industry By Jim Anderson, Ph.D.

t various times, I have addressed potential issues with the discharge of nitrogen in septic tank effluent. There have been some recent discussions, developments, and questions about treating nitrogen, so I thought it would be a good time to look at the issues again.

In our industry, nitrogen is important for several reasons. There are concerns around nitrogen from the perspective of the potential for ground-water contamination and human health impacts, discharge to estuary and wetland environments and impacts on aquatic life and ecosystems, and as valuable plant nutrient when land-applied properly.

In septic tank effluent, about 75 percent of the nitrogen is in the ammonium (NH4+) form and about 25 percent in organic nitrogen. As the effluent moves into soil through the biomat, the organic fraction is degraded, resulting in the formation of additional NH4-nitrogen. For a time, ammonium can be held up on the soil exchange sites; the time varies depending on the soil capacity to adsorb the ammonium and whether aerobic conditions occur in the soil.

NITROGEN HEALTH RISKS

Soil capacity to absorb ammonium is increased with the presence of organic matter, such as the area of the biomat. When monitoring for nitrogen in the soil below the system, scientists may not see expected levels of nitrogen because until the exchange sites are filled, the ammonium will not continue to move. If the soil under the biomat is not aerated, the nitrogen will stay in the ammonium form. This does not mean the nitrogen is gone or reduced — just that it has not yet been nitrified to the nitrate-nitrogen state. These are also the reason for conflicting reports about nitrogen removal in systems.

The process for the conversion to nitrate (NO3-) is called nitrification, and it occurs relatively quickly as effluent moves into an aerated area of the soil, which is exactly what we want to occur beneath our soil dispersal trenches to help with removal of bacteria and viruses. Once nitrogen is in the nitrate form, it is highly soluble in water and moves with water through the aerated zone into groundwater.

Here is where nitrate becomes a health concern. If the groundwater is used as a drinking water source, elevated nitrate levels higher than 10 mg/L can pose health risks to infants drinking the water directly or in their formula. Nitrate interferes with oxygen movement in the bloodstream, which, if left unchecked can be fatal. In estuary and wetland environments, impacts on organisms are not as well documented. But it appears that effects in those environments begin to happen at lower levels — less than 3 mg/L.

Dilution as effluent moves through the soil into groundwater is the primary treatment mechanism.

The largest risk from nitrogen moving into the groundwater would be in areas of dense population, in very uniform permeable soils and shallow groundwater systems.

Without anything else occurring, dilution as effluent moves through the soil into groundwater is the primary treatment mechanism. The largest risk from nitrogen moving into the groundwater would be in areas of dense population, in very uniform permeable soils and shallow groundwater systems.

REDUCING NITROGEN IN SYSTEMS

There are two potential pathways to capture and reduce nitrogen. One is through biological uptake, and the other is through the process of denitrification. These can occur naturally in and around our systems, or we can engineer or construct systems that take advantage of these processes to remove nitrogen from effluent before release to the environment.

Plants can remove significant amounts of nitrogen from soil. Nitrogen is, after all, an essential plant nutrient for growth. In shallow drainfield systems, this uptake or removal by plants is obvious where you see very green grass strips over the area of drainfield trenches. Uptake in most conventional systems is small because systems are often deeper than where the majority of plants roots exist. It is one of the major reasons for keeping systems shallow.

Take advantage of this uptake as much as possible. Constructed wetland systems have been demonstrated to remove 60 to 90 percent of nitrogen from wastewater using plants as a part of the system. Captured nitrogen ends up in the plants, which must be harvested periodically as a part of routine system maintenance to keep the high removal rates.

Denitrification is the process where nitrate-nitrogen is reduced to nitrogen gas and is released to the atmosphere. For this process to occur, the nitrates must pass through an aerobic environment into an anaerobic environment with a source of carbon or organic matter present. This can occur naturally in soils with different anaerobic zones and sufficient carbon for the reactions to occur. This is one of the many reasons tracking nitrogen from systems is difficult.



In sensitive areas, wellhead protection zones, densely populated areas with septic systems, and uniform sandy soils with shallow groundwater, additional treatment may be called for to ensure nitrogen levels are reduced. We see this happening in Florida, the Chesapeake Bay watershed, in Long Island, New York, and in California. The problem can be addressed by installing and maintaining systems that reduce nitrogen.

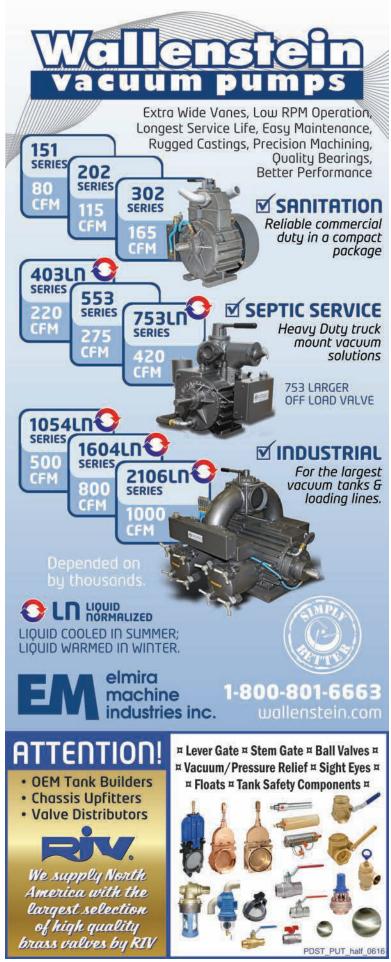
CONTINUAL RESEARCH

There are a number of these systems. Soil treatment mounds have been demonstrated to reduce nitrogen levels between 40 to 70 percent. Denitrification occurs as the effluent moves from the aerated sand below the pressure distribution network into the original soil that has a ready supply of organic matter in the former topsoil. Anaerobic sites are created in the soil and denitrification occurs.

Recirculating media filters can remove 40 to 60 percent of the nitrogen. This happens by aerating the effluent in the filter, running the effluent back through the anaerobic septic tank several times before final soil discharge.

Additional research is being conducted on passive approaches to nitrogen removal, such as trenches filled with wood chips or other organic material that effluent moves through following aeration. These methods have been used successfully to treat stormwater and animal waste.

We continue to have more options available as research continues. This is good for us in the industry; it is good for the environment; and it is good for our health!





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Better Grease and Septage Disposal Infrastructure Needed in Mississippi

Grassroots pumping and installing association is working closely with state officials to build smart regulations and identify local wastewater treatment options

In States Snapshot, we visit with a member of a state, provincial or national trade association in the decentralized wastewater industry. This time we learn about a member of the Mississippi Pumpers Association.

Name and title or job description: Steven Melton, owner

Business name and location: Melton's Pumping Service, Summit,

Mississippi

Age: 38

Years in the industry: 20

Association involvement: I've been president of the Mississippi Pumpers Association since 2010. That's when the association was formed. I had been appointed by the chairman of the Board of Health of Mississippi to the Wastewater Advisory Board and worked with different groups and associations, and in 2010 we decided to come together and get organized. Today we've got about 40 members, both pumpers and installers.

Benefits of belonging to the association: Keeping abreast of the changing times and changing our techniques accordingly is the big thing. We do a lot of education. And, of course, any time there's a change, we're right up to date on it. In fact, we usually take part in it. Nothing changes in the province without our input.

Biggest issue facing your association right now: The biggest thing we face right now in the state is having a local place to dispose of grease. Many pumpers have nowhere reasonably close by, and they can't pump it if they can't dispose of it. Septage disposal is also a problem in some areas. My county has a state-of-the-art wastewater facility pumpers can use but other counties don't, and if you have to drive 1 1/2 hours down the road, that's a problem. It increases your costs dramatically. I've had meetings with different county supervisors and they say there's not enough money to build lagoons or wastewater facilities.

Our crew includes: Myself and Chase Reynolds.

Typical day on the job: Typically we go from phone call to phone call with our pumping work. We schedule them out throughout the week. Then when we don't have anything on the schedule, grease traps are what keep us going. Some we do every month, others every two or three months, six months, depending on what kind of grease these restaurants have.

Helping hands - Indispensable crew member: Chase Reynolds is as good as I can ask for. He's been with me about 3 1/2 years. I'm usually in the office handling the calls and taking care of the bookwork. Reynolds is the one running the truck. He's a very important part of the business.



The job I'll never forget: When I was brand new at this and just learning the business, I had to pump a grease trap I didn't know anything about. It was above ground. I didn't have the right equipment and it created a leak. To keep it from spilling all over the ground, I tried to stop the leak and that's

Chase Reynolds (left) and Steven Melton are shown with a 2017 Ram 5500 with a 1,250-gallon steel tank and Masport pump. The truck was designed by Melton and built by a local welder.

when it all broke loose. I had it all over me from head to toe. Grease is much worse than sewer — it's really nasty. I swore that night I was getting out of the business. I hadn't even been doing it a year. But then I did some research and rethought my process and got some better hoses on my truck to keep that from happening again.

My favorite piece of equipment: Without a doubt it's the Crust Buster (Crust Busters). We've got two of them, and we use them daily. I got one a number of years ago after trying to pump a grease trap at a restaurant that had not been pumped in over a year. It was a solid pool of grease and I spent three hours mixing it with water and a hoe and trying to get it to where I could pump it out. I had seen the Crust Buster advertised and decided to get one. It's one of the best tools I've ever bought. It takes a three-hour job down to 20 minutes. We use it mostly for grease work but also on septic tanks.



Most challenging site I've worked on: We don't normally do this, but because we have a pump truck, we've been called a few times to handle spillages at the local chicken processing plant — when the guts and stuff from chickens spill and dump all over. It's nasty; it stinks; you smell to high heaven; and it sticks with you for a long time. That's what makes it challenging — when it's really nasty and you've got to do it anyway.

The craziest question I've been asked by a customer: "Does the state pay for this to be done?" I showed up to a home to service their tank and when I was just getting ready to pump, I found out they thought the state was going to be paying for it.

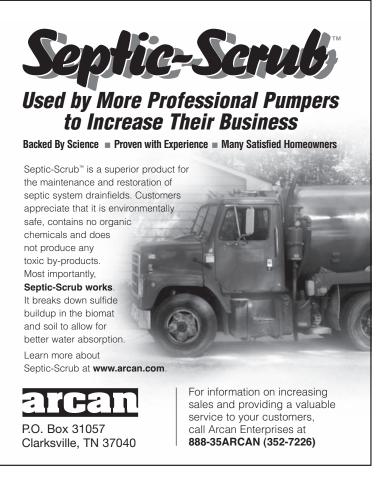
If I could change one industry regulation, it would be: Right now Mississippi has a good state law that the pumpers have worked really close with the legislators on so I'd say we're currently satisfied with the way the law is.

Best piece of small-business advice I've heard: It's an old saying, but "Treat the customer like you'd want to be treated." It's just like if you walk into a restaurant and they welcome you and treat you right, you're more apt to go back than if they don't.

If I wasn't working in the wastewater industry, I would: Be working with my wife, Robin, at our lumberyard. Her father started the business in 1986, and I started helping out there in 1997. A few years later, one of the customers who was a pumper and installer wanted to sell his equipment and we saw it as an opportunity. That's what got us going.

Crystal ball time – This is my outlook for the wastewater industry: I see this industry growing and the pumpers and installers becoming more professional, which I think may be a result of the regulations, standards, and licensing requirements we now have. ■

- Compiled by Betty Dageforde





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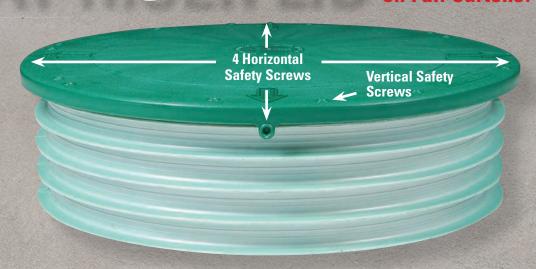
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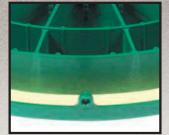
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SD-4

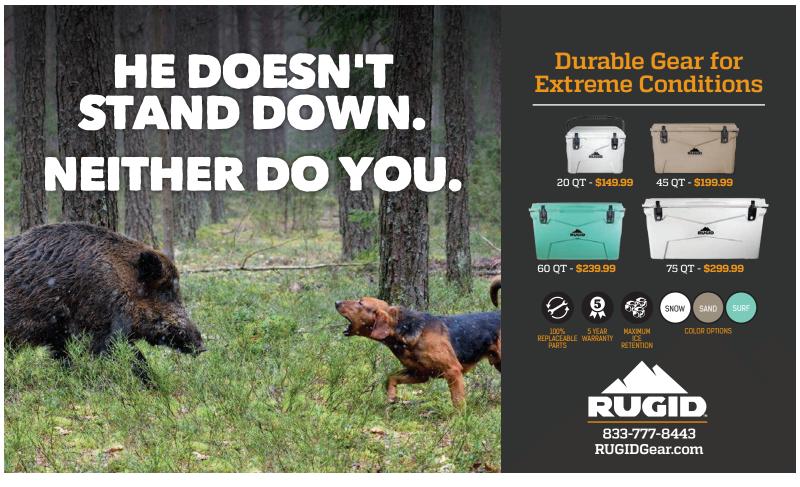


















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Delaware On-Site Wastewater Recycling Association www.dowra.org

Florida

Florida Onsite Wastewater Association www.fowaonsite.com: 321-363-1590

Georgia

Georgia Onsite Wastewater Association www.onsitewastewater.org; 706-407-2552

Georgia F.O.G. Alliance www.georgiafog.com

Idaho

Onsite Wastewater Association of Idaho www.owaidaho.org; 208-664-2133

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Onsite Wastewater Professionals of Illinois www.owpi.org

Indiana

Indiana Onsite Waste Water Professionals Association www.iowpa.org; 317-889-2382

lowa

Iowa Onsite Waste Water Association www.iowwa.com; 515-225-1051

Kansas

Kansas Small Flows Association www.ksfa.org; 913-594-1472

Kentucky

Kentucky Onsite Wastewater Association www.kentuckyonsite.org; 855-818-5692

Maine

Maine Association Of Site Evaluators www.mainese.com.

Maine Association of Professional Soil Scientists www.mapss.org.

Maryland

Maryland Onsite Wastewater Professionals Association www.mowpa.org; 443-570-2029

Massachusetts

Yankee Onsite Wastewater Association www.maowp.org; 781-939-5710

Michigan

Michigan Onsite Wastewater Recycling Association www.mowra.org

Michigan Septic Tank Association www.msta.biz; 989-808-8648

Minnesota

Minnesota Onsite Wastewater Association www.mowa-mn.com; 888-810-4178

Mississippi

Mississippi Pumpers Association www.mspumpersassociation.com, 601-249-2066

Missouri

Missouri Smallflows Organization www.mosmallflows.org; 417-631-4027

Nebraska

Nebraska On-site Waste Water Association www.nowwa.org; 402-476-0162

New Hampshire

New Hampshire Association of Septage Haulers www.nhash.com; 603-831-8670

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New Mexico

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New York

Long Island Liquid Waste Association, Inc. www.lilwa.org; 631-585-0448

North Carolina

North Carolina Septic Tank Association www.ncsta.net; 336-416-3564

North Carolina Portable Toilet Group www.ncportabletoiletgroup.org; 252-249-1097

North Carolina Pumper Group www.ncpumpergroup.org; 252-249-1097

Ohio

Ohio Onsite Wastewater Association www.ohioonsite.org; 888-294-0084

Oregon

Oregon Onsite Wastewater Association www.o2wa.org; 541-389-6692

Pennsylvania

Pennsylvania Association of Sewage Enforcement Officers www.pa-seo.org; 717-761-8648

Pennsylvania Onsite Wastewater Recycling Association www.powra.org

Pennsylvania Septage Management Association www.psma.net; 717-763-7762

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Texas

Texas On-Site Wastewater Association www.txowa.org; 409-718-0645

Education 4 Onsite Wastewater Management www.e4owm.com; 713-774-6694

Virginia

Virginia Onsite Wastewater Recycling Association www.vowra.org; 540-377-9830

Washington

Washington On-Site Sewage Association www.wossa.org; 253-770-6594

Wisconsin

Wisconsin Onsite Water Recycling Association www.wowra.com; 608-441-1436

Wisconsin Liquid Waste Carriers Association www.wlwca.com; 608-441-1436

NATIONAL

Water Environment Federation www.wef.org; 800-666-0206

National Onsite Wastewater Recycling Association www.nowra.org; 800-966-2942

National Association of Wastewater Technicians www.nawt.org; 800-236-6298

CANADA

Alberta

Alberta Onsite Wastewater Management Association www.aowma.com: 877-489-7471

British Columbia

WCOWMA Onsite Wastewater Management of B.C. www.wcowma-bc.com; 877-489-7471

British Columbia Onsite Sewage Association www.bcossa.org; 778-432-2120

Manitoba

Manitoba Onsite Wastewater Management Association www.mowma.org; 877-489-7471

Onsite Wastewater Systems Installers of Manitoba, Inc. www.owsim.com; 204-771-0455

New Brunswick

New Brunswick Association of Onsite Wastewater Professionals www.nbaowp.ca; 506-455-5477

Nova Scotia

Waste Water Nova Scotia www.wwns.ca; 902-246-2131 Ontario

Ontario Onsite Wastewater Association www.oowa.org; 855-905-6692

Ontario Association of Sewage Industry Services www.oasisontario.on.ca; 877-202-0082

Saskatchewan

Saskatchewan Onsite Wastewater Management Association www.sowma.ca; 877-489-7471

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By Craig Mandli

AIR EXCAVATION EQUIPMENT

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The VACMASTERS SYSTEM 6000 is an air-vacuum excavation system with the power to trench and pothole. The system uses supersonic air to penetrate, expand and explode the soil



from within while keeping it dry for easy vacuuming and quick backfilling. It is powered by a John Deere Model 6068 H485 six-cylinder turbo diesel engine generating 250 hp. Its positive displacement blower offers 1,866 cfm at 15 inches Hg of vacuum power. Waste is stored in a 950-gallon tank. Remote control allows operation from up to 200 feet away for jobs requiring difficult access. 800-466-7825; www.vacmasters.com.

BLOWERS

Howden Roots 827 DVJ

The **827 DVJ** dry-vacuum blower from **Howden Roots** is a heavy-duty unit with integral ductile iron impellers. The casing headplates, gear cover and drive-end are gray iron. Carburized and ground spur timing gears are taper-mounted on the shaft



and secured with a locknut, cylindrical roller bearings, splash lubrication on both ends, and easy-to-read sight glasses for maintenance. The blower is capable of handling high inlet temperatures for rough applications. It comes in a compact, lightweight package and is capable of delivering more than 5,700 cfm in an 8-inch gear diameter frame, as well as 28 inches Hg. **800-557-6687**; www.howdenroots.com.

National Vacuum Equipment Challenger 1600

The Challenger 1600 high-vacuum blower from National Vacuum Equipment is a 1,600 cfm tri-lobe blower designed for continuous duty at maximum vacuum. It is available in ready-to-install hydraulic or belt-drive packages using corrosion-resistant stainless steel internal components. Available packages include silencers, check valves, moisture trap, cyclone, four-way vacuum/pressure change-

over valve and a powder-coated skid. 800-253-5500; www.natvac.com.

Robuschi USA Tri-Flow 825

The **Robuschi USA Tri-Flow 825** vacuum blower is capable of continuous operation at 18 inches Hg. The open-airflow bearing housing allows more air circulation and additional cooling, which allows it to run continuously at deep vacuum. The tri-lobe design combined



with helical gears allow it to run quieter, enabling use of smaller silencers and freeing up available payload and space, while keeping noise complaints to a minimum. It offers 4,805 cfm free air capacity and the ability to hit 18 inches Hg. 866-428-4890; www.gardnerdenver.com/robuschi.

HYDROEXCAVATION TOOLS

Cusco Sewer Jetter

The **Sewer Jetter** from **Cusco** can help perform major cleanups by excavating debris with a 26-foot



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



Ditch Witch HX30

The **Ditch Witch HX30** vacuum excavation trailer offers a 24.8 hp Kubota diesel engine designed for performance and productivity

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

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HYDROEXCAVATION TOOLS

Easy-Kleen Pressure Systems Wildcat Heaters

Wildcat Heaters high-pressure, oil-fired hot-water/steam heaters and hydraulic pump systems from Easy-Kleen Pressure Systems are designed for reliability and efficiency and are install-ready for vacuum trucks and hydroexcavators, according to the maker. A full range of heater options include dry steam, redundancy packages, Schedule

80 and 160 stainless steel or A53 boiler pipe, fine-tuned temperature and flow-control systems. All coils are manufactured in-house, with CRN boiler-approved coils now available. Heaters can be designed for mounting in a cabinet or supplied as a completed cabinet unit ready to install. They are CSA- and ETL-approved. 800-315-5533; www.easykleen.com.



GapVax HV33

Designed for city use, the **GapVax HV33** is shorter, smaller and more compact than its predecessor. It is designed to safely transport water and debris in urban areas. It is 30

feet long overall on a medium-duty chassis and includes a 600-gallon water tank, 6-cubic-yard debris body, a 14- to 17-foot 6-inch boom in 8 or 6 inches, 4,000 cfm of power, and an inverted full-opening tailgate. **888-442-7829**; www.gapvax.com.

Hydra-Flex Ripsaw

The **Ripsaw** rotating turbo nozzle from **Hydra- Flex** blasts a 0-degree water stream at up to 3,200 psi while rotating at a high speed to provide an 18-degree cone of coverage. Its cone-shaped flow pattern is ideal for potholing applications. The heavy-duty, high-impact nozzles are constructed

with stainless steel housings and tungsten carbide wear surfaces to withstand harsh environments and provide long life. Repair kits are available. Select from traditional coating (blue) or upgrade to the heavy-duty coating (green), a formulation designed for use in extreme environments. Greater impingement allows users to complete jobs faster or use a smaller nozzle size while getting the same impact as nozzles with higher flow rates. **952-808-3640**; www.hydraflexinc.com.



Imperial Industries Hydro 3600 Hybrid Excavator

The multipurpose **Hydro 3600 Hybrid Excavator** from **Imperial Industries** offers

a short chassis and high payload, capable of hauling 3,600 gallons with a 215-gallon onboard water capacity that can be easily connected to a nurse tank. An optional 16-function remote control feature makes for easy operation of the boom, jetter, blower and vacuum. It is built on a 2018 Peterbilt Paccar MX-13 body with a three-stage lift hoist with built-in vibrator for easy dumping. It is designed to minimize time spent on the job site, according to the maker. **800-558-2945**; www.imperialind.com.

LMT SMART-DIG HX-2100

The **SMART-DIG HX-2100** hydroex-cavator from **LMT** is powered by a 59 hp Kubota VT2403 diesel engine that drives a 1,300 cfm Tuthill



blower and 2,200 psi Udor U.S.A. water blaster. The compact design includes a 700-gallon debris tank and 300 gallons of freshwater. The trailer has a fully automatic rear-open door with wireless remote control. Filtration is provided by the SMART-DIG dropbox and washable PTFE filters. An antifreeze winterization system is standard, and an optional diesel-powered water heater is available for colder climates and improved digging performance. **309-932-3311**; www.vaxteel.com.

NozzTeq MONRO-JET

The MONRO-JET hydroexcavation nozzle from NozzTeq combines the power of a solid-stream pencil jet with the large coverage of a fan jet, according to the maker. An orbital design increases performance at a lower gallons-per-minute

rate and pressures as high as 36,250 psi, allowing the operator to move faster when hydroexcavating, surface cleaning or cleaning sewer lines. It can be used for other types of surface cleaning such as concrete, steel, castings and large surface areas including line removal from runways. It can be modified for internal pipe cleaning of sewers and pipes of all types. **866-620-5915**; www.nozzteq.com.

(continued)

CASE STUDY

Utility engineer benefits from vacuum excavation

Problem: ECHO Utility Engineering & Surveying of Tampa Bay, Florida, focuses on subsurface utility engineering, which involves managing risks associated with utility mapping at appropriate quality levels, utility coordination, utility relocation design and coordination, utility condition assessment, communication of utility data, utility relocation cost estimates, implementation of utility accommodation policies, and utility design. The

company needed an excavator to expose utilities without causing damage.

Solution: The company purchased a Vac-Tron Equipment AIR 373 SDT vacuum excavator. The unit is powered by an 83 hp Yanmar diesel engine. The low-profile trailer



keeps the components easily accessible, while making the unit safe to tow and giving a smoother ride. The unit comes with a hydraulic rear door, which opens fully efficient off-loading. For operator safety, the door is controlled by push buttons located on the side of the unit. The unit offers 0.5-micron filtration. It also comes standard with a reverse pressure system and a heavy-duty trailer with Dexter torsion axles.

Result: ECHO has been using the Vac-Tron Equipment AIR unit for more than a year. The main efficiency has been getting into tight places and safely onto curbs. "It allows us to get to projects that we normally wouldn't be able to do," says Jerry Comellas, president of ECHO. "One of the projects we worked on was in a covered garage, and if it wasn't for this unit, there is no way we could have accomplished the project because of the low clearances. This was a \$48,000 project and is revenue that we wouldn't have been able to have otherwise." **352-728-2222; www.vactron.com.**





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HYDROEXCAVATION TOOLS

Presvac Systems Hydrovac

The **Presvac Systems Hydrovac** is designed for versatility and cold



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



Rival Hydrovac T7

The **T7** from **Rival Hydrovac** is a road-legal unit engineered to work primarily in urban settings. It offers a 7-cubic-yard debris body, 800 gallons of freshwater

storage, and hoist and "pressure off" off-loading capabilities, allowing it to pressure loads into other vessels, vehicles, or tanks in minutes, according to the maker. Its RAPTORLOCK dump door system allows the door to hold a seal under vacuum or pressure without use of manual wing nuts. It includes a Robuschi USA ROBOX enclosed blower system with quiet operation and 2,650 cfm at full vacuum. It comes with a 12-volt boiler system, 14 gpm water system and winterization features. Its 6-inch boom offers full rotation and is extendable to 20 feet. An Aarcomm Systems remote system controls the boom, water, and vacuum, and it displays real-time truck weight. 403-550-7997; www.rivalhydrovac.com.

Soil Surgeon hydroexcavating tool

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



Southland Tool Reducer Cuff

The **Reducer Cuff** from **Southland Tool** is designed to solve the problem of large rocks and material becoming stuck in 8-inch tubes, top-mounted elbows, horizontal hoses and telescopic extensions. Blocked debris can cut off suction flow and overheat the pump, requiring workers to stop to disassemble tubes to locate and remove the blockage. The 8-by-6-inch unit attaches to the 8-inch flat flange or other connection and then

reduces to a 6-inch steel pipe with a 6-inch Kanaflex 180 AR hose bolted to it. This allows the user to dig and not damage utility lines while avoiding sucking up anything larger than 6 inches. It weighs 10 pounds and is 17 inches tall. **714-632-8198**; www.southlandtool.com.

Super Products Mud Dog 1200

The **Mud Dog 1200** 12-yard-debris-capacity hydroexcavator from **Super Products** has a



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



Supervac Atlas

At 33 feet, the **Atlas** hydroexcavation trailer from **Supervac** is designed to combine the compact versatility of a regular vacuum truck with a

payload capacity of 45,000 pounds. It is easy to maneuver with a tight turning radius and solves road weight limit issues, according to the maker. It comes with a flashing arrow and LED working lights, full-opening rear door, protection arm and LED light, a hydraulic door lock, 3,600-gallon carbon-steel debris tank and baffle, and a catwalk access ladder and handrail. Its six side-mounted and evenly distributed plastic water tanks (three on each side) have a total capacity of 1,500 gallons. It runs off the chassis engine of the tractor being used to haul the trailer. The unit's top-loading boom offers 320-degree rotation, extension of 25 feet, an 8-inch flex hose, top access door and protection elbow. A winterization package is available. **866-839-5702**; www.supervac.co.

Suttner America static hydroexcavating nozzle

The static hydroexcavating nozzle from **Suttner America** is available with 1/4- and 1/2-inch inlets and pressure ratings from 3,600 up to 8,700 psi; it can be set up to handle up to 35 gpm at 4,000 psi. It is capable of digging to a depth of 12 feet. It is constructed of hardened stainless steel and M5 inserts. The nozzle can be used for areas with access issues or requiring precise digging. It is available without a protective cover, allowing customers to use their own protective cover if desired. **800-831-0660; www.suttner.com.**



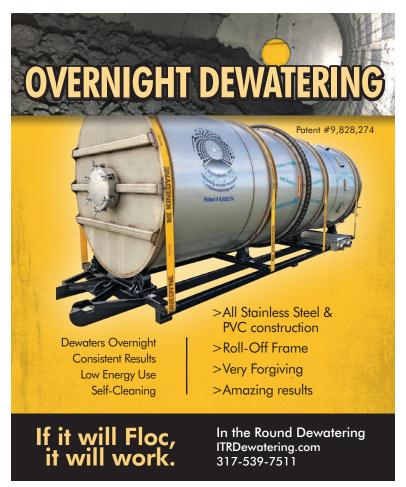
Tornado Global Hydrovacs F4 ECOLITE

The **F4 ECOLITE** from **Tornado Global Hydrovacs** has a 12-cubic-yard mud tank and holds 1,400 gallons of freshwater. This unit is over 7,000 pounds lighter than the company's older models and offers more than

double the payload. The boom has a 342-degree rotation and a 26-foot reach. The smaller F3 ECOLITE is a 10-cubic-yard, 1,200-gallon water tandem-axle unit that also more than doubles older payload capacities. It features an 8-inch boom and a 3,800 cfm blower. 877-340-8141; www.tornadotrucks.com.

(continued)







HYDROEXCAVATION TOOLS

Transway Systems Terra-Vex HV38

The Transway Systems Terra-Vex HV38 has a 12-yard debris tank with onboard scales for worry-



free loading. It features a 26-foot-by-8-inch telescopic boom, a one-touch-operated hydraulic half-door and a hydraulically driven blower providing 3,800 cfm at 27 inches Hg. Water pressure is achieved with a hydraulically driven triplex pump delivering 10 gpm at 3,600 psi from a 1,000-gallon HDPE baffled water tank. The water is heated with a 420,000 Btu diesel-fired burner for cold weather operation. **800-263-4508**; www.transwaysystems.com.



Vac-Con X-Cavator

The **X-Cavator** from **Vac-Con** is designed to be powerful, durable and easy to operate. It features a hydrostatic drive that uses the chassis engine for the vacuum,

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

Vacall - Gradall Industries AllExcavate cold weather package

Vacall - Gradall Industries offers a step-in compartment on its AllExcavate hydroexcavators to provide operators with warmth and protection from inclement weather. The standard heated compartment has enough space for an operator to change out of wet and muddy boots and clothing.



The compartment has floor drainage, racks to hang dry clothing and another rack to store the high-pressure handgun and extensions. Larger compartments with extra room are available. Along with new LED lighting, the cold weather package includes extra insulation, heated cabinets for the hose reel and water pumps, and boilers that can heat water for more effective hydroexcavation in frozen ground. 330-339-2211; www.vacall.com.



Vactor HXX QX

The **Vactor HXX QX** vacuum excavator offers improvements in payload capacity, weight distribution,

operation and performance. The placement of the debris body and water tank on the chassis ensures equal distribution of the payload on the axles, regardless of how much water is in the tanks, according to the manufacturer. Each component is placed to ensure the entire chassis gross vehicle weight rating is used. A PrecisionFlow water pump features a single-piston design. The truck comes with a QuietPak sound-damping system with a Robuschi USA positive displacement blower rated for 6,176 cfm and 28 inches Hg. The system delivers higher airflow and quieter operation, with a decibel rating of less than 90 dBA throughout the revolutions per minute range. **800-627-3171**; www.vactor.com.

Vector Technologies Mudslinger

The **Mudslinger** line of compact trailer-mounted hydroexcavation vacuums from Vac-Con, in cooperation with **Vector Technologies**, uses a 66.8 hp Kubota diesel engine with



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



Westech Vac Systems Wolf

The **Wolf** noncode hydrovac truck from **Westech Vac Systems** is designed to work in extreme conditions. The debris body is positioned in the optimal spot of the

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

VACUUM PUMPS

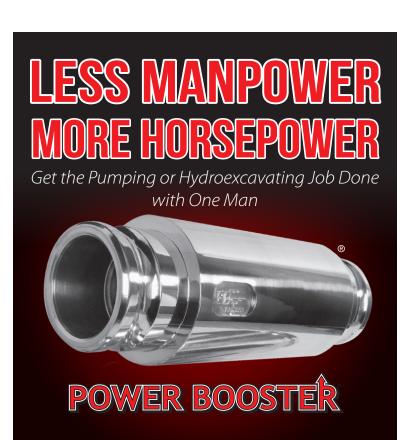
Elmira Machine Industries / Wallenstein Vacuum 753 Series

The **753 Series** vacuum pump from **Elmira Machine Industries** / **Wallenstein Vacuum** incorporates extra-wide vanes that allow up to an inch of wear, designed for longer service life and lower maintenance costs. It provides 422 cfm airflow at 1,200



rpm and is precision-machined to provide vacuum levels up to 28 inches Hg. Options include air, liquid or dual cooling systems where air injection is combined with liquid cooling. A pump-flushing port is included on the top valve for convenient routine maintenance. The quick-access housing end plate allows 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 using vacuum/pressure to draw oil with no moving parts. 800-801-6663; www.wallenstein.com.

(continued)



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VACUUM PUMPS

Fruitland RCF870

The RCF870 vacuum pump from Fruitland is available in clockwise and counterclockwise rotation with top- and side-mount, four-way valve locations. The pump is available with hydraulic, angle (gearbox) and belt-drive options. It can be mounted on

all Eliminator-style packages. It is a true 4-inch pump with 4-inch pipe connections producing 512 cfm and weighing 575 pounds. It is fan-forced aircooled with an available air injection cooling system for continuous duty at higher vacuum. 800-663-9003; www.fruitlandmanufacturing.com.

Gardner Denver Wittig RFL102

The Wittig RFL102 from Gardner Denver is an oil-sealed rotary vane pump for mobile applications. The RFL102 is capable of running continuously at up to 24 inches Hg vacuum. It produces 417 cfm of free air capacity, while drawing only 26.1 hp, running

cool and producing less oil smoke. The additional

airflow and vacuum capacity can provide faster fills and faster off-loads, according to the maker. 866-428-4890; www.gardnerdenverproducts.com.

Hydra-Tech Pumps S4TLP

The S4TLP pump from Hydra-Tech Pumps is designed to fit into tight spaces or be flange-mounted on a tank to allow for direct loading or unloading of a variety of fluids. Able to run with a dedicated power source or using onboard truck hydraulics, it can cut the amount of time required to move large volumes of water, according to the manufacturer. Available in aluminum or ductile iron, it turns hydraulic inputs of 5 to 10 gpm at up to 2,800 psi into outputs of up to 850 gpm. 570-645-3779; www.hydra-tech.com.

Moro USA PM80W

The Moro USA PM80W water-cooled vacuum pump is designed and built for low maintenance, long life and trouble-free service in tough industrial applications, according to the maker. It is a 424 cfm pump with 28 inches Hg maximum vacuum and 29 psi maximum pressure capability. It comes with Kevlar vanes, visual inspection ports in the casing, and Viton oil seals. Its low

rotating speed is designed to extends pump life. The oiling system is directfeed and sealed to reduce downtime for routine service and maintenance. 866-383-6304; www.morousa.com.

Westmoor Conde HD vacuum/pressure pump

Conde HD vacuum/pressure pumps from Westmoor are built in a variety of sizes from 35 to 230 cfm. They incorporate a slide valve/changeover

valve, which is compact, low profile and works easily, according to the maker. Automatic oilers never need adjustment. They can be driven by a variety of power sources, including a gas or diesel engine package, PTO, right-angle drive or a hydraulic pump. They are double shafted and can be set up for clockwise or counterclockwise rotation. 800-367-0972; www.westmoorltd.com.

VACUUM TRUCKS/TRAILERS

Amthor International Matador

The 4,000-gallon aluminum Matador code or noncode septic/ grease vacuum tank from Amthor



International comes standard with a 5/16-inch-thick side shell and floor, full-head baffles and no external rings. It is available as a dumping tank with or without full-opening rear doors, as well as with off-road construction options for various applications. Various pump models are available with a choice of numerous stock tanks and chassis. 800-328-6633; www.amthorinternational.com.

Guzzler CL

The CL (Classic) industrial vacuum loader from Guzzler recovers, contains, and carries solids, dry bulk powders, liquids, slurries, and thick sludge from hard-toreach areas. The truck offers enhanced operator ergonomics, improved air routing, filtration and maintenance, a longer body for improved material separation,

an enlarged bag house, and cyclone clean-out access doors for easier access. Its modular design allows for a wide selection of off-loading configurations, including a rear-door-mounted sludge pump for unloading sludges from the debris body, an XCR system with a swing-out cyclone that allows material discharge into collection vessels while vacuuming, and a high-rail system (available in three configurations) with a loading boom, hydraulic creep drive, and rear-mounted operator chair. Options include a telescoping boom, vane pressure off-load system (high-pressure, low airflow) for liquids and slurries, and a full-opening rear door for improved dumping. 800-627-3171; www.guzzler.com.

WATER PUMPS

Cat Pumps Model 3560

The Cat Pumps Model 3560 is a highpressure water pump with two performance ratings: 25 gpm at 3,000 psi and 20 gpm at 4,000 psi. The pump serves equipment operating in high-duty cycle/remote applications, such as hydroexcavating and jet-

ting. It can be direct-driven hydraulically or pulley-driven from motor or engine. Other features include V-Packings and low-pressure seals completely lubricated and cooled, which improves pump life. No external oilers are required. The discharge manifold is constructed from 316SS for high strength and long life in demanding applications, and the manifold is easily serviced without entering the crankcase, according to the manufacturer.

763-780-5440; www.catpumps.com. ■











PRODUCT NEWS



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CENTURY GRAFFITI WIPES OFFER A QUICK CLEANING SOLUTION

It's discouraging to arrive at a work site to see that vandals "tagged" one of your portable restrooms. Cleaning the unit takes time, and that means money out of your pocket.

Century Graffiti Wipes from **Century Chemical** can be used for fast, easy cleanup of paint, permanent marker and other inks from nonporous surfaces. These wipes are premoistened with a cleaning formula that removes paints (including enamel), ink, and even permanent marker, according to the company.

"Century Graffiti Wipes are made of a durable, abrasive but yet nonscratching premoistened fabric that are easy to use, do not produce harmful fumes, and offer safer handling for the user," says Denyse Pontius, office manager for Century Chemical. "There are no hazardous materials that produce noxious vapors."

(((CENTURY

The wipes don't contain noxious amyl acetate or methylene chloride, making them safer for users and less harmful to the surface being cleaned. The wipes can be used on more than just portable restrooms, including aluminum siding, desks, bathroom partitions, road signs, wall tile, stainless steel, lampposts, trains, bus stops and seats, billboards and lockers.

The towels stay moist for more effective usage and longer shelf life, according to Pontius, and are made with an environmentally safe, biodegradable formula. Users unfold the wipes and lightly scrub in a circular motion to begin dissolving paint/graffiti. Once a cloth is saturated, it can be tossed in the trash, while remaining residue can be wiped away with a clean cloth. Stubborn stains may need a repeat wiping. When using on a prepainted surface, users should initially test in an inconspicuous area to be sure paint is not removed along with the graffiti.

Pontius says that the wipes' ease of use and effectiveness has garnered the product support since its early 2018 launch.

"The reviews have been fantastic so far," she says. "Multiple customers have even sent before and after photos expressing their satisfaction with the product performance removing graffiti vandalism."

800-348-3505; www.centurychemical.com.

WEXCO ENVIRONMENTAL FILTROL 160 WASHING MACHINE LINT TRAP

The Filtrol 160 from WexCo Environmental is designed to capture microscopic fibers and keep them out of the septic systems. According to the maker, it also filters out hair, microplastics, pet hair, concrete particles, metal shavings, and sand, all of which, like fabric fibers, can accumulate in a septic drainfield. 888-983-2447; www.septicsafe.com. ■



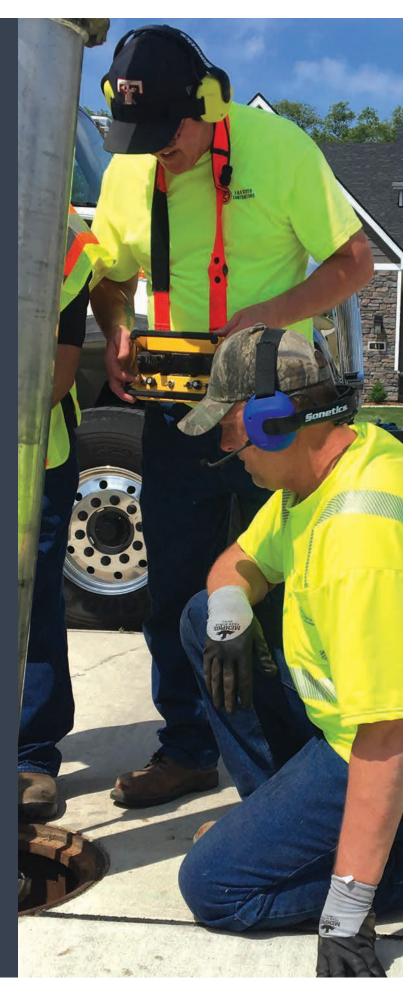
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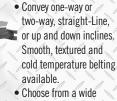
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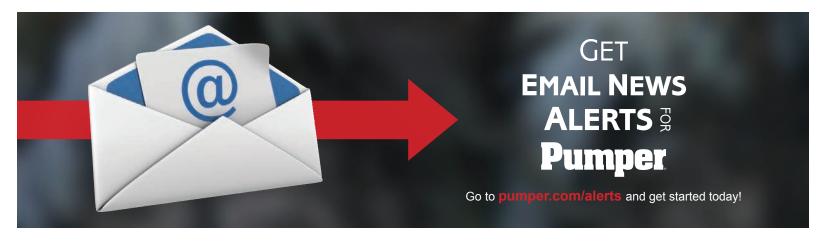
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Cusco announces new technical sales manager

Cusco named Blaine Simon as its new technical sales manager. From lead operator to account manager, he previously worked in the heavy-equipment sector specializing in sales and water and sewer construction. Simon will be responsible for growing new and existing business accounts with dealers and end users.



Blaine Simon



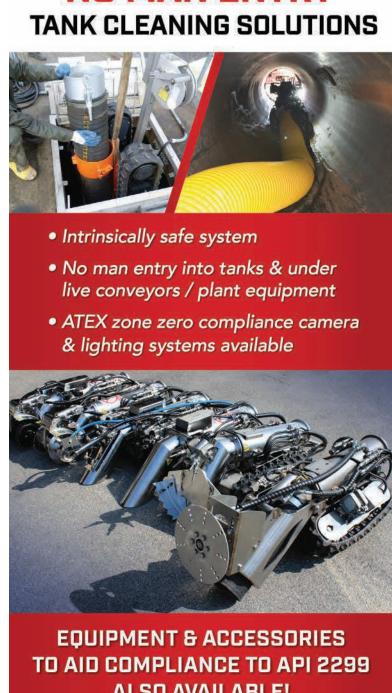
J&J Truck Bodies & Trailers names new manager

J&J Truck Bodies & Trailers named Nathan Weaver distribution sales manager. He will be responsible for supporting and developing municipal customers and brand awareness, increasing sales and developing new accounts. He will also work with the marketing department to develop and implement regional marketing

plans, including attending regional and national trade shows.



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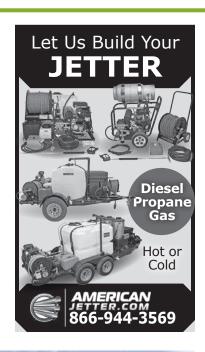
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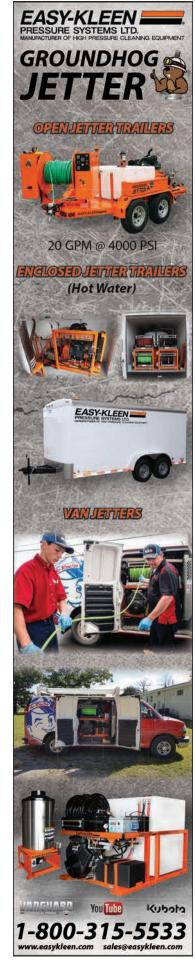


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BUSINESSES

Well-established Southern California pumping business for sale - owner retiring. Over 33 years in business. Includes two (2) nice, low mileage Peterbilt 3,600-gallon trucks. Turnkey operation w/loyal customer base. Huge potential. Take all for \$585,000. Contact owner at 951-734-8816. (P10)

Septic tank and portable toilet business for sale, owners ready to retire. Highly reputable family business. Grease tank pumping contracts. 24 years of service with the same phone number included. We have a loyal customer base. Equipment included: 2017 Anderson 10-ton trailer with electric brakes; 2016 Isuzu toilet truck, automatic, 900-gal-Ion waste, 400-gallon water; 2015 Caterpillar 305 mini-excavator; 2007 Mack Granite CT713 pumper truck, automatic, 4,200 gallons: 2007 International 4300 pumper truck. automatic, 2,500 gallons; 2004 Case 580M backhoe/loader; 2004 Interstate gooseneck trailer; 1997 Mack CH613, 5-speed set truck; (170) portable toilets of which (70) are new Satellite toilets; (2) new Satellite handwashing stations; (5) new Satellite handicap portable toilets. Option to lease property where business is located for 2 years. Office business line (850-994-4008) since 1994. Office fax line (850-994-0341) since 1994. Cellular number 850-516-9573. Business email carterandsonseptic@gmail.com. Business website http://www.carterseptictank service.com. Panhandle of Florida. Endless potential. Serious inquiries only. Can be sold without portable toilet business. Please text/ call 850-516-9573 or 850-698-8337. (P11)

Septic Business For Sale - owner operated. Owner retiring after 30 years. Located in Staten Island, New York. Loyal customer base - both residential and commercial. Includes 2009 Peterbilt, 4,000-gallon tank, Fruitland pump, 142,000 miles, well maintained. \$250,000. For more information call Tom @ 718-356-8531 (P09)

Portable toilet rental business for sale in Midland, Texas. We are a small company, but we have great potential for growth with the rising oil boom in this area. We currently have: 4 service trucks - (2) 2016 3500 Dodge Ram pickups with slide-in Keevac tanks, (1) 2017 Ford F550 pickup with Satellite conversion and tank, and (1) 2017 Dodge Ram 2500 pickup. 236 toilets, 19 trash-trailer combos, 4 regular trash trailers. 31 trailers with toilets on them, 6 handicap toilets and 10 handwash stations. Our business makes over \$100,000 a month in sales. For more information, please call 432-934-2455. PLEASE NOTE: I will not sell equipment only. That is not feasible for me. Thank you. (P09) Wind River Environmental – ACTIVELY Buying Businesses. We're buying grease trap, septic, and related commercial services companies, as well as wastewater treatment facilities. We've acquired over 75 companies in this sector, making us the largest and most successful consolidator on the East Coast. Whether you want to retire, or join our team of over 700 employees, we'd love to have a confidential conversation with you. Please contact Greg Creamer for more information: gcreamer@wrenvironmental.com; 617-645-0349 (P09)

Hudson Valley Area of NYS; Plumbing & septic business established 25 years; Six County Trade Area. info@crproperties.com; 845-485-3100 (P09)

For sale: Family-owned and operated business specializing in septic tank pumping, installation, repair, delivery of sand, topsoil, gravel, snowplowing and all aspects of excavation. We have our own sand pit on site. Located in beautiful upstate NY just outside the Adirondack park. Business was started in 1972. Equipment includes (2) tri-axle dump trucks, (2) pumper trucks, (2) excavators, (2) payloaders, (2) skidsteers, (1) dozer and (1) screening plant. Many pickups and trailers as well as other equipment. Please contact 518-651-6345. (P09)

Septic Tank Service Business for Sale: Owner wishes to retire. Located in Callahan, FL (Nassau County) north of Jacksonville - fastest growing county in Florida. 33 years in operation with loyal customer base. Includes: 1996 International 4900 w/DT466E, 5-speed transmission, 2-speed axle. 2,500-gallon capacity truck. 302k miles, fresh in-frame, new transmission, excellent condition. 2000 Freightliner FL70 w/8.3 Cummins diesel, 6-speed transmission. 2.400-gallon capacity truck. 198k miles, excellent condition. Also included: Complete DEP-approved lime stabilization site and facility for land application. Owner will train and assist with licensing. For more information contact K.A. "Kenny" Farmer at 904-879-4701 or 904-545-0357; farmer613259@aol.com (P09)

Make money during fire season! 52 years in business. (6) 1-ton F-350 trucks, Freight-liner 1,500-gallon vacuum pump truck, 200 toilets, 1- to 12-unit trailers, (46) sinks-ADA & cabana units. MUST SELL \$175,000. Refurbished Peterbilt 3,000-gallon, 220-drum vacuum pump truck - \$35,000. Marcia Ramsay-Coots; Windermere Van Vleet 541-944-1757 (P09)

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Septic business for sale, New York watershed. Includes trucks and equipment. 20+ years with same phone number. \$250,000. hacksaw12481@qmail.com (PBM)

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P09

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2 Decons, 28' Tonto, 18' Royal, 2001 ASCI, 16' Presidential, 26' Presidential, portable toilet hauler trailers. 315-437-1291, NY. (PBM)

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Call 540-309-5288, VA

2007 GMC 5500, 17,950 GVW, 700/300, broken crankshaft. New transmission in 2015. Tank, pumps in good shape. Contact John @ egx@comcast.net for details & pics. \$8,500.

2007 GMC WorkMate 850, 117,000 miles. All service records from purchase date included. \$40,000. Contact Ricky for more information: 208-467-0087; ricky@portapros.com (P12)

2009 International DuraStar with 72k miles, new Jurop pump, 1,500 waste/500 fresh aluminum tank, 2-unit carrier on back. Outside of cab controls, washdown pump and pressure pump with dual side hose reels. 4 storage/tool boxes. Asking \$36,900 OBO. 605-660-3759 (P10)

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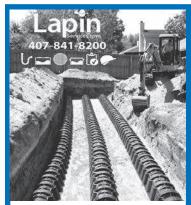
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Two (2) 12-stall American shower trailers with 2001 International 1.600-gallon water truck. Excellent condition, no issues. \$70,000 for package. Located in Tonopah. NV. 775-482-6841

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Septic installers needed. Orange County, Florida's largest septic contractor is looking for qualified candidates to be lead septic installers. Must have 7+ years experience installing chamber, PTI, dosing system drainfields, setting tanks, etc. Insurable driver's license required. 45+ hours/week, earn up to \$1,000/ week or more, plus benefits. New equipment. Work with a team of professionals.

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Submit your classified ad online! www.pumper.com/classifieds/place_ad GapVax. Inc., a nationally recognized manufacturing business, is seeking a talented, highly motivated individual to fill a full-time Sales Position in the Midwest (lowa based preferred) region. GapVax is the leading manufacturer of industrial and municipal vacuum units and hydroexcavation units in the United States. We provide the most reliable, comprehensive, and efficient mobile vacuum units in the industrial and municipal markets. Specifications of the position are listed on our website, www.gapvax.com, click on the Now Hiring link in the left hand column. Send resumes to or betty@gapyax.com or 575 Central Avenue, Johnstown, PA 15902. (PBM)

PRESSURE WASHERS



2012 Landa ECOS 7000 trailer-mounted, mobile & self-contained pressure washer & water reclamation unit. Cold & heated water; wand/hoses included. Honda engine, 976 hrs. Well-maintained. good condition. Turnkey operation, sold as-is. Located in Denver, CO. \$15,000 OBO

> 303-944-0071 P09

PUMPS

Brand-new Fruitland/Transway vacuum pump - never used. Also available: Scrubber with 4" connections, includes tractor trailer mounting hardware. Call for photos and more details. 951-734-8816

Moro M10 V/P pump, used very little, with hydraulic-drive motor, Price \$550, Call 618-973-9165

New, used & rebuilt pumps, tanks and parts. Fruitland, Masport, Challenger, Moro, Conde, Jurop, Roper. Oklahoma-based for 25 yrs. FOR ALL YOUR TANK TRUCK NEEDS. 866-735-7327

Buy & Sell all makes and models, new & used vacuum pumps, blowers, high-pressure water pumps, new and good used replacement parts. Buy discounted pumps online 24/7. Call us for a current inventory list. www.Vacuum SalesInc.com, (888) VAC-UNIT (822-8648) (PBM)

RENTAL EQUIPMENT

Liquid vacs, wet/dry industrial vacs, combination jetter/vacs, vacuum street sweeper & catch basin cleaner, truck & trailer mounted ietters. All available for daily, weekly, monthly, and yearly rentals. VSI Rentals, LLC, (888) VAC-UNIT (822-8648) (PBM) www.vsirentalsllc.com

2016 Acro Vacuum Trailer: Stainless steel 6.000 gallon, DOT certified double conical with air-ride suspension. Aluminum wheels all positions, full hose trays, OSHA walkways and railings. Vacuum pump option either hydraulic or self-contained. KLM Rentals, Inc. 617-909-9044 (PBM)

ROLL-OFF TRAILERS

2001 ESP Roll-off trailer: Two (2) container roll-off trailer good brakes, tires, frame. etc. KLM Companies 617-909-9044

SEPTIC TRUCKS



Turn-Key Vacuum Tank Units: 3,600gallon, unit mounted on your truck or ours; \$23,500. 2,500-gallon truck units; \$20,000. 1,500-gallon truck units; \$17,000. Self-contained vacuum skids, 1,000-gallon; \$11,000. 2,500-gallon painted tanks ready to mount; \$13,000. PortaPotty trucks and any custom options or sizes available!

> **TexLa Services** 936-641-3938 Check us out on Facebook! PO9



2006 Sterling with 125k miles, 10speed, Mercedes 460hp. 4,000-gallon tank, stainless hosetrays, Fruitland 500 vac pump. A/C, cruise, exhaust brake, aluminum wheels and new tires. This is a southern truck with very low miles, extremely clean and all new equipment. \$57,500

Call 740-820-5338, OH



2006 Peterbilt 330 with new 2018 Imperial 2,500-gallon aluminum tank, never used. Asking \$72,500

Brad Mills 859-743-6641, KY P09



1990 Peterbilt 357, Cummins 365 w/360k miles, 2012-built 5,350-gallon vacuum tank, double-headed on cabside for 350 gallons water. 5,000 waste with (4) baffles, (2) 4" inlets, (1) 6" dump. 367 NVE Challenger, new batteries, new injectors. 425/65/22.5 23k front axle, 425/65/22.5 40k driver axles, 385/65/22.5 20k pusher axle, 385/65/22.5 25k tag axle. Been a good truck, but retired. \$55,000 OBO

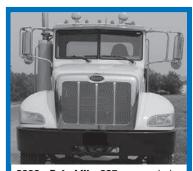
417-271-4555, MO

PN9



1996 Freightliner with 1978 Thompson vacuum trailer. Cummins N14 engine. Eaton transmission. Lambardini motor on trailer with Gardner-Denver pump. Has 656,400 miles. Truck and trailer was used for septic hauling. Asking \$22,500

> **Contact John Froehlich Valley Pumping Service, LLC** 661-588-0258 P09



2006 Peterbilt 335 pre-emission truck with only 161,000 miles on a 300-horsepower Cat C7. Brand-new 2,450-gallon tank, brand-new pump. Central Arkansas. Can ship anywhere in US. Financing available.

Caleb 281-914-1192

P09

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1998 Mack CH613, 330-350 horse-power, 10-speed, tandem axle. Includes Shaddix 16' set bed system, used for septic tank installation with 12,000 lb. winch. Asking \$36,500. Please call for more information if interested.

251-747-1956, AL P09



2006 Freightliner M2-106 for sale. 2,500-gallon tank. Masport HXL400WV vacuum pump. 6-speed, 214,148 miles. Tank and rear of truck was painted in 2017. New breaks installed within past 6 months. All service records kept on file. Truck is clean and in good condition! Decal removal is in process. \$38,000

Weston 919-770-6452, NC P09



2009 Hino 268 with only 180,000 miles. Eaton-Fuller manual transmission, brand-new Jurop PN84 plug-n-play pump package. Brand-new 2,300-gallon aluminum vacuum tank, work lights, steel bumper, brand-new PTO. Ready to work! 26k GVWR - under CDL. Solid truck and very clean inside and out. Financing, delivery, and warranties available. \$57,000. Central Arkansas.

Call Caleb 281-914-1192 P09



1995 Freightliner FL70 pump truck, 135,000 miles, 2,500-gallon steel tank, 33,000 GVW. 6-speed Eaton transmission, Masport H400W pump/2,000 hours, 200-foot 3" hose. ..\$22,000 OBO

415-898-2700, CA



2010 Peterbilt 335: 223,000 miles. New tires, new batteries. 2,600-gallon waste, 125-gallon freshwater. Lely tank new Dec. 2016. Jurop pump. High/low pressure water pumps. 100' high-pressure hose. Aluminum tool boxes. 200' 3" suction hose. Work-ready.\$55,000

214-679-4901, TX



1998 Freightliner - Purchased and custom-built in 2009 with new tank, pump and pressure washer. 4,000-gallon steel tank, Jurop LC420 pump. 60 Series Detroit, 10-speed, 698,928 miles. Frame is slightly bent, however truck runs and operates very strong. We purchased a newer truck this year and have upgraded our fleet. Motivated seller. All offers will be considered.

727-392-1352, FL

P09



1983 Mack, 4,900-gallon tank built in 2014, Masport pump. Comes with additional parts. Asking \$20,000

Call/text Mike 937-408-4111, OH or sweeneyseptic@gmail.com P09



2017 Mack Vision: 400hp, automatic, 25,000 miles. New 4,000-gallon carbonsteel tank. New tires all around. \$95,000

Call 305-835-9030 or 786-908-5436, FL



Raymond Howard 386-935-3334 or 386-288-9919, FL PC



> Call 760-403-2252 ask for Bill

Pn9



2003 International 4400, 2,000-gallon tank, Jurop 260 pump, 6-speed, 115,000 miles. \$30,000

336-302-2048, NC



2017 International 4300, Cummins engine, automatic transmission, 25k miles. New 2,200-gallon carbon-steel tank, new pump. Special price \$68,000

Call Alan 786-908-5436



315-455-1625 x301, NY



2001 International 4900, 2,500-gallon Lely tank, Honda jetter, 228,000 miles. \$30,000

336-302-2048, NC



Ted Baxter 804-733-6519, VA gentrywell@aol.com



Contact Lon 509-939-6030, WA lon@dwexcavating.net P09

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SEPTIC TRUCKS



2008 Peterbilt 340, 3,600-gallon steel vacuum tank. \$69,000

Call Al 240-508-8196, MD P09



2012 International truck with 3,600gallon vacuum tank. Red and black tank, white truck. Air ride, air brakes, cold a/c, radio. Good rubber on tires. Like-new, must see this truck. \$50,000. Call Jerry for more details.

239-656-2774 or 1-800-721-2774



1990 Mack w/3,050-gallon stainless steel code tank. 10-speed manual. One owner (retiring), 95k miles. Very reliable, excellent condition. \$34,500 OBO

315-455-1625 x301, NY



1996 Ford LTL 9000 Aeromax, 600,000 miles, 13-speed transmission. 4,000-gallon tank, Jurop 260 vac pump. Everyday work truck in excellent condition. Asking \$28,975 OBO

MBseptic@gmail.com

2006 International 7600. Allison auto, transmission, 4,000-gallon tank w/hoist. New Wittig vac pump, new brakes. Cummins ISM motor - needs a rebuild. One owner, \$24,000 OBO. Call Bob 513-260-7211 or e-mail bobbutler.1976@gmail.com (P09)



2011 International 4300: DT466. Allison automatic, under CDL, 144k miles, NEW 1,800-gallon steel vacuum tank and new Jurop PN84 vac pump.

Call JR @ 720-253-8014, CO PBM



1997 Ford LN9000 with Presvac 2,300-gallon, either DOT Code or septic use. Tank in great shape. Cummins with Fuller transmission. Just inspected, runs excellent. \$25,500

> **KLM Companies** 617-909-9044

PBM



1994 Volvo WG64 with Presvac 3.300gallon, two-compartment tank (2,300/ 1.000). Cat 3406, 400hp with Fruitland 1200 vacuum pump. \$27,500

> **KLM Companies** 617-909-9044



1998 Ford septic truck with 3.500-gallon carbon-steel vacuum tank. CAT 350hp with Fuller 8-speed transmission. Rebuilt Presvac PV750 vacuum pump. Ready for work. \$35,000

> **KLM Companies** 617-909-9044

1991 Ford F800, 106k miles. 2,300-gallon tank (6 vrs old). Heated valves, heated Masport pump. \$25,000. Duluth, MN. Call Dale 218-340-5952

2008 Sterling Acterra, 2,200-gallon sewage/ 400-gallon fresh, Masport 500cfm pump, hot-water jetter, fully operational, 130,000 miles. Truck gets a once-over monthly. Very well taken care of. \$65,000 OBO. Please call or text 406-240-5221.

1995 International 4900HD, DT466 engine, 112,000 miles. 7-speed Spicer transmission. 2,500-gallon tank, Presvac 250cfm pump. Asking \$22,000. Call 203-232-1800 (P09)

Selling septic trucks and a septic tank stake truck with 16-unit carry capacity - \$12,000. 1,100-gallon capacity International septic truck - \$12,500. Location: Brighton, Michigan. Call 810-217-4639, ask for Bart. (P09)

2007 Peterbilt 340, \$39,500. Call 215-257-1101

New 4,000 U.S. gallon, aluminum vacuumpressure tank mounted on a 2019 Freightliner M2-106 cab & chassis with an NVE 877 fan-cooled pump. (Stock# 13796) www.VacuumSalesInc.com (888) VAC-UNIT (822-8648) (PBM)

New 4,800 U.S. gallon, aluminum, vacuumpressure tank mounted on a 2019 Volvo VHD tri-axle cab & chassis with an NVE 866 fan-cooled vacuum pump. (Stock# 13796) www.VacuumSalesInc.com (888) VAC-UNIT (822-8648)

New 5,000 U.S. gallon, aluminum vacuumpressure tank mounted on a 2019 Volvo VHD tri-axle cab & chassis with an NVE 4310 PD blower package. (Stock# 13796) www.VacuumSalesInc.com (888) VAC-UNIT (822-8648)

1997 Mack RD688S tri-axle cab & chassis with a 4,500-gallon aluminum vacuum tank and Wittig RFL100 pump package - coming in September. (Stock# 3130V) www.Vacuum SalesInc.com (888) VAC-UNIT (822-8648)

2005 Western Star 4900 tri-axle cab & chassis with a 5,000-gallon carbon-steel vacuum tank & Masport HXL20WV pump package - coming in September. (Stock# 7347V) www.VacuumSalesInc.com (888) VAC-UNIT (822-8648) (PBM)

2004 Freightliner M2-106 with a Presvac 1,500-gallon carbon-steel vacuum tank and Masport HXL400WV pump. (Stock# 4468C) www.VacuumSalesInc.com (888) VAC-UNIT (822-8648) (PBM)

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www.pumper.com/ classifieds/place ad 2019 Peterbilt 348 with a new 4.000-gallon aluminum vacuum tank and NVE 866 pump. (Stock# 13789) www.VacuumSalesinc. com (888) VAC-UNIT (822-8648) (PBM)

2004 Freightliner FL70: 1,200-gallon unit, low-entry cab with a van body and liftgate. (Stock#4101V)www.VacuumSalesinc.com (888) VAC-UNIT (822-8648)

1995 Freightliner, Detroit diesel, 13-speed, 3.365-gallon vacuum tank. Masport W75 pump. Call JR @ 720-253-8014, CO. (PBM)

2006 International 7300: Pre-emissions DT466, 245hp, Allison automatic. 88,000 miles. NEW 2,500-gallon steel vacuum tank, Masport pump. Call JR @ 720-253-8014, (PBM)

2012 International 4300, 33,000 GVW, DT466, 245hp, Ultrashift automatic. NEW 2,500-gallon steel or aluminum vac tank your choice. New Fruitland vac pump. Call JR @ 720-253-8014, CO. (PBM)

2012 International 4300, under CDL. DT466 diesel, auto., 94k miles. NEW 1,800gallon vac tank and Fruitland pump. Build in progress. Call JR @ 720-253-8014, CO.(PBM)

2013 International 4300, under CDL. DT466, 6-speed manual, 114k miles. NEW 1,800-gallon steel vac tank, new Fruitland vac pump. Call JR @ 720-253-8014, CO. (PBM)

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Custom-built 550-gallon waste/150-gallon fresh epoxy portable restroom pump. Less than a year old, perfect shape. Pictures available. \$10,000. Rjmuir14@gmail.com (P09)

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Cheap, Used Vacuum Tanks - Late model, lined, steel tank sale! 4,650-gallon: \$9,500 and lower; 3,500-gallon: \$12,500. Also: Low-price, plug-and-play pumps -- Masport, Fruitland, Jurop, NVE.

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L2002 3,500-gallon Presvac tank with rear door and Cyclone, 620cfm Fruitland vacuum pump, barrel hoist, hydraulic reservoir, all controls, hydraulic-drive motor. This unit was removed from a chassis to build a dump truck. It is in great shape and for the most part just needs to be remounted to a chassis. All major components are included. This is a large pump for this tank and will be a very strong unit! \$15,000

Call Josh 612-816-8013, MN P09

4,000-gallon Presvac steel vacuum tank, full-opening rear dump, heated valves, \$7,500; 2,500-gallon steel vacuum tank. dick@servicepumpingdrain.com; 781-589-4133 (P09)

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Imperial Vacuum Trailers: In stock, 6,000- and 6,300-gallon aluminum singlecompartment Imperial vacuum trailers.

> **Call Kyle** 800-558-2945 Ext. 424

2008 Progressive aluminum vacuum trailer, 7,000 gallons. \$29,500 OBO. 631-627-0465

1981 Trail Master, 5,040 gallons, spring ride. This was used for pumping cooking oil. This was an Arizona trailer and has little to no rust. \$9,750. Call Curt at 602-487-4777. (P09)

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TRUCKS - MISC.



2006 Peterbilt 379: 745.039 miles. House of Imports built. 4,000-gallon waste tank, Jurop LC420 pump. 85% tire tread. Well taken care of - work ready. \$65,500. Call or email for questions and/or more photos:

> 208-267-5110, ID kgtseptic@frontier.com

P09



2005 International 4300: DT466, 225hp, 322,500 miles. 33,000 GVW, 6-speed Eaton-Fuller transmission, air brakes. New turbo. EGR valve. Resealed rear-end, injectors replaced at 275,000 miles. 196" wheelbase; 167" cab to EOF; 129.5" cab to axle. \$14,900

> **Brian@GrossSeptic.com** 520-850-2968

P09

VACUUM EQUIPMENT



2007 Kenworth T800, 13-speed. Cummins ISX 450hp. 213,867 miles, 10,762 engine hours. Dual Wittig Demag/Gardner Denver vacuum pumps. 1,000+ cfm. Full length hose travs. 3.300-gallon tank. Rear work lights, full opening rear door, tank vibrator, tank hoist, 6" discharge, 4" inlet, pusher axle. Located in Denver, Colorado. \$135,000

Contact Steven 303-299-9300 P10

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Two (2) King Vac trucks sold as package deal. 3,000 US gallon tank capacity. Tank diameter: 78 O.D 120 LG. 5/16; KWP-6000 belt-drive vacuum pump. CAT 70 hydraulic-drive water pump. Truck chassis: Freightliner FL112 CT198, Fuller RTO-14908LL FLR-57 transmission. King Vac Model K30-D-L-SPT-B-LR4K-IB. Year: 2001 (white truck) 239,000 miles; Year: 1999 (brown truck) 248,000 miles, needs new transfer case. \$59,900 for both

> Lanie 504-362-1564, LA lanie.lanie@mail.com

1999 International Guzzler vacuum excavator: Totally refurbished, purchased new for Big Dig Project. 27" blower, CAT engine, auto remote. Special noise-suppression equipment. Tri-axle. High-pressure wash-down system - 300-gallon water tank. \$59,500 OBO. Also available 1997 Ford Guzzler vacuum excavator same features as 1999 International. No washdown system. \$59,500 OBO.

617-908-1629, MA

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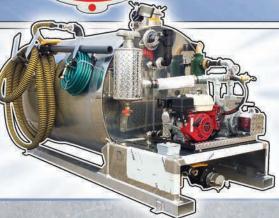
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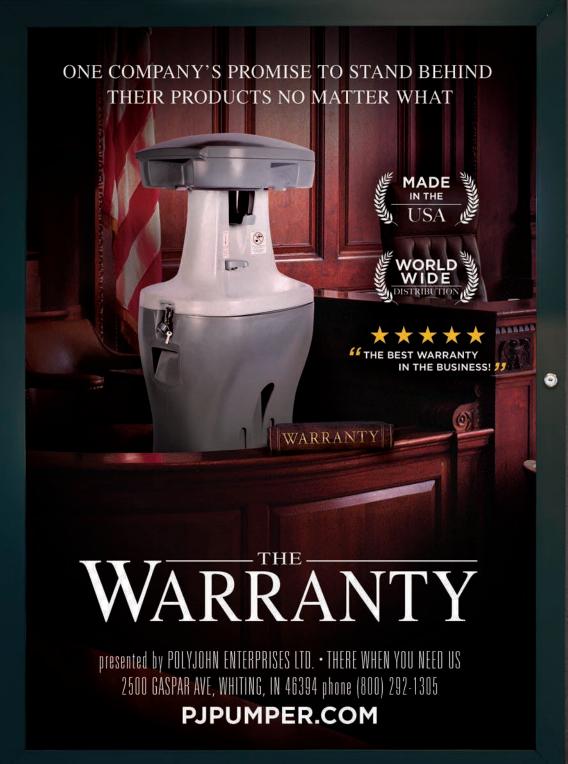
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