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

Finding a Market for Real Estate Inspections

Housing sales are rising all over. Now is your chance to help would-be homeowners and build a new profit center. By Jim Kneiszel, Editor

he residential housing market has been picking up steam in recent years following the real estate-induced recession that rocked the U.S. almost a decade ago. This creates more opportunities for expert services needed by buyers and sellers as they step out and make the biggest purchases of their lives.

An area that remains underserved is qualified septic system inspections, and I'm sure you've seen evidence of this vacuum of expertise first-hand from the homebuyer's perspective. No doubt at some point you have been the bearer of bad news to an unsuspecting new homeowner facing a costly system failure.

There's nothing quite so heartbreaking as a young couple, excited to move into their first house, only to find out they're going to be another \$10,000 in debt to replace a drainfield or crumbling septic tank. A recent Q&A story from syndicated *House Detective* columnist Barry Stone showed a great example of how homeowners need the help of septic service professionals.

SEPTIC PRO NEEDED

"Last summer we moved from the city to the country and bought our first house with a septic system," wrote a reader. "A month after we moved in, both toilets overflowed onto the floor. That's when we learned the septic system was installed without a permit, and replacement ... would cost \$8,000. We asked our home inspector why he did not discover this problem and he said septic systems are not included in a home inspection. How can something as basic as sewage disposal not be part of a thorough inspection?"

Stone explained that septic systems are belowground and inaccessible to the general home inspector, and therefore not evaluated in a standard inspection. Because the septic tank must be pumped and other underground components must be carefully examined, Stone said a proper onsite inspection can only be performed by a septic service contractor.

"Homebuyers from the city are often unaware of this, being accustomed to the convenience of municipal sewers," he wrote. "Buying a rural property without a thorough septic evaluation is a major gamble and can have costly consequences. When a septic system stops working, the only thing that goes down the drain is money."

Stone was speaking to this befuddled homeowner and the general readership of homebuyers and sellers. But the message should be coming through loud and clear to pumpers as well: If you're not providing real estate inspections, you're not offering complete service to septic system users and you're not maximizing your revenue potential. As it turns out, homeowners are sorely in need of your expertise and, in turn, you could always use more income.

And as a side benefit to pumpers, educating customers and preventing disasters are great ways to build solid business relationships that pay off big over the long haul. You want consumer loyalty? Help sellers get out in front of a failed septic system to preserve a transaction and ease hard feelings. Or give buyers the leverage they need to get a septic issue fixed before they sign on the dotted line. In either scenario, you may develop customers for life.

CRACK THE MARKET

This is not the first time you've heard about the value of providing timeof-sale septic inspections. But it's a reminder that the real estate market is on a positive trajectory and opportunities exist to make inspections a valuable profit center and marketing engine for your business. You have the skills and the equipment to do the job. Now, how can you most effectively crack the market?

Here are a couple ideas to get you started:

Reach out to established home inspectors in your area

Home inspectors should be your ally, not your adversary, in better serving buyers and sellers. Call and meet with them, offering your expertise as a subcontractor when they encounter a situation where they are concerned about a home's onsite system. Share information about various types of septic systems and routine maintenance best practices that come from trusted wastewater industry sources. Encourage them to be more proactive in talking to their customers about septic inspections and proper care of these expensive systems. If you are going to expand your real estate services, maybe you could recruit one of these home inspectors to become a member of your team.

Start a homeowner education program

If you haven't done so already, add an education component to your website. Contact an area university extension service office, the local health department, your state's wastewater trade association, the National Association of Wastewater Technicians (NAWT) and National Onsite Wastewater Recycling Association (NOWRA) to develop valuable content for brochures, mailings or other marketing materials. In order to better serve would-be homeowners, you need to reach and inform them first. Once you've developed education materials, approach homeowner associations and local governments, and offer to present seminars on septic maintenance.

Partner with real estate professionals

A movement to require real estate inspections by state, provincial and local governments is slow to gain momentum, and we've actually seen some

(continued)

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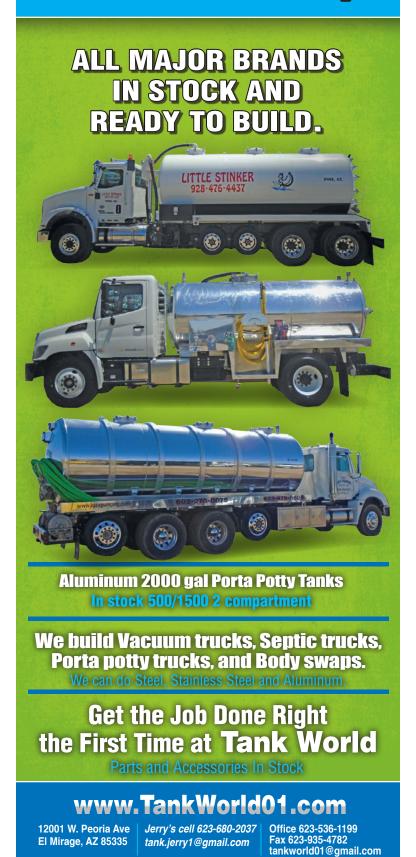


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backsliding on this issue. Realtors are big influencers when time-of-sale inspection rules are discussed, and an important conduit to homebuyers and sellers. It's critical to show your local real estate professionals why these inspections are good for their industry. Keeping both sides of a sale happy is good for the reputation of Realtors. An unsatisfied buyer facing a septic failure this time will not be their client when selling the home down the road. Realtors often say that inspections will slow or kill hard-earned sales commissions. This is a short-sighted attitude and your service can help smooth over rough situations. Do whatever you can to convince Realtors you are on the same side.

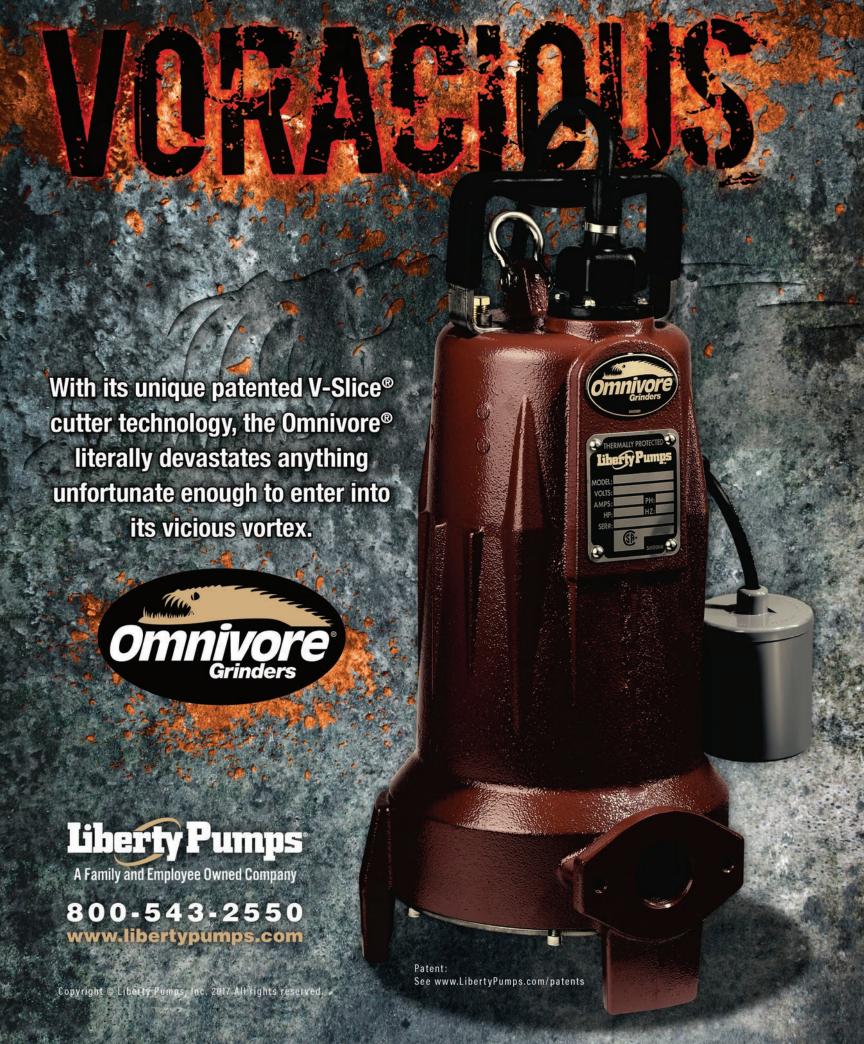
Dedicate a staff member to inspection work

To get a successful real estate inspection service off the ground, you might assign someone to work exclusively on the effort. The team member might concentrate on both reaching your customer base and providing the inspections. An inspector may not simply be your regular septic service technician called on to provide a new service. The inspector may dress differently, drive a different type of vehicle and carry different tools than your pumper/driver. They may need to develop deeper customer service skills, get trained to be more of a teacher, and spend hours rather than minutes with each client. Think of the inspector as a unique position on your team rather than a jack-of-all-trades.

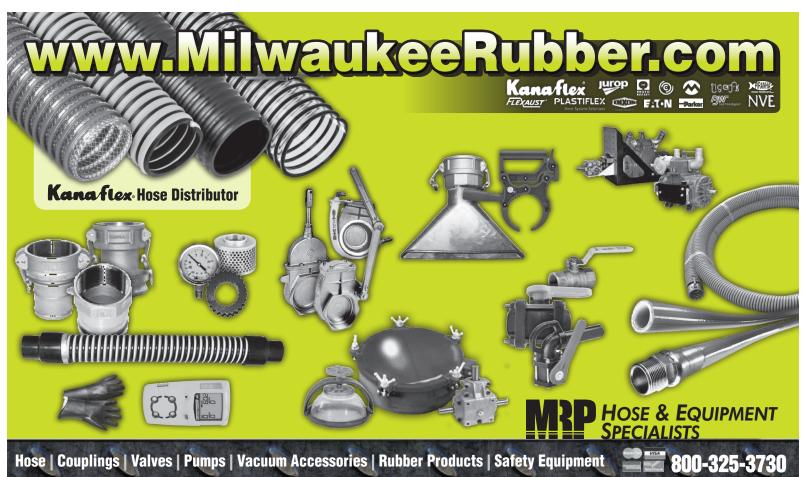
Get out there and sell, sell, sell

Finding success with inspection work, just like pumping and any other related service, comes down to sales. You may really get stoked to overcome a challenge in the field, but you wouldn't be flipping that tank lid and hauling out the hose if it weren't for someone making the sale. When getting into inspections, put together a business plan, talk to others in the industry about their programs, and research all best practices. Then go out and find the customers who desperately need your service.











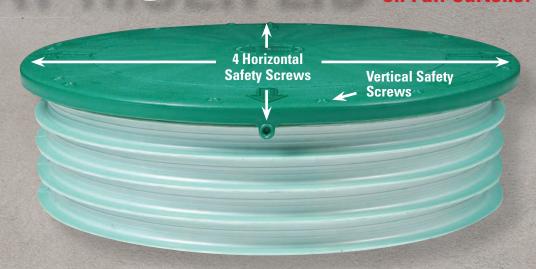
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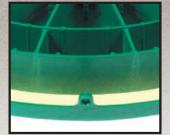
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dignified trucks

As the owner of Advanced Septic in Crystal River, Florida, Brandon Buckingham is all about professionalism — as emphasized by the latest addition to his company's fleet: a gleaming, custom-built vacuum truck. Check out Buckingham's 2009 Freightliner, which Engine & Accessory Manufacturing outfitted with a 4,000-gallon tank and a RCF870 Fruitland Manufacturing pump.

pumper.com/featured



In my time, coming up on eight years, this is the first time something of this nature has happened.

— Pumper Empties Into Stormwater Drain, Forcing Cancellation of Swim Fest pumper.com/featured

HARDWORKING COUPLE

business is booming

Richard and Lynn Gillespie have been busy the past



10 years. Since the last time Pumper magazine spoke to them, they've added trucks, employees and municipal work to Alpena Septic Service, based out of Spruce, Michigan. The Gillespies saw significant growth in a decade, showcasing the pumping trade's resiliency to economic recession and the rewards business owners can see in return for good old-fashioned hard work. **pumper.com/featured**

BUILT FROM SCRATCH

smart speccing

Do it right the first time — that's Gene Morris' motto when it comes to replacing pumper trucks. Morris, owner of Jarvis Septic & Drain in Wadsworth, Ohio, says he buys new to spec out his truck exactly how he needs it. A 2016 Western Star 4900 Series truck, built out by Tiger General, is the second truck he has built from scratch.

pumper.com/featured

HOUSEHOLD HABITS

monitoring tanks

The Otter Tail Water Management District in Minnesota recently provided a unique study opportunity for the analysis of household practices and maintenance needs of septic systems. The district is comprised of both permanent and seasonal residences, and the study looked for correlations between household practices and the accumulation of sludge and scum.

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FOLLOW hydroexcavation work in northeast Ohio communities By Ken Wysocky THE MONEY



King's Sanitary Service traded portable restrooms for a combination truck in search of profitable municipal and

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REX KING JR.

we're well positioned for growth in municipal work."

To avoid going too far into debt, King bought a used vacuum truck for \$80,000 instead of spending more than \$400,000 on a new unit. "When you're entering a new market, you don't spend a lot of

a new unit. "When you're entering a new market, you don't spend a lot of money as if it's going to be a sure thing," he says. "You've got to be financially prudent."

The company makeover reflects key attributes that have enabled King to increase gross revenue by more than 100 percent since he acquired a local company and renamed it King's Sanitary Service: A conservative fiscal approach; an eye for new, high-potential markets; a willingness to take calculated risks; understanding the importance of embracing and investing in newer technology; and strong support from family, both financial and otherwise.

TRULY A FAMILY BUSINESS

As a youngster, King worked for his father, the owner of King Bros., a 61-year-old company that became the family business when Russell and Kenneth King — King Jr.'s grandfather and great-uncle — bought a feed mill at a sheriff's sale in 1956 and named it King Bros. Feed & Supply. During the next 30 years, the company expanded dramatically. Its services now include installation of residential and commercial septic systems and excavation work, and the company also owns a concrete business, a sand-and-gravel

Left: Kyle Dye, left, and Rex King Jr. get ready to assemble the boom on a Vactor 2110 combination truck.

Below: Gary Lucik, left, and Kyle Dye, with King's Sanitary Service, use a Vactor 2110 combination truck on a hydroexcavation project.



Left: Rex King Jr., right, owner of King's Sanitary Service, with technician Gary Lucik at work.

pit, a car wash and a hardware store.

King says he benefited greatly from his father's entrepreneurial spirit. "My father is a genius," he says. "He taught me so much, including how to treat customers, and showed me what a good work ethic is all about. I also can't say enough about my mother, Mary, and my grandmother, Marlene Hillman. They're the backbone of our family."

From 2009 to 2012, King worked as a full-time employee for his father, who regularly hired the company King now owns as a subcontractor to pump out tanks. When the owner decided to retire in 2012, he talked to Rex Sr. about buying the company, which would mesh well with King Bros.' septic installation services.

"My father came to me and said here's what the company does ... asked me if this was something I'd want to do," King explains. "I couldn't get financing because I was so young (age 21), so my family helped me finance the purchase. It was a challenge I was willing to accept. ... I thought it was a great idea.

"Essentially, what I did in a nutshell was make King Bros. more of a full-service company," he continues. "King Bros. installs tanks and King's Sanitary Service pumps them out. There's a lot going on at King Bros., and the part I own is a small piece of this giant puzzle."

(continued)

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MAKING INVESTMENTS

As King's Sanitary grew, so did its roster of equipment. To pump out septic tanks, the company relies on three vacuum trucks. Mid-State Tank built out a 2006 Sterling chassis with a 4,000-gallon alu-

minum tank and a Jurop/Chandler pump; Tiger General outfitted a 2003 Freightliner with a 4,600-gallon steel tank and a National Vacuum Equipment pump; and FlowMark rigged a 2017 Western Star with a 4,000-gallon stainless steel tank and NVE pump.

Technician Fred Bell

puts away the hose to

a 2006 Sterling built

out by Mid-State Tank

with a Jurop/Chandler

pump after pumping a

residential septic tank.

To clean sewer lines and do hydroexcavating work, the company relies on a Vactor 2110 combination truck built on a Sterling chassis. It features a 10-cubic-yard debris tank, a 1,000-gallon water tank, a dual-fan unit and a water pump (80 gpm at 2,500 psi). The business also owns two skid-mounted water jetters, carried in Ford box trucks; the trucks' 14-foot insulated/heated box bodies were built by Morgan Corp. and Supreme Corp. One truck carries a US Jetting water jetter equipped with a 600-gallon water tank, Harben pump (15 gpm at 4,000 psi) pump and a Hatz diesel engine. The other vehicle carries a Mongoose Jetters by Sewer Equipment; it features a Caterpillar diesel engine, a 600-gallon water tank and a water pump that generates pressure and flow of 18 gpm at 4,000 psi.

King's Sanitary also owns two push pipeline inspection cameras for televising 4- to 6-inch sewer lines. One is made by Ratech Electronics and the other is a Vyper model from Jack Doheny Cos.

The company invested in the sewer vac truck after municipalities began

From left, Kyle Dye, Gary Lucik and Rex King Jr. share a laugh while pumping a septic tank. to ask King about cleaning large-diameter pipes. "If there's one thing I hate, it's telling customers, 'No,'" King says. He added the hydroexcavating package because he felt the relatively small additional expense would generate more business — and revenue. "Plus they're safer and more cost-effective for

excavating," he explains.

The truck has opened doors to new markets, too, such as a long-term contract to clean large lines at a local auto manufacturing plant. "We couldn't clean those kinds of lines before, but now we can," King points out.

Presenting a professional image is no joke

Potty humor is commonly used to market portable sanitation companies, but Rex King Jr. isn't a fan. From vacuum trucks painted yellow and labeled "The Stool Bus" to others with slogans like, "Yesterday's Meals on Wheels" or "We Like to Potty," he figures he's seen them all — and he's not going down that road.

Instead, King — the co-owner of King's Sanitary Service in Bristolville, Ohio — settled on something decidedly less crude for his company's slo-

The bottom line is that we're professionals. I tell my guys that my name is on the trucks and this is how we're going to do things. I'm not asking them to change their lives, just be neat, well groomed and well manicured.

REX KING JR.

gan: Your No. 1 choice for reliable and qualified sanitary services. While it doesn't employ bad puns and elicit chuckles, it positions the company as a serious, professional outfit — something that's far more important to King than generating laughs.

"I hate those dumb slogans," says King. "It hurts the industry. How are people ever going to take you seriously? How are you ever going to raise your prices if people think you're a joke? This is a professional industry and we need to treat it that way."

But professionalism at the company extends further than just a no-nonsense logo that clearly states what the company is all about. Route drivers are

required to wear blue pants supplied by a uniform company and either a King's Sanitary T-shirt or baseball hat. They're also required to be polite and well groomed.

"I believe that things like that make a difference," he explains. "I wouldn't want someone on my property who doesn't look nice and I sure wouldn't want to write him a check. The bottom line is that we're professionals. I tell my guys that my name is on the trucks and this is how we're going to do things. I'm not asking them to change their lives, just be neat, well groomed and well manicured."

King is also a firm believer in educating customers whenever possible. That portrays the company as knowledgeable and that it puts its customers' interests first. "If you educate your customers, it carries you farther than any money you spend on advertising," he notes. "That's what keeps them calling the next time they need service."

Of course, it takes good employees to work all the equipment and keep things running smoothly. King says he's lucky to have great employees like Kyle Dye, manager; Fred Bell, head septic service tech; Gary Lucik, service technician; Chrystal McCrimmon, office manager; and his mother, Mary King, who handles the books. "You're only as good as your employees," King notes. "I can do a lot, but I'm only one person.

"We've got a great team," he adds. "We take the calls and get the job done. We often provide same-day service. Everything comes down to providing great customer service, and our employees do a great job. Our customers very rarely get an answering machine; emergency after-hours calls go right to my cellphone. And if we ever make a mistake, we take care of it — make it right."

CONTINUING EDUCATION

While King learned a lot about the business from his father, he says the Water & Wastewater Equipment, Treatment & Transport Show has been a valuable tool in his professional development. The show enables him to see the newest technological advances in person and offers a convenient way to fulfill Ohio's requirement for six continuing education credits a year.

"It's nice because I can pick and choose classes that I'm particularly interested in," he explains. "If I want to learn about effluent pumps, I can go to this class. And if I want to learn the latest about drainfields and leachfields, I go to another class."

King says he also benefits greatly from networking with other operators. Because WWETT attendees aren't typically direct competitors, he says they're more willing to share information, tips and advice. In one instance, he mentioned to a colleague that he was having trouble getting the correct pH level in a customer's septic tank. "Then he asked me if someone in the house has cancer and is getting chemotherapy treatments," he says. "That turned out to be the problem. You don't always find out about things like that unless you talk to people."

Attending a recent WWETT Show also convinced King to enter a lucrative market for hydroexcavating. While talking about the possible purchase of a combination sewer truck, a representative from Vactor mentioned that a hydroexcavating package would add value to the unit. "That's what pushed us toward hydroexcavating," he says.

MORE GROWTH EXPECTED

King says he's optimistic about further growth, especially in hydroexcavating work and cleaning larger municipal sewer lines. Because even used sewer/hydroexcavating trucks are expensive, most companies are reluctant to buy them, so there's an inherent barrier to market entry by competitors, he points out.

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To learn more about King's Sanitary Service, see a video profile at www.pumper.com "We haven't even owned the (sewer) truck for a year yet and we've already definitely seen an increase in hydroexcavating business," King says. "We've found work for it without even marketing its capabilities. Numerous municipalities have called to ask us to

expose (utility) lines. I really see that part of the business taking off in the next year or two."

King also expects continued growth in septic service as well as cleaning municipal sewer lines. As such, he's considering investing in a crawler pipeline inspection camera capable of televising large-diameter lines. "Within about a 45-mile radius, there are probably 10 to 15 smaller municipalities that need help with sewer maintenance. I think we'll see more and more municipalities hiring out that work because they can't afford to buy an expensive combination sewer truck that might sit idle most of the time."

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Dana Manciagli is a career expert, Fortune 500 sales and marketing executive, member of the board of Junior Achievement and author of, "Cut the Crap, Get a Job!" Contact her at www.danamanciagli.com.

6 Tips for Appropriate Use of Text Messaging at Work

Millennials are driving increased use of texting on the job. How you handle this communication tool can determine if it's a positive or a negative development. By Dana Manciagli

e're texting all the time. Sending a text is more timely than sending an email, yet feels less intrusive than calling someone. Texting is replacing voice calls, especially among 18- to 24-year-olds, who send and receive nearly 4,000 text messages per month.

And as the lines between work and life become increasingly blurred, there is nothing stopping your crews of wastewater technicians and office staff from bringing their personal habits — especially texting — to work. Is that a good thing, a bad thing, or just the reality we have to deal with?

Although texting has found its way to the workplace, numerous questions remain about texting etiquette. Largely prompted by the rapid rise of smartphone use in the workplace combined with the huge number of millennials (typically ages 18-34) entering the workplace, texting has made its way on the job before proper protocol could be set.

Praful Shah, senior vice president of strategy for RingCentral, has witnessed a recent shift toward multiple devices in the workplace, including mobile phones, tablets, desk phones and laptops. He notes that each of these channels of communication required adoption of new habits and protocols within a business context.

Here are his six rules workers should follow when texting with managers, co-workers and customers in the field.

1. Grab some context clues

Sending text messages is a natural way to communicate, especially for millennials who have been texting more or less their entire lives. But this doesn't mean you, your managers and the company's customers feel the same way. Workers should watch for clues before testing. If the boss or a customer has initiated a text message in the past, it's safe to assume they have the green light.

2. Feel it out

If workers are unsure if a manager or customer prefers texting to calling or emailing, they may test the waters the next time an extremely time-urgent issue arises by texting a question such as, "Need to chat about the project ASAP; have a few minutes to talk?" If the conversation keeps going via text, it's safe to say the door is open for future text conversations. If a colleague or customer prefers moving to a phone contact, perhaps it's best to save the trouble next time by calling right off the bat.

3. Keep it professional

Texting with friends and family is typically casual, but it shouldn't be

in the workplace, especially to customers or other VIPs. Avoid using abbreviations that wouldn't be understood across all generations and stay away from emoji overkill, since both make texts informal. The focus of workplace text messages, especially to customers, should remain centered on work at all times, unless the other party initiates a personal conversation about appropriate topics.

4. Only text when response time is important

Text messaging may typically be saved for time-sensitive information, when emailing wouldn't generate a response quickly enough. Texting is less intrusive than placing a phone call, because the receivers have the option of ignoring the message if they are too busy to respond. When you need a quick response off-hours, text messaging is a better option than calling. A quick text might prompt a response, or at least a read receipt, instead of leaving you wondering if your email has been read.

5. Limit group texting to critical things

If you loop a customer into a group text, you will likely send an overabundance of texts that person doesn't need to see. Be respectful of others by not encouraging off-hours group texts that will keep everyone's phones binging and clanging away when they are home spending time with family. Group texting has its place — if it's a dire customer emergency, for example, and you need input right away.

6. If it can wait, don't text

Bottom line, you communicate with your customers and co-workers daily face-to-face and via email and conference calls. Before you add texting to the mix, ask yourself if it can wait until you're back in the office or online tomorrow. If it can wait, you've saved yourself the headache of wondering whether or not a text was appropriate.

HERE TO STAY

There's no way to eliminate text messaging from our communication mix, and it's infiltrating our conversations at work. If you think before you text, and save texting for the most urgent conversations, it can be a helpful channel for communicating with customers, employees and other business contacts. If not, and you go overboard with the number of texts sent, emoji used or spelling errors made, it can be extremely unprofessional.

The simple answer: If it's work-related, think it through before you send that text. \blacksquare



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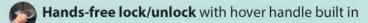
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Based in Racine, Wisconsin, Erik Gunn writes for magazines on business and other topics.

How Much Should You Spend?

There's no one-size-fits-all solution to managing expenses and cash flow By Erik Gunn

t sounds like a simple question.

If you're running a small business, what's the best way to spend your money? What percentage of your annual revenue should go to salaries, training, marketing, investing in new equipment, retirement savings?

The answer, though, turns out to be unexpectedly complicated.

Wouldn't it be so convenient if there were handy rules of thumb? After all, we try to use them when we make choices about our household expenses — like the one that says your housing expenses shouldn't be more than about 25 percent of your income.

Yet looking closely at even that longstanding principle suggests why this may be more difficult than it would seem. Does someone making \$1,000 a week (\$4,000 a month) and living where there's a severe shortage of housing have any choice if the cheapest rents are \$1,800 a month? Perhaps over the very long term (move or seek a higher-paying job). But the specific conditions of where you are — geographically and otherwise — defy such airy pronouncements.

THE MARKET IS KING

Larry Rush of Reading, Pennsylvania, spent 45 years in banking. In retirement, he now mentors small business owners through SCORE, which was previously an acronym for the Service Corps of Retired Executives.

"There is no one way to allocate percentages from revenues" to specific categories of expense, Rush says. Market differences along with individual business and industry circumstances all play a part in dictating those decisions, and you ignore that at your peril.

"When we at SCORE counsel new or present businesses, we ask the owners to do a business plan," Rush explains. Using data from various sources, Rush and his fellow business mentors then offer examples of successful businesses within the particular industry to project cash flows from revenues to various expenses.

Even within an industry, though, there's too much variability to come up with a one-size-fits-all set of rules. The first and most obvious: Is the operation a startup or long established?

Existing businesses "have historical numbers, which we review to see if they seem out of balance to their profitability," he says.

CRUNCHING THE NUMBERS

"With startups, we ask each owner to tell us what equipment they need to perform their daily work," he continues. And embedded in the answer to that question is another question — do you buy that equipment or lease it? "Leasing or even renting may be an option, so it doesn't cost the full purchase price" when allocating revenues to that line item.

Employee costs are another variable. As the owner, you'll start by do-

ing everything, but the number of employees — and therefore the share of employment costs against your revenues — will change with the volume of work, increasing along with your revenue.

With a larger operation, you'll need to consider how you as the owner manage your time most efficiently and parcel the work out effectively. As the business and number of employees grow, ensuring you have seasoned supervisors who can mentor new employees is key.

The time also comes when you must hire administrative personnel "to be sure that costing, billing, and payroll can be done without having the owner do that," Rush points out. Your time as the owner is more important

We suggest that each job be priced with its projected overhead — costs of equipment, fuel, labor time, insurance and other overhead expenses — and then at the end of the job, price it to see if your beginning quote was correct or was at a loss.

Larry Rush

than those tasks — but your office personnel "need to represent the owner 100 percent to reflect the company's face to the community."

WHERE THE BUDGET FITS IN

So does all that mean budgets don't matter? Of course not.

Rush advises starting by tracking your profit loss and cash flow month to month against the jobs you do and the revenue they produce. "We suggest that each job be priced with its projected overhead — costs of equipment, fuel, labor time, insurance and other overhead expenses — and then at the end of the job, price it to see if your beginning quote was correct or was at a loss," he says. "Then learn from that."

Overhead costs especially need to be spread out month to month, not just treated as lump expenses when they oc-

curred. You're paying \$2,400 a year for insurance? That means you budget it at \$200 a month. If your work has seasonal ups and downs, you need to account for that as well.

When setting wages, your benchmark is what other people with the same skills and experience in your market are making — and don't forget benefits or the cost of vacation time. And you need to review those questions regularly.

YOUR OWN SPECIAL INTEREST

All of this doesn't mean the starting question is pointless. It does mean that the answer is going to be so specific — to your business, where you're



located, and a host of other factors — that the only reliable answer is to consult with your local trade association and data providers that collect and aggregate information from a large number of companies in discrete industries.

And there's another important thing to remember, which as a seasoned business owner you almost certainly already know far too well: Day to day, month to month, year to year, your business is not going to just tick on like some perpetual motion machine.

A seasonal boom might require you to call in part-time employees or hire a subcontractor. A sudden glut could force you to find makework for your people, or even, unthinkably, lay some of them off.

The only way you can prepare for those unexpected jerks in your bottom line is to relentlessly monitor your month-to-month profitability so you can maximize your cash flow and know you'll be able to cover downturns

And that, Rush concludes, is where budgeting comes in. You look at how you've performed in the past, and what you need to do differently to perform better next year.

Because the real answer to how much you should spend and what you should spend it on comes down to where you are now, where you want to be, and how you plan to get there.

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wner Mike Flaherty likes to say three things haven't changed about his family's company, Advanced Pollution Control (APC) Corp., since it was founded by his father in 1975: dedication to customers, a family atmosphere and hardworking crews.

Many pumpers will point to traits like these to explain how their companies have survived and thrived. But APC has another successful formula other pumping contractors could learn from: tapping revenue growth and profits available through industrial vacuum excavation, a backbone service of the Bridgewater, Massachusetts, company.

APC started with a specialty in serving power plants and wastewater treatment plants. Through the years, the business has evolved to include utility locating and other vacuum excavation services. Flaherty's dad, Mike (known as Big Mike), saw a need for power plant cleanup work in the Boston area. About 95 percent of the initial workload was servicing power plants and water and wastewater treatment plants. Those services expanded over time, and now the company provides vacuum excavation for construction companies.

APC Corp. Bridgewater, Massachusetts OWNER: Mike Flaherty II FOUNDED: 1975 EMPLOYEES: 15 SERVICES: Vacuum excavation, power plant services, tank cleaning, utility locating SERVICE AREA: New England

NO-DIG ADVANTAGES

"It's a service that has taken off for us," Flaherty says. "Construction companies are now realizing that vacuum excavation saves them a lot of collateral damage because they aren't striking water or gas lines. It's not as fast as an excavator, but it certainly has its place."

The company's fleet now consists of nine GapVax combination units. The newest truck arrived in 2016 and, like the others, has a stainless steel tank. "They're all stainless steel," Flaherty says. "I

(continued)

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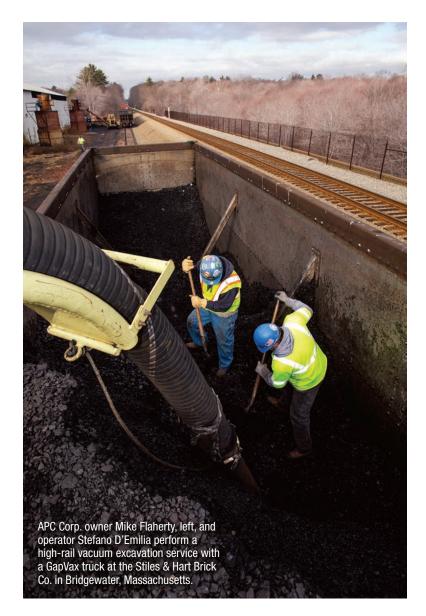
2018 Freightliner M-2 5

»4000 gallon septic tank »NVE 866 (520 CFM) vacuum/pressure »10 speed transmission »4" Inlet »6" Dump





P0917



spend a little extra in the beginning and the trucks are very dependable and don't rust out. It takes a lot more punishment before it'll deform or needs to be replaced."

APC crews try to perform dry vacuum instead of hydroexcavation because it allows them to backfill with dry material. "The dry stuff is far easier to control," Flaherty says. "It's neater to work with than mud slurry and saves our customers money. We never bring waste from one job to another location due to environmental regulations, so if we can't use what we excavate, the customer has to pay for it to be dumped."

To allow for air excavation, the company has outfitted each truck with a 185 cfm air compressor.

Not long after starting vacuum

excavation, Flaherty saw another need in the area and branched off into servicing railways. Two hydrovac units are fitted with high-rail systems. "We

MIKE FLAHERTY

Construction companies are now realizing that vacuum excavation saves them a lot of collateral damage because they aren't striking water or gas lines. It's not as fast as an excavator, but it certainly has its place.

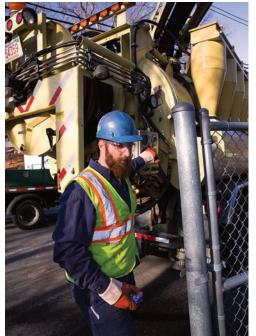
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Above: Part of the APC team is shown, from left, Michael Flaherty, Mike Flaherty, Shaun Wilcox and Ben Chaves.

Left: Operator Shaun Wilcox runs the GapVax hydroexcavator as he performs a high-pressure pipe cleaning at the city of Randolph, Massachusetts, wastewater treatment plant.

do about 15 percent of our business with the high-rail trucks," Flaherty says. "We're called out to derailments and things like that. You never know when you're going to get busy."

BUILD A DEPENDABLE CREW

Just like traditional septic service companies, it's important for Flaherty to have a readily available staff capable of doing any job for spur-of-the-moment calls. Flaherty is proud of his crew of 15.

"The big thing that makes a difference with our people is their tenure," Flaherty says. One operator, Mike Darmetko, has been with the company for 38 years, and operations manager Rick Gay for 35 years. Operator Jim Silva has been with the company for 15 years. The rest of the workforce averages eight years of experience. "When we send out a truck, we're sending out a very capable, well-paid, union operator who has seen a lot of different jobs and know how to do the jobs the most efficient and safest way."

Flaherty attracts and keeps employees by treating them right. He makes sure they get 40 hours of work a week throughout the year. The company of-

(continued)

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Why the yellow trucks?

It's not hard to spot one of APC Corp.'s nine GapVax hydroexcavators. The machines are painted a pale yellow from the Peterbilt chassis to the debris tank.

"There are some different options on each truck and there are improvements that the manufacturer has made," says APC owner Mike Flaherty.

"The fellas have to get trained on everything so when they are out in the field they know how to work everything and work it safely."

All nine tri-axle hydrovacs have 16-yard debris tanks and hold 3,200 gallons. After the company takes ownership of a machine, crews install a 185 cfm air compressor on it to allow for air excavation. The trucks also have hot- and cold-water pressure washers.

The color choice goes back to when Flaherty's dad founded the company in 1975. When he bought his first vacuum truck he didn't have a lot of money to paint it. That's when longtime family friend Ed Porter told him he was throwing away some yellow paint — three 5-gallon cans of it. "We painted one truck and it looked pretty good, and we've stayed with that color ever since," Flaherty says.

fers holiday and vacation pay, as well as sick time. "The fellas seem to care about the company, and they want to see it do well so that we're out working and not staying here in the maintenance facility," Flaherty says. "We want to be making money, not losing money."

Even though nearing retirement age, Flaherty still joins crews on job sites, puts the work clothes on and starts digging. "I'm happy while I'm doing it," he says. "If you have dependable equipment and a happy crew, it's a winning situation."

APC Corp.

crews are on an emergency job

near Bridgewater,

is hydroexcavating

Massachusetts, where the company

to reach the

repair.

waterlines for

A SAFETY FOCUS

An experienced crew also helps with safety measures. The company provides regular safety training seminars for confined-space entry, lockout/tagout and other typical procedures. "We'll also do respirator training, personal fall protection, hearing protection, hazard communication and forklift safety, and we'll go over personal

protective equipment," Flaherty says. "We try to get the jobs done as quickly and safely as possible, and try to keep our reputation as a good company."

The safety focus doesn't stop at the shop; crews are always thinking safety on the job. If heading to a power plant job, crews will pull one of the company's 14-foot enclosed safety trailers. Flaherty put together APC's first safety trailers in 1980, and the equipment they carry has advanced in quantity and sophistication.

"They're equipped with breathing equipment for working in bad air in confined spaces," Flaherty says. The trailers have cascade breathing systems with eight 4-foot bottles, each with 250 cubic feet of air, good for about eight hours each.

"A hose no longer than 300 feet connects the bottles to a worker's personalized breathing mask. A five-minute emergency escape breathing bot-

tle is attached to each worker's belt. We don't charge for it unless we have to use it, but we have it all if the air changes or something bad happens. We just go into a different mode and no one gets hurt."

The safety trailers also carry rescue and retrieval tripods used in confined spaces. Other fall-protection and safety equipment brought to the job includes winches and beam trolleys, Tyvek suits from DuPont Personal Protection (paper coveralls that protect workers' clothing from contact with waste), encapsulated suits, ventilation fans, rain gear and extra rubber boots and gloves.

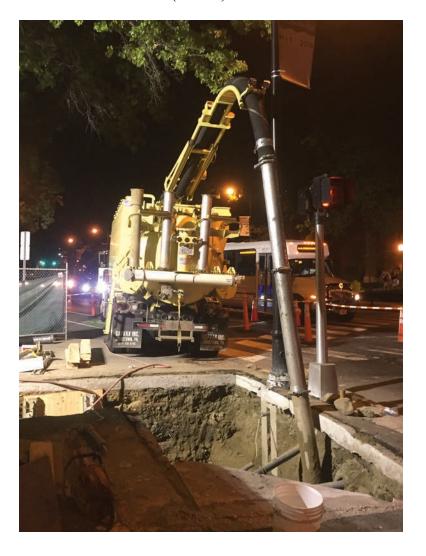
VACUUMING COAL

Last year, crews made sure to have

(continued)

As the industry continues to change at a rapid pace, I am focused on making sure we control the things we can control, which is doing a good job every day for every customer.

MICHAEL FLAHERTY



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the safety trailer with breathing tanks when the company was hired to clean coal silos at a power plant. The coal was burning within the silos. "The methane gas inside of it was something we had to be careful of," Flaherty says.

A worker dumps coal ash from one of APC Corp.'s GapVax hydroexcavators after vacuuming it up at the Stiles & Hart Brick Co. in Bridgewater, Massachusetts.

APC workers ran 200 feet of aluminum pipes from the fourth floor of the power plant where the coal was down to the trucks and vacuumed the

coal that was burning. They used a conveyor belt system beneath the silos to get the coal moving to the vacuum hose.

"When the methane got too high, we let the plant know we didn't want to continue working because it was going to be a possible explosion," Flaherty says. "They wetted down the fire and then we were able to continue."

APC removed 77 truckloads of coal, averaging about 18 trucks a day. The job was finished in about four days.

FAMILY SUCCESSION

A third generation of the Flaherty family is working at the company. Two years after Mike "Big Mike" Flaherty started APC, his son joined the company and took over control before the founder passed away in 1996. "I've been working for the company since I was just out of college in 1977," he says.

Now he is training his son, Michael, to take over: "He started at the very bottom as a laborer and he's progressed over the last three years." Michael is an operator and works sales. Eventually Michael will take over. "He's been a great kid all his life. He's 25 years old now and everything he's done, he's done well."

Michael says it was natural for him to work for the company, having grown up around it. "After college, I knew that I wouldn't like a cubicle job, so I figured I'd give APC a shot," he says.

Even though he hasn't taken over yet, Michael has some big goals for the company.

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www.gapvax.com (See ad page 35) to change at a rapid pace, I am focused on making sure we control the things we can control, which is doing a good job every day for every customer," he says. "Short term, I would like to see us grow some other areas of our business such as pipe cleaning, pipe relining, X-ray inspection and video inspection."

"As the industry continues



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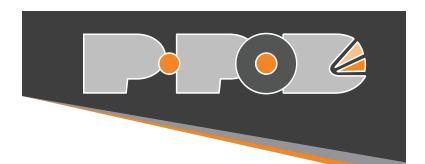
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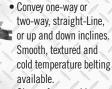


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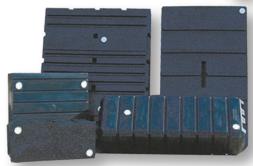


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Trump Orders New Look at Waterway Issues

By David Steinkraus

n its early steps in rewriting the Waters of the U.S. Rule, the U.S. Environmental Protection Agency recently sent letters to several governors asking for state advice in how to modify the rule that governs what bodies of water are subject to federal pollution oversight.

When it was issued in 2015, the rule drew vocal opposition from business. The head of the National Association of Homebuilders said a developer would face higher hurdles building on a piece of rural land. In February, President Donald Trump signed an executive order requiring the EPA to rewrite the rule.

Revising the rule will consist of two steps, and both supporters and opponents of the rule agree the process will take time. One step will rework current regulations to conform with what courts have said about the existing rule. The second will formulate a new, narrower rule. The EPA must develop technical evidence supporting any revision, and any proposed changes must go through a period of public comments and hearings.

The 2015 rule was originally an attempt to clarify what waters are subject to federal oversight. The Clean Water Act gave the federal government jurisdiction over "navigable waters," and since the act became law several court cases have been filed over the meaning of that phrase.

The 2015 rule took inspiration from the opinion of Supreme Court Justice Anthony Kennedy's opinion in a 2006 lawsuit over the meaning of navigable waters. Kennedy wrote the term should refer to water significantly connected to navigable rivers and seas, including a biological or chemical connection. The executive order from Trump requires a rule consistent with the opinion of the late Justice Antonin Scalia in the same case. Scalia had a narrow interpretation of the term. He described navigable water as water that had a relatively permanent flow or had a surface connection to waters with a relatively permanent flow.

At the moment, Waters of the U.S. is not in effect because the Sixth Circuit Court of Appeals issued a nationwide stay in 2016 as the result of a law-suit brought by several industry groups and states. In the meantime, there is a Supreme Court case pending because of a dispute over what court can hear lawsuits — a federal district court or a federal appeals court. Lawyers are still filing briefs on this case, and a date for oral arguments before the court has not been set.

News reports quote Ellen Gilinsky, a former EPA official who advised on the rule, as saying many fears of opponents are overblown. Supporters of the rule say states don't have the resources to ensure the health of water, and Gilinsky said she hopes the revision procedure will get all sides to finally agree on what waters should have federal oversight.

Florida

When the current legislative session ended, a bill that would have required property buyers to be notified of the presence of a septic system died with it.

The bill, authored by Rep. Randy Fine (R-Brevard County), originally required a wastewater system inspection at the time a property is sold. Fine represents a part of Florida adjacent to the Indian River Lagoon, a 50-mile-long stretch of water that is separated from the Atlantic Ocean by a narrow strip of barrier island and has water contaminated by faulty or failing septic systems.

As the bill progressed through the Legislature it was altered to remove the requirement for an inspection. Instead, the bill required property sellers to only inform buyers of the presence of a septic system, and sellers would not have been required to disclose problems. Buyers would have been required to sign a form telling them systems need pumping every three to five years.

News reports said the Florida Real Estate Association was concerned the original bill would discourage people from buying properties with septic systems.

Fine's bill also would have required the state Health Department to create a statewide database and map of existing septic systems.

A separate bill that would have allocated \$20 million annually to help property owners retrofit septic systems or connect to sewer lines also died for lack of legislative action.

Also, county commissioners in Indian River County — adjacent to the Indian River Lagoon and immediately south of Brevard County — voted to raise septage dumping fees from \$7.51 to \$15 per wet ton. A memo from county attorneys said the previous rate covered only about half of the cost at the county's biosolids facility. In May, commissioners restricted waste coming in from out of the county.

Earlier this year, the state Department of Environmental Protection cited the county for periodic discharges of organic matter, nitrogen and phosphorus at its West Regional Wastewater Treatment Facility between November 2014 and February of this year.

New York

Suffolk County, which occupies the eastern end of Long Island, has a new program to help fund wastewater system upgrades that combat nitrogen pollution. County executive Steve Bellone signed the Reclaim Our Water Septic Improvement Program into law earlier this year. The county approved a \$10 million grant program to fund the initiative. Citizens may apply for grants of \$10,000 to \$11,000 per home to pay for about 200 systems annually to be converted from cesspools to advanced nitrogen removal systems. About 360,000 homes in Suffolk County — about 75 percent of all homes — use cesspools. County officials said the program will prioritize homes in low-lying areas.

The county is working to provide predictable pricing of the four approved systems: Norweco Singulair and Hydro-Kinetic, Orenco AdvanTex, and Hydro-Action.

The county has set up a website (www.reclaimourwater.info) as a point of contact for the public.

California

The owner of a wastewater company in San Marcos and the company have agreed to pay up to \$4.1 million in restitution for illegally dumping wastewater from portable restrooms into municipal wastewater systems. The owner of Diamond Environmental Services, Eric De Jong III, and the company's chief operating officer, Warren Van Dam, pleaded guilty in federal court to conspiracy to unlawfully discharge pollutants. Ronald Fabor, the company's safety and compliance manager, has been charged with perjury in the case.

Employees were instructed to build dump stations inside five company facilities between San Diego and the Greater Los Angeles area. Drivers emptied their tanks in the stations without creating a billing record for the local municipal wastewater agency. At a cost of about \$75 per 1,000 gallons, that means the company avoided between \$1.3 million and \$4.1 million in fees.

Also in California, residents near Malibu want to know why they are being pushed to connect to a sewer system when they say onsite technology would accomplish the same goal at a lower cost. The state has ordered 444 homeowners to stop using their septic systems in the next few years. State and federal officials are concerned about the nutrients these systems are adding to the Malibu Lagoon and to the ocean at Surfrider Beach. The estimated cost of a new sewer system is \$35 million. Residents of Serra Retreat asked why they could not install less-expensive advanced treatment units instead of paying for a new plant.

Massachusetts

The Massachusetts Association of Onsite Wastewater Professionals is no more. Instead, the organization is returning to its previous name: Yankee Onsite Wastewater Association. Although the organization will continue to focus primarily on Massachusetts, the name change reflects a membership that is regional and the organization's goal of making YOWA a New England organization, according to association President Tom Groves. This is the only organization focused on the onsite industry in the region, Groves said in the association's most recent newsletter.

Colorado

The latest revision of Colorado's onsite regulation took effect June 17. In 2013, the state adopted its first revision of Regulation No. 43 in more than 30 years. After experience with it, officials and professionals identified some parts that required tweaking. Interested parties held 16 meetings beginning in August 2015. The revisions were adopted by the state Water Quality Control Commission in May. Local agencies will have one year to bring their ordinances into compliance with the revised regulation.

Ohio

To reduce water contamination, local governments in the Toledo area covered \$75 of the cost of septic pumping for homes in the watershed of Wolf Creek. That figure equals the per 1,000-gallon dumping fee at treatment plants associated with the program. Wolf Creek empties into Lake Erie at Maumee Bay State Park, and tests have found that bacteria from the creek contribute to water quality problems at the park's beach. About 400 homes in the watershed are on septic systems, officials said.

Montana

The owner of a bar and restaurant in Four Corners — about 6 miles west of Bozeman in the southwestern part of the state — filed suit against the Gallatin County health officer for denying a food serving permit because of problems with the restaurant's septic system. Jerry Ritter, owner of the Korner Klub, told a reporter that his system had a rough time just after it was installed in 2013. A pipe broke and power to its pumps was off for several

months, Ritter said. Septage surfaced, filling an open pit for several months, but the system is fine now, he said.

Matt Kelley, the county health officer, said Ritter is delaying repairs and is threatening public health. In 2015, engineers for the business submitted documents saying the 1,600 gpd design capacity of the system needed to be expanded because the business was producing 2,000 to 2,500 gpd.

Just after the county Board of Health voted down the Korner Klub's 2017 food license, Ritter opened for business as usual, said a report in the *Bozeman Chronicle*. Meanwhile, county and state officials disputed which level of government was responsible for enforcement since Ritter was apparently serving food without a proper license.













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Give Me a Vintage Truck and Hardworking Employees

Rob Ratta enjoys running older rigs for installing and pumping work, and thinks recruiting good workers is the biggest challenge facing the wastewater industry

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 Yankee Onsite Wastewater Association.

Name: Rob Ratta, owner Business: R.M. Ratta Corp. Location: Ayer, Massachusetts

Age: 45

Years in the industry: Ratta Corp. is a third-generation family business operating for over 60 years.

Association involvement: I'm new to YOWA (Yankee Onsite Wastewater Association) but over the years our family has belonged to this association as well as others.

Benefits of belonging to the association: It gives us an opportunity to see how other small businesses are adapting to the changing market, and a chance to share information. It also keeps us informed about the everchanging technology that is key to our performance.

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Our crew includes:

Technicians

- My cousin, Fred Ehwa, is my right hand. He has been running with the pumping business for the last couple of years and is doing an amazing job.
- Scott Goodman has been with our family for 20 years, pumping and doing inspections. Customers ask for him by name. You won't find a better service provider out there than Scott.
- My brother-in-law, Matt Robinson, has been here almost as long as Scott. He's our lead Title 5 inspector, and with the market as good as it's been lately he's always in the field.



• T.J. MacGregor is one of our "newbies," with a year under his belt. Already he's made his mark as a crucial part of the team. He'll be running his own construction crew before we know it.

The office staff includes,

from left, Mary Trainor, Jen

Matt Robinson, T.J. Mac-Gregor, Fred Ehwa, Nick Ratta and Scott Goodman. (Photos courtesy of R.M. Ratta Corp.)

- My cousin, Nick Ratta, has recently come back to the family business
 and we couldn't be happier. His flexibility and attitude are one of a
 kind. He may start the day in a pump truck, take the 10-wheeler to deliver some material, and finish up the day helping with a system repair
 or installation, all with a smile and ready to do it again the next day.
- Jon Olden came to us when we purchased the portable toilet division of a company a few years back. He has the highest attention to detail

and demand for perfection with every portable unit that is in service. Like Scott, customers ask for him by name. *(continued)*



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Office

 Our office team is a closeknit group. My wife, Jen Ratta, keeps us on track and has assembled a team I could not be more proud of.

Right: Rob Ratta is on the job installing another onsite system.

Above: The R.M. Ratta crew

is hard at work installing

driplines at a residential

complete the project.

property. They are using a Link-Belt 225 excavator to

- Mark McKenna has been with us the longest and handles all our commercial accounts. He is tenacious in growing that side of the business and keeping the construction pipeline filled.
- Lynne Bourque manages the portable restrooms and the Title 5 inspections, and has an incredible drive for knowledge of the industry. Recently she became a Certified Grade 2M operator, and we can't wait to see what she decides to tackle next.
- Mary Trainor started as a backup for Jen and has worked side by side with her for the past four years. There isn't much that Mary can't handle in the office.

Typical day on the job: I cannot really say that any day is "typical." We run a small crew here considering the size of our business. On any given day my construction crew may consist of just T.J. and myself, and that is OK. With some creativity and hard work, we are able to get the job done. The guys on my team are all resourceful, and not one of them would say, "that's not my job." I've been doing this long enough that I know how the job should go, but sometimes Mother Nature just doesn't want to cooperate and we need to adapt.

Helping hands — **indispensable crew member:** This is a tough one, as every one of our employees is a key component to what makes this business successful. I would have to say there are two — my cousin, Fred, and my wife, Jen. I trust Fred immensely and could not be more proud of where he is taking our pumping business. The relationships he has built with plant operators, homeowner associations and property management companies are a solid piece of this business. I don't have to worry or second-guess what he's doing. At times I really wish I could clone him. Jen keeps me grounded.

The job I'll never forget: Two jobs really solidified our reputation as

an installer. The first was a sewer main extension and preliminary treatment plant updates for the Groton School. The job was a bit of a challenge and a blast to do. The second was the replacement of a septic system at the Fruitlands Museum in Harvard, Massachusetts. This was an enormous undertaking for both us and the museum. The project lasted four months and through the winter. It was 28,000 square feet of leaching network, a series of collection tanks, a Microfast 9.0 system, and a host of additional utility upgrades. Never once did we feel like we bit off more than we could chew.

My favorite piece of equipment: They are all my favorites. Most of our trucks are old, vintage even. We still run a 1979 Inter-

national pump truck that my dad bought brand new. It has been overhauled once or twice, and it's a showpiece to go down the road. It still will work circles around some of the newer technology that is out there. My dad is still running his 1972 Brockway with a 4,000-gallon IME tank on it up in New Hampshire.

Most challenging site I've worked on: I would have to say that the most challenging sites have involved dealing with groundwater and controlling it.

The craziest question I've been asked by a customer: "How did you do that?"

If I could change one industry regulation, it would be: Like our Title 5 inspector's license, I would like to see Massachusetts adopt a statewide pumping and in-

stallers license like New Hampshire does.

Best piece of small-business advice I've heard: Well, that would be from Dad and it goes something like this — "Care about what you do, do your best all the time, and treat your customers like they're family. You have to be able to lay your head down on your pillow at night and be proud about what you've done."

If I wasn't working in the wastewater industry, I would: I don't think I will ever be able to get completely away from the industry. I tell my wife all the time when I retire I am going to run the pumpout boat at a marina someplace warm.

This is my outlook for the wastewater industry: This is a construction trade. The population and the technology are growing faster than the number of qualified people to operate it. I am concerned that there is not enough of the younger generation taking an interest in this field to keep it moving forward and keep up with the technology. It can be a labor-intensive job, and folks just don't want to get their hands dirty anymore, which leads us to having inexperienced operators in the field that don't necessarily understand the job in front of them. It takes years of experience in this trade to be good at what you do, and the technology is outpacing the experience.

- Compiled by Betty Dageforde



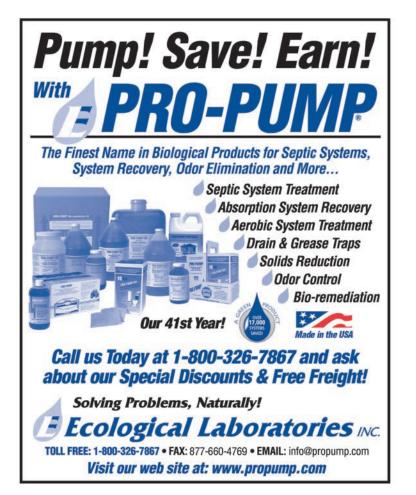
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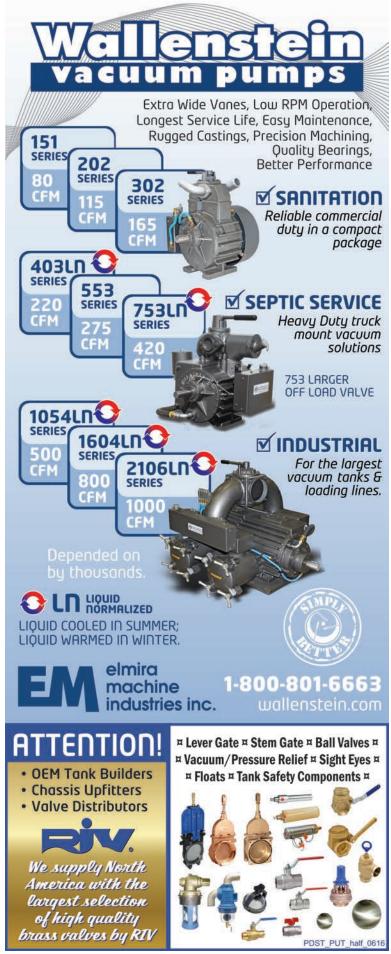
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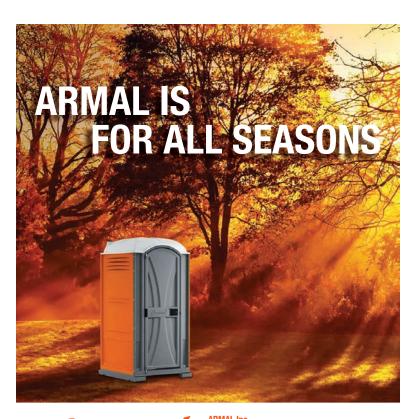
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What Are Floating Wetlands and How Might They Serve the Wastewater Industry?

Nature's nitrogen removal solution may provide an important tool at the end of the onsite treatment train By David Steinkraus

astewater treatment usually involves a combination of pumps and power, but for millions of years it has been done with plants and sunlight. It is this nature-based plan that William Strosnider follows in his search for wastewater engineering solutions.

Strosnider is an associate professor of environmental engineering and

director of the Center for Watershed Research & Service at St. Francis College in Loretto, Pennsylvania. For some years he has been experimenting with floating wetlands to clean polluted water, and his latest piece of research on this appeared in the January issue of the Journal of Environmental Quality. He and colleagues at the University of Oklahoma built a few floating wetlands in some unused aquaculture ponds at the University of Oklahoma and measured how well they worked. Pumper asked him to talk about his research and where floating wetlands can fit among the options for wastewater professionals.

Pumper: What does your research center do?

Strosnider: We've been running for about five years, and we have two goals. One is to get students out in the field, primarily to help nonprofit and government partners. The other is to undertake research projects that are actionable and close to the ground. We've done a lot of

work on improving stream quality in western and central Pennsylvania.

The big, interesting idea in our work is figuring out what nature already can do to improve water quality and seeing how we can engineer that for our purposes. It obviously is possible. We just need to be creative, and maybe a bit more patient to let things grow.

Pumper: What is a floating wetland, and why use such a simple approach?

Strosnider: A floating wetland is just a raft of vegetation that isn't an-



William Strosnider prepares to retrieve flow sensors from beneath a street in Aiken, South Carolina. The sensors were destined for a nursery where Clemson University is leading a water-management project. The site is also a possible location for future floating wetland research. Contact Strosnider at wstrosnider@francis.edu.

Over the last three decades. an increasing number of treatment wetlands have come online, addressing everything from raw wastewater treatment to the

- William Strosnider

polishing of

final effluent.

chored to the shore or the bottom of a pond. Cattails form floating rafts naturally. They grow out from the edge of a pond, and at some point this raft of plants will detach and float around the pond in a stable state.

It really isn't a simple process because nature isn't. But traditionally we've met wastewater treatment engineering goals by using a lot of power or refined chemicals. We're trying to achieve the same goals with processes that require fewer inputs. Usually these solutions require more land area - treating water with a wetland requires maybe 10 times the land area of a machine-based solution — but could require very little ongoing maintenance and no pumping.

When we get this figured out, it is a solution that you could use in, for example, a detention pond in a subdivision.

Pumper: How did your experiment work?

Strosnider: Ultimately the goal is to engineer a raft of vegetation that renews itself with sunlight and nutrients from the water. Plants do that naturally under the right conditions, but it turns out it's pretty tricky for us to do

the same thing.

One issue in Oklahoma was the wind. It's serious wind, and it blew over our young plants quite a few times, so the plants had to send up new shoots. That requires a lot of energy from the roots, and plants can do that only so many times. We lost quite a few plants that way.

We also found we needed a better substrate for the plants to root in. Or they need to be started in a greenhouse first so they can establish a good root structure before they're put into a pond.

Pumper: Did vou use special plants for this?

Strosnider: No, we planted the

cattails and bulrushes you find in any North American wetland.

The water we put them in had somewhat elevated concentrations of nitrogen, the kind of water you would find in a pond collecting runoff from a farm field.



Above: Experimental floating wetlands at the University of Oklahoma.

Right: These tadpoles are living among the floating wetlands at the test site. (*Photos courtesy of William Strosnider*)

These floating wetlands also create habitat for animals, and as far as we could find, no one has cataloged all the animals that will use floating wetlands. I was attacked repeatedly by this red wing blackbird that nested on one of our rafts. There were also other birds, amphibians, snails and spiders. The cattail rafts were home to many more creatures than the open pond we put next to our experimental pond as a comparison.

Pumper: Why haven't people looked at this technique before?

Strosnider: They have for about two decades, but it's been done in fits and starts, and much of this work seems to have been driven by the interests of individuals. Now it seems formal funding is increasing for research into such alternative technologies.

People already use aerators to introduce more oxygen and knock down algae blooms in ponds. Floating wetlands could be a yet softer solution. We're trying to figure out what we could do with a series of floating wetlands on a pond, how much coverage would you need to make a difference in water quality.

People in the wastewater industry are already using this technology. Wetlands are being increasingly applied for municipal wastewater treatment across the globe, especially in Europe. Over the last three decades, an increasing number of treatment wetlands have come online, addressing everything from raw wastewater treatment to the polishing of final effluent. There are a few folks out there promoting this technology, but although we know theoretically what will happen, we can't plug data into a formula and calculate a recommendation for a customer because the basic research hasn't been done yet.

For example, we don't know how nitrate removal happened in our pond. We're pretty sure it happens in or around the root zone, but to use floating wetlands as a solution we need to know what the mechanism is and, by extension, how many plants we need to bring about a given reduction in nitrogen.

Pumper: Why look at floating wetlands when we're already building fixed wetlands for water treatment?

Strosnider: That's one of the big questions: Can floating wetlands compete with the conventional ones? Research hasn't answered this question yet, and without it you can't do a cost-benefit analysis for customers. One

fact about current floating wetland systems is they're very expensive, and part of our project is trying to find an inexpensive combination of materials.

Pumper: How can wastewater professionals use this technology?

Strosnider: They could be particularly useful for nitrogen removal. Wetlands are most commonly used as the final stage in municipal wastewater treatment systems to address residual nitrogen, phosphorus, pathogen, or organic concentrations. Since nitrogen is often in its oxidized form (nitrate) by the time it reaches the final stage of a wastewater treatment plant, high-coverage floating treatment wetlands might be able to out-perform traditional surface flow wetlands in nitrogen removal by more effectively pro-

viding the anaerobic conditions necessary for nitrate processing. And the same goes for use in an onsite installation.

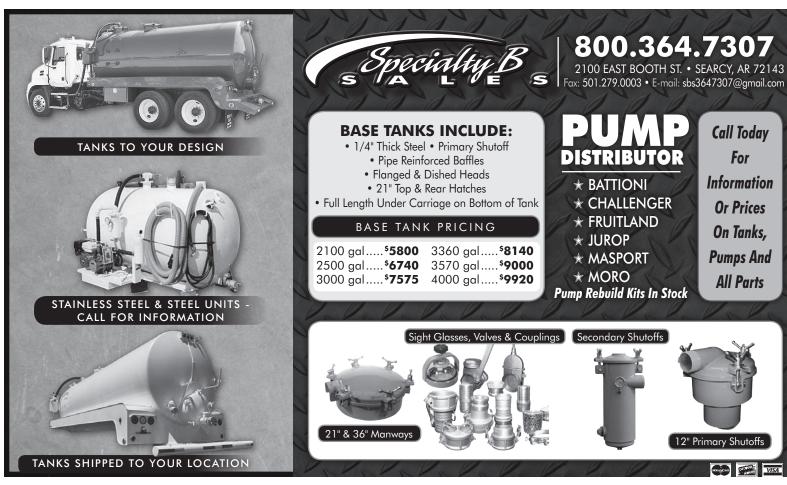
Pumper: What advice do you have for people who want to experiment with floating wetlands on their own before the research is done?

Strosnider: First of all, I would design for the winds and waves you would expect from a typical storm in your area. You need something that will be stable in the elements.

Next, give the structure a head start first in a greenhouse or some other protected area. Let the plants get comfortable and intertwined with the substrate you're using, and then put them outside.

In any situation where land is cheap and you have less access to a power grid, chemicals, complicated equipment, and maybe expertise, cost-benefit calculations shift toward passive approaches like floating wetlands. ■







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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.

What Is This Thing Called Orangeburg Pipe?

With new people entering the onsite industry all the time, we frequently need to highlight obsolete product technologies they may run into By Jim Anderson, Ph.D.

nce in a while I am reminded that even with all the progress we have made in the industry in the past couple of decades, there are still a lot of old systems that should be replaced — even if their current owners will tell you they are working fine!

Recently I received a note from a person on the East Coast who is getting into the onsite inspection business and he ran into a black-colored, misshapen sewer pipe leading from the residence to the septic tank. In addition to not being round, the pipe had a number of roots in it. Apparently as he asked around, he was told it was Orangeburg pipe. He asked me if he should expect to see a lot of this type of pipe and what he should recommend be done with it.

The pipe itself is made of layers of wood fiber or pulp and pitch. In some areas of the country, this product was referred to as "fiber conduit." The Orangeburg name came from the town of Orangeburg, New York, where the conduit was manufactured. The pipe was used for a fairly long time from the 1860s to 1970, when it was replaced by PVC pipe. So, those of us who have been around the industry long enough can remember seeing the pipe installed.

BEFORE PVC CAME ALONG

Since it was the main type of pipe readily available after World War II, it was used in a lot of the post-war residential construction. Not only for houses with onsite systems, but also urban residential construction. PVC piping came in during the 1960s and began replacing Orangeburg pipe because of its better durability and reliability. By about 1970, you did not see it in new construction any longer.

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This means that any Orangeburg pipe this new inspector will see is probably 50 or more years old. When it was sold, it was touted as having a 50-year life span. Any of this pipe we see now is well past its expiration date and should be replaced. According to reports I have seen, deformation of the pipe begins after about 30 years with failure around 40 years. Other symptoms of failure include root penetration and frequent clogging. When the pipe totally fails it will collapse and basically come apart so it will no longer convey sewage.

All of this is consistent with the observation of the new inspector that the pipe was not round, it was clogged and had root penetration. In the inspection terminology I would use, this is unacceptable for the sewer line and it is not operating the way it should, so the piping should be replaced.

Seeing dollar signs when advised to replace the pipe, I would expect homeowners to ask: "Do I need to replace all of the piping or just the areas that are current problems?" My answer to this is if only a part of it is replaced, the parts not replaced are more likely to fail due to increased pressure on the pipe and problems with the connections.

REPLACE IT ALL

Remember, this material is made out of a base of fiber; it is essentially an enhanced toilet paper tube. This means that it will very easily break after so many years of pressure and moisture. In the long run, it will save money rather than having to replace the pipe a section at a time with multiple visits and excavations in the backyard. Save your wallet and your property by getting your pipes replaced or enhanced as soon as possible.

I have personal experience with replacing this pipe at a lake cottage I owned in the 1990s. I was continually having problems with a clogged sewer line to the septic tank, which meant that on many a holiday weekend in the summer I spent my time under the cottage with a plumber's snake unclogging the line. While friends and family were having cold drinks on the beach, I was taking care of my sewer. This led me to replace part of the line one summer. Everything worked great for the rest of the year, so I felt pretty good about fixing the problem.

Next summer, literally over July Fourth weekend, the piping gave out. Fortunately, neighbors allowed us to use their facilities until I could line up a contractor to replace all the pipe. The bottom line is that if you see Orangeburg pipe during an inspection, the best recommendation to the homeowner is to replace it as soon as possible. ■



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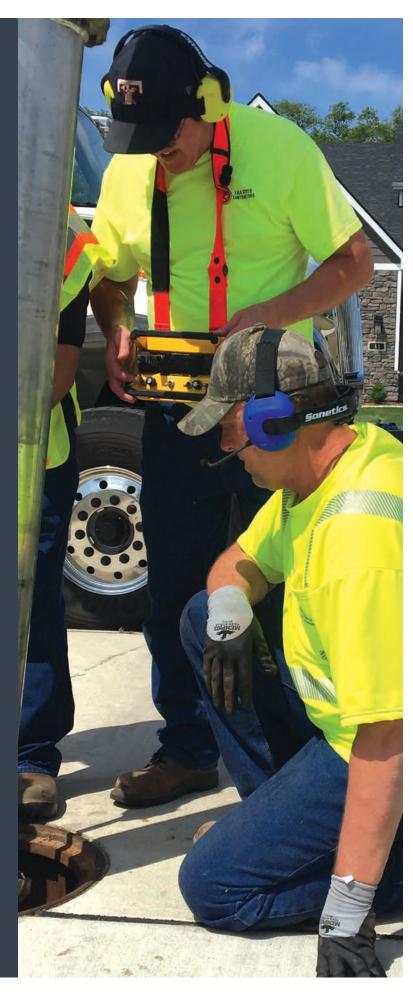
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A Safety Coordinator Opens the Door to More Contracts

Even smaller wastewater companies should try to train a point person to oversee safety for the good of employees and to land more work By Jessica Whitmore

hen the business cycle is slow, Dan Lin, safety coordinator/ operator of Supreme Vac in Edmonton, Alberta, jumps into a truck and works in the field. It is this versatility that has allowed this small business to maintain a designated safety person on staff.

The company itself provides vacuum truck, hydrovac and steam services with a large emphasis on safety. All employees are required to have current certifications and safety training, but the company takes it even further by having a specific safety person on staff. This wasn't an overnight position, but one that evolved over time.

"As a business' customer portfolio and client requirements grow, it is important to enhance and comply with a safety program," says Braydon Jeske, foreman/operator at Supreme Vac.

A DEDICATION TO SAFETY

In 2011 and 2012, the company first had an employee designated to manage the paperwork and administration necessary for safety. That evolved to Lin taking his current position in late 2014. What makes him unique in this position is that he also has the required licensure to operate the trucks.

This has given Lin the versatility to spend approximately 50 percent of his time in a safety administrative role and 50 percent of his time directly in the field, operating equipment. He works to make sure Supreme Vac is in compliance with its own safety requirements as well as government regulations and client compliance requirements. He knows what to do, the challenges within the field and how to monitor as well as document safety plans, procedures and requirements. It is this combined knowledge that helps him provide safety features for Supreme Vac.

Most small companies, however, are not able to always have a designated safety person on staff because of the funds available. Instead, the owners handle the safety person role themselves, or the employees are expected to simply comply after training has been presented.

The need for a designated person becomes more important for that small company to compete with the larger ones when bidding on jobs that have a safety coordinator as a requirement.

ADDING A DEDICATED SAFETY PERSON

Lin suggests looking at the type of work a company is currently doing and expects into the future. This insight is valuable when choosing the route of adding a staff member focused specifically on safety.

Jeske also recommends focusing on a safety employee who is diversified in skill sets. Lin is that guy for Supreme Vac. While he oversees safety at the company, he can also run equipment in the field during those slow

cycles that each business in the industry faces. This means he isn't just sitting in an office.

The safety culture, however, isn't fully dependent on the safety person. The focus on safety becomes everyone's responsibility, Jeske says. He also recommends any person put in the safety roll needs to be confident, knowledgeable of policy and procedures, and able to enforce the safety processes and procedures.

STAY FOCUSED ON SAFETY

Even if a full-time safety coordinator is not within reach for a company, it doesn't mean it should skimp on safety. There are simple things the company can do to keep its employees safe. For example, Supreme Vac, always sends two operators on a job. This way someone is there to handle any potential issues and to assist in potentially dangerous situations such as spotting and congestion with traffic.

As a business' customer portfolio and client requirements grow, it is important to enhance and comply with a safety program.

- Braydon Jeske

Regardless of whether a designated safety person is on staff, communication is another key to safety. Supreme Vac focuses this communication not only internally with its employees, but also with its clients. The company will request feedback from clients. These conversations can include processes used as well as equipment and specific concerns.

These upper management conversations are important because a client may be reluctant to talk directly with the equipment operators. Instead, talking with the designated safety person or someone in higher management is a way to keep those communication lines open.

IS A SAFETY PERSON NEEDED?

Companies can review the need for a designated safety person by looking at current and expected contracts, regular processes, dangerous work environments, equipment used and customer lists.

After that review, consider how management prepares and communicates with employees to safely complete all aspects of the jobs. Companies might just start with basic safety processes and procedures, and then grow from there — just as Supreme Vac did.

"The bigger the company gets, the more the safety needs to expand," Jeske says. ■





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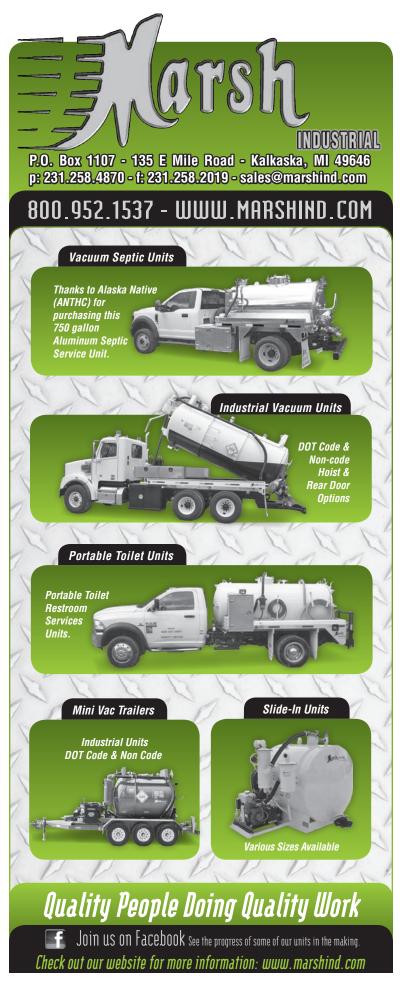
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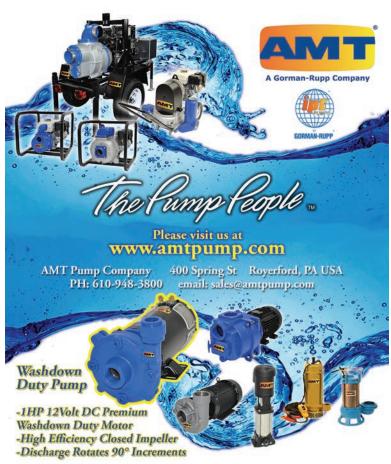
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Alabama Onsite Wastewater Association www.aowainfo.org; 334/396-3434

Arizona

Arizona Onsite Wastewater Recycling Association www.azowra.org; 928/443-0333

Arkansas

Arkansas Onsite Wastewater Association www.arkowa.com

California

California Onsite Wastewater Association www.cowa.org: 530/513-6658

Colorado

Colorado Professionals in Onsite Wastewater www.cpow.net; 720/626-8989

Connecticut

Connecticut Onsite Wastewater Recycling Association www.cowra-online.org; 860/267-1057

Delaware

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; 678/646-0379

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

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

Illinois

Onsite Wastewater Professionals of Illinois www.owpi.org

Indiana

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

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

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

Granite State Designers and Installers Association www.gsdia.org; 603/228-1231

New Mexico

Professional Onsite Wastewater Reuse Association of New Mexico www.powranm.org; 505/989-7676

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

Pennsylvania

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

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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

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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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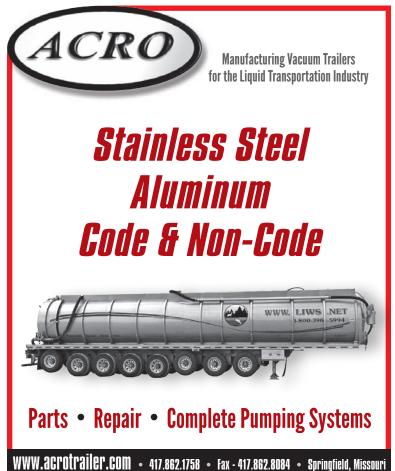
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Comforts of Home







ames Mallon added this orange 2010 cabover DAF (PACCAR) CF vacuum truck with a 3,000-gallon waste/100-gallon freshwater stainless steel tank with a full-opening rear door built out by Whale Tankers, Solihull, West Midlands, England. Vacuum is provided by a Mistral 7 liquid ring suction pump, and the truck carries a Pratissoli jetting pump. The truck is powered by a DAF 400 hp engine and a manual transmission, and features a rear lift and steer axle to get into tight spaces. Lettering was provided by Impact Graphics. Mallon is the driver and the truck is used for residential septic service and industrial pumping, including fats and waste blood from meatpacking plants.

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Your Classy Truck submission must include your name, company name, mailing address, phone number, and details about the truck, including tank size, cab/chassis information, pump information, the company that built the truck, and any other details you consider important. In particular, tell us what features of the truck help make your work life more efficient and more profitable. Email your materials to editor@pumper.com or mail to Editor, *Pumper*, P.O. Box 220, Three Lakes, WI 54562. We look forward to hearing from you!



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Hydroexcavation and **Industrial Jet/Vac Services**

By Craig Mandli

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HYDRA-TECH PUMPS HT20FVX

Designed to provide electric motor-based hydraulic power for temporary or fixed application, the HT20EVX from Hydra-Tech Pumps meets at minimum Class I,



Div. I standards and can be modified for more stringent requirements. The unit has a NEMA 7-rated control panel with available soft start to operate the 20 hp power pack. The standard variable-volume piston hydraulic pump can be fitted with a remote compensator valve, then the hydraulic outputs can be adjusted to meet performance requirements. Standard hydraulic outputs are 11 gpm at 2,700 psi. External power required for activating solenoids or safety shutdown switches is low-voltage 12-volt DC. It comes in either a skid or trailer build, and can be fitted with options including auto-start, a tamperproof roll cage, and tube and bundle oil cooler. In addition to powering submersible pumps, it can be configured to run other tools and equipment. 570/645-3779; www.hydra-tech.com.

HYDROEXCAVATORS





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



LMT SMART-DIG HX-2100

The SMART-DIG HX-2100 hydroexcavator 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 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.lmtmfg.com.

PRESVAC HYDROVAC

The versatile Presvac Hydrovac is designed for cold weather operation with optional full compliance with DOT



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

HYDROEXCAVATORS

RIVAL HYDROVAC T7

The T7 from Rival Hydrovac was engineered to offer a nimble unit, which can haul a full



load of most debris types down a road within the constraints of the law. It answers growing concerns regarding weight compliance, specifically in urban centers. The 30-foot 11-inch unit is equipped with an Allison automatic transmission. Its 7-yard debris capacity is spread evenly throughout the wheelbase of the unit for optimal weight distribution. It comes with poly saddle-style freshwater tanks, equalized both front-to-back and side-to-side; a Robuschi RBDV105 blower package, fully enclosed in a soundproof structure; a Pratossoli pressure pump; Dynablast diesel-fired, CSA-approved boiler; and a 20-foot top-mount boom with full rotation and a 6-foot hose. The boom is equipped with a full-port stainless steel actuated ball valve to allow for tank isolation when pressuring loads off or working remotely off the back-tank valves. **844/467-4825**; www.rivalhydrovac.com.



SUPER PRODUCTS MUD DOG 1200

The **Mud Dog 1200** 12-yard-debris-capacity hydroexcavator from **Super Products** has a rearmounted 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. For fast, thorough and safe debris removal, it uses easy-to-use ejector plate unloading technology. A tilt-unloading feature ensures liquids in the debris tank are cleared quickly and efficiently even when unloading in an up-slope/nose-down position. Options include the Acculevel load sensor system for precise debris tank level measurement. 800/837-9711; www.superproductsllc.com.

TORNADO GLOBAL HYDROVACS F3 FCO

The **F3 ECO** from **Tornado Global Hydrovacs** holds 12 cubic yards of mud and more than



1,700 gallons of freshwater. This unit is more than 4,000 pounds lighter than the company's older models, so an operator can carry up to 10,000 pounds more payload in the debris tank and reduce fuel consumption. The boom has a 342-degree rotation and a 26-foot reach. All critical components are housed in an insulated and heated aluminum van body. Because of its curved, sloped floor, operators do not need to hoist the tank to empty it. 877/340-8141; www.tghl.ca.

CASE STUDY

HYDROEXCAVATOR PROVIDES SAFE AND EFFICIENT DIGGING IN MOBILE HOME COMMUNITY

Problem: A mobile home community in Lancaster County, Pennsylvania, had an undetected water leak under one of the mobile homes for over a year. "It was a challenge for the plumbing contractor to gain access underneath the mobile home for the repair," says Ryan Frank, of Ecotech Hydro Exca-



vation. To hand-dig would have been time-consuming and extremely challenging because of the excessive amount of mud and water. Due to how the water shut-off was set up in the community, over half of the homes would be without water during the time of the repair, so speed and efficiency was a factor.

Solution: Ecotech crews responded with one of their **GapVax HV-55** hydroexcavators. The truck was set up 50 feet away from the mobile home. Using the remote hose, the crew quickly removed the slurry and provided 8 feet of benched trench to allow the plumbers safe access to do the repair.

Result: Ecotech was able to complete the job safely, efficiently and with no additional property damage. **888/442-7829**; www.gapvax.com.

TRANSWAY SYSTEMS TERRA-VEX HV38

The **Terra-Vex HV38** from **Transway Systems** has a 12-yard debris tank with onboard scales, allowing the operator to load the tank worry-free with extra capacity



for lighter loads, saving time and money. It has a simple one-touch-operated hydraulic half-door with a 3,800 cfm 27-inch Hg hydraulically driven blower with an 8-inch telescopic boom extending to 26 feet. Water pressure is achieved with a hydraulically driven triplex pump, delivering 10 gpm at 3,600 psi from a 700-gallon HDPE baffled water tank. Water is heated with a 420,000 Btu dieselfired burner for cold weather operation. The blower and water systems are enclosed in an insulated and heated acoustical enclosure with thermostat-controlled heater, with no winterization required. Many options are available for equipment and chassis specs. 905/578-1000; www.transwaysystems.com.



VAC-CON XXCAVATOR

The Vac-Con XXcavator is a safe, durable, easy-to-operate machine that can be provided in several different configurations depending on customer

requirements. Its two powerful PD blower units make excavating easy work, pulling material over extreme distances. Front- or rear-facing booms offer long reaches. The optional Powerflex boom uses an articulating elbow that allows the operator to use it much like a backhoe. It has standard storage for all tools necessary to perform the job. Debris-tank capacities range from 3.5 to 16 cubic yards, and water systems offer 20 gpm and 4,000 psi for digging in any soil type. 904/284-4200; www.vac-con.com.

HYDROEXCAVATORS

VACALL ALLEXCAVATE

Vacall AllExcavate hydroexcavators include AllSmartFlow smart controls that conserve water during high-performance jet/vac digging around utilities and waterlines or cleaning frac tanks and



vessels. Single-engine efficiency helps conserve fuel and reduce emissions. It has a high-pressure water system with rheostat control to vary water volume and capacity output. A heated compartment enclosing the water system protects components from freezing. Its water tanks are made of high-quality aluminum for extra strength. Large, galvanized steel debris tanks are also available. A single control is used to open, close and lock the tailgate. It has double-cyclone filtration with a simplified design to reduce maintenance, extend performance and increase working life. Its rear-mounted boom front-loads debris. It is available with a cold weather package. **800/382-8302; www.vacall.com.**



VACTOR MANUFACTURING HXX PARADIGM

The **HXX ParaDIGm** vacuum excavator from **Vactor Manufacturing** is designed for utility, municipal and contractor customers involved in the installation,

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

WESTECH VAC SYSTEMS WOLF

The Wolf noncode certified hydroexcavator from Westech Vac Systems has a debris body optimally positioned on the chassis to ensure the payload is proportionately dis-



tributed across all axles simultaneously, maximizing legal payload and improving operational efficiency. Side-mounted water tanks reduce weight by more than 40 percent, lowering the 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 fast and efficient off-loading. To help the off-loading process, a heavy-duty, hydraulically powered tank vibrator is mounted to the belly of the debris body. **780/955-3030; www.westechvac.com.**

HYDROEXCAVATION/AIR EXCAVATION TOOLS



DITCH WITCH AIR SABER

Rated for operation at 250 psi, the **Ditch Witch Air Saber** empowers operators to dig faster and more efficiently on a variety of utility installation projects. Its innovative design increases airflow for users while maintaining safe operation. A spring-lock, quick-connection system prevents the air hose from inadvertent separa-

tion, supporting project safety, while the body is constructed from nonconductive material, also improving operator safety. The ergonomic, full-hand squeeze trigger is comfortable and easy to use. It is compatible with the FXT Air Series along with other air excavator models on the market. 800/654-6481; www.ditchwitch.com.

FOREMOST RAPTORLOCK

The **Raptorlock** system from **Foremost** is designed to make operation of a vacuum truck safer and more efficient. It allows easier opera-

tion of the hydrovac and provides a safer and faster method of emptying the debris tank. The system consists of three key com-



ponents — a debris tank certified to be pressured to 10 psi, hydraulic

to be pressured to 10 psi, hydraulic components that allow the tank to be pressured up and the rear door to be locked remotely, and a fail-safe hydraulically actuated lock arrangement to secure the rear door. This technology is available to hydrovac owners and operators incorporating Rival Hydrovacs in their fleets, and will soon be available for other Foremost vacuum trucks. 403/295-5800; www.foremost.ca.

HOWDEN ROOTS 827 DVJ WHISPAIR

Roots 827 DVJ Whispair dry vacuum exhausters from Howden Roots eliminate the problems associated with high temperatures at vacuum levels beyond 16 inches Hg. They can be arranged to operate in two- and three-stage systems to achieve vac-

uum levels down to 1 torr. Their heavy-duty design is suited for V-belt or direct-drive applications with integral-

shaft ductile iron impellers. The casing, headplates, gear cover and drive end cover are gray iron. Carburized and ground alloy steel spur timing gears are taper-mounted on the shafts, secured with a locknut. Cylindrical roller bearings are splash lubricated at both the gear and opposite gear ends of the unit. Piston rings reduce air leakage through the headplate bores, and lip-type oil seals prevent lubricants from entering the air chamber. Rugged steel mounting feet permit in-field adaptability to either vertical or horizontal installation requirements. **800/557-6687; www.howdenroots.com.**

(continued)





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HYDROEXCAVATION/AIR EXCAVATION TOOLS

HYDRA-FLEX SWITCHBLADE

The **Switchblade** static, 0-degree nozzle from **Hydra-Flex** has the impingement and stream quality to allow operators to dig fast and use less water for greater efficiency. Designed for durability, the heavy-duty, high-impact nozzle operates at up to 3,200 psi and is constructed with stainless steel housings and

tungsten carbide wear surfaces. The nonconductive urethane coating on the body extends nozzle life, while protecting the safety of the user and sensitive underground assets. A range of flow rates and spray patterns are available for applications such as potholing and trenching. 952/808-3640; www.hydraflexinc.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. Its circular water jet motion generates tremendous power at modest gpm rates, allowing the operator

to move faster whether hydroexcavating, surface cleaning or cleaning sewer lines. It can be used for other types of surface cleaning such as concrete, steel, castings and large surface areas including line removal from runways. It can be modified for internal pipe cleaning of sewers and pipes of all types. An orbital design increases performance at a lower gpm rate and pressures as high as 36,250 psi. **866/620-5915**; www.nozzteq.com.

PRESSURE LIFT POWER BOOSTER

The **Power Booster** from **Pressure Lift** comes with a male camlock fitting on each end to provide versatility. It can be used as a single tool or inverted for stirring thick, viscous materials, putting them



back into suspension. It can also be used in series for difficult long-hose jobs with or without high vertical lifts. As a single unit, when hooked up properly it has the ability to pump a column of fluid over 300 feet vertically. Units undergo rigorous testing to meet published engineering standards to confirm operational capabilities. **866/504-6596**; www.pressurelift.com.

SOIL SURGEON

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.**



SUTTNER AMERICA TURBO NOZZLE

Turbo nozzles from **Suttner America** are available with 1/2-inch inlets. They are made of high-quality, durable brass to withstand harsh environments. The 1/2-inch inlet eliminates the need for additional fittings

and decreases the possibility of leaking. The stainless steel version provides improved materials (tungsten carbide seat and PEEK rotor) which extends the life of the nozzle. They offer flow ratings up to 40 gpm and pressure ratings up to 8,700 psi. Repair kits and protective covers are available. 800/831-0660; www.suttner.com.

JET/VAC COMBO UNITS

SUPERVAC 2000 TRITON

The **Triton** combination sewer cleaner from **Supervac 2000** has a water recycling system

that uses a Juggler filter to allow con-



tinuous work without downtime for water filling. It filters water collected in the debris tank and transfers it to a water reservoir used by the Pratissoli water pump. It comes with a 2,500-gallon debris tank with stainless steel liner and vibrator, 1,500-gallon water tank, hydraulic boom and dump, and a full-opening rear door. Vacuum is provided by a 3,800 cfm at 27 inches Hg Robuschi blower, while jetting power is provided by an 80 gpm, 2,500 psi Pratissoli water pump. The rear door-mounted hydraulic hose reel holds 600 feet of 1-inch hose. **866/839-5702; www.supervac2000.com.**



VAC-TRON EQUIPMENT MINI COMBO SERIES

The Vac-Tron Equipment Mini Combo Series combines high cfm vacuum

with jetter capabilities. Its Cat jetter pump is rated at 2,000 psi at 15 gpm, and can be used to clean lateral lines up to 12 inches in diameter. It comes with 300 feet of 1/2-inch jetter hose with an electric hose reel. Options include a hydraulic boom or strong arm to maximize job performance by helping to reduce work fatigue that can sometimes occur from using a manually controlled vacuum hose. It is available mounted either on a trailer or truck. 888/822-8766; www.vactron.com.

(continued)



The WWETT Show - Water & Wastewater, Equipment,

The WWETT Show - Water & Wastewater, Equipment, Treatment & Transport - is the world's largest annual trade show for wastewater and environmental services professionals. With 600 exhibiting companies, 110 conference sessions, and a schedule of great events, the WWETT Show provides value to professionals from every facet of our field.









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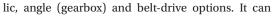
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VACUUM PUMPS

FRUITLAND MANUFACTURING RCF870

The RCF870 vacuum pump from Fruitland Manufacturing is available in clockwise and counterclockwise rotation with top- and side-mount four-way valve locations. The pump is available with hydraulic angle (georphox) and helt drive entions



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 air-cooled with an available air injection cooling system (VACS) for continuous duty at higher vacuum. It includes an integral oil reservoir with low-consumption oil pump, an integral final filter and vane-wear test ports. 800/663-9003; www.fruitlandmanufacturing.com.



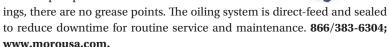
The **Titan** vacuum/pressure pump from **Masport** has a washable stainless steel inlet filter for long filter life, integral mounting bosses for alignment with the gearbox and hydraulic mount, an automatic adjustment-free mechanical oil pump, and heat-stabilized Kevlar vanes machined to exacting tolerances. It can achieve a mini-

mum of 27 inches Hg and is fan-cooled for higher

continuous vacuum operations. It has heavy-duty bearings, Viton oil seals, vane-wear inspection ports and durable translucent high-temperature oil lines that allow visible flow of oil to the pump. End thrust protection prevents rotor-to-end-cover contact created by direct PTO drive or misaligned belt-driven systems. It comes with 3-inch NPT bolt-on valve flanges for ease of installation, a 1/4-inch NPT vane flush port, integral vacuum relief valve, an integral valve that allows the pump to operate in vacuum and pressure mode and reduces plumbing and installation costs, and O-ring end covers that eliminate air or oil leakages. **800/228-4510**; www.masportpump.com.

MORO PM80W

The Moro PM80W water-cooled vacuum pump is designed and built for low maintenance, long life and trouble-free service in tough industrial applications. 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 extends pump life. With sealed or oiled bear-





The **753 Series** vacuum pump from **Wallenstein Vacuum Pumps** 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.

VACUUM TRUCKS/TANKS/TRAILERS

AMTHOR MATADOR

The 4,000-gallon aluminum **Matador** code or non-code 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, including numerous stock tanks and chassis. 800/328-6633; www.amthorinternational.com.

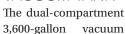


IMPERIAL INDUSTRIES MRK

The MRK aluminum tank series from Imperial Industries is offered in stock units of 6,000-, 6,300- and 7,500-gallon aluminum trailer units. The vacuum-style trailer unit is available with vacuum pumps or blowers mounted off the driver's side or a pump rack off the bottom of the trailer unit. It includes a Ridewell suspension with Holland running gear, retractable ladder, 14-gallon secondary, 4-inch air line, 20-inch rear manway and an optional OSHA handrail. Trailer units are in stock and can also be built to custom specifications. 800/558-2945; www.imperialind.com.

VACUUM TRUCKS/TANKS/TRAILERS

PIK RITE DUAL-COMPARTMENT 3,600-GALLON VACUUM TANK





tank from **Pik Rite** provides capacity for 150 gallons of freshwater and 3,450 gallons of waste. Vacuum is provided by a National Vacuum Equipment 4310 blower. Three sight eyes provide level indication for the waste compartment and a clear 3/4-inch sight hose indicates the level of freshwater. The hoisted tank has walk-through baffles and a 36-inch rear manway for easy clean-out. The LED running light kit is installed with a fully molded wire harness. Operator work lights and a strobe light are mounted on the top-rear lighting bracket. Polished aluminum hose trays, the tank sides and the low hose hooks are coated with protective super liner. A 20 gpm electric washdown pump and hose reel is mounted inside the passenger-side toolbox. **800/326-9763**; www.pikrite.com.



VACUTRUX LIMITED SEPTICTRUX

SepticTrux from **Vacutrux Limited** are available on chassis from 33,000 to 86,000 GVWR single axle, tandem or tri, with tank sizes from 1,800 to 5,400 gallons. Vacuum systems are powered by Wallenstein vacuum pumps. **800/305-4305**; www.vacutrux.com.

WATER PUMPS

MTH PUMPS REGENERATIVE TURBINE PUMPS

High-pressure, low-flow regenerative turbine pumps from **MTH Pumps** can pro-



duce as little as 5 psi up to 1,000 psi and anywhere from a 1/2 to 150 gpm. They are available in rugged cast construction iron, bronze, and stainless steel materials with a variety of sealing options. Horizontal and vertical models are available with a number of drive options including AC- and DC-volt motors or pedestal mountings. Every pump is tested before it leaves the facility. **630/552-4115**; www.mthpumps.com. ■



PRODUCT **NEWS**



Backyards can be difficult to reach with large vacuum trucks. In northern climates, road weight limits keep trucks off the road. That doesn't mean the jobs don't need to be done, though. Designed for smaller applications, the **Neptune** trailer-mounted combination machine solves those problems. The units are manufactured for **Vac-Con** by **Vector Technologies.**

"It's a great fit for your smaller contractors and even municipalities who don't need a big truck," says David Mitchell, president of Vector Technologies.

The unit can be used to flush and vacuum drainpipes, small-diameter sewer lines, lift stations and septic systems. It can be trailer- or skid-mounted and could be considered an entry-level unit for contractors considering service diversification.

"Because it offers 2,000 psi, you can even do some smaller hydroexcavation and potholing jobs," says Mitchell. "Plus, it's small and light enough at 9,100 pounds to be pulled with an F-250 pickup."

The Neptune is available with debris tank capacities up to 800 gallons, up to a 1,000 cfm vacuum system, a 4 gpm at 4,000 psi water system, plus another independently powered water system rated at 20 gpm at 2,000 psi. Essentially a mini-combination machine, the unit is available with up to 325 gallons of freshwater storage, optional reverse flow, hydraulically rotating and lifting extendable boom, and a range of tools, including a hydraulic valve exerciser. Standard features include a hydraulic opening and locking rear door.

"We feel it's a great fit for Vac-Con's product line because it fills a big need in the industry," says Mitchell. "The need for smaller, more efficient units continues to grow."

The unit's debris tank has a 55-degree dump angle for easy discharge, and the specifically designed trailer offers the stability for jetting operations. A Super Neptune option adds higher-performance vacuum systems up to 2,400 cfm for larger jetting jobs. Skids can be adapted to flatbed or roll-off (hook-lift) truck applications. **800/832-4010; www.vector-vacuums.com.**

FRANKLIN ELECTRIC PUMP SELECTOR SOFTWARE



The FE Select from Franklin Electric is an online tool that assists with product selection, configuration and quoting for water systems. It has basic application data such as flow and total dynamic head demands. Other features include a quick-price option for selecting submersible motors, drives and controls, and simple software navigation for quoting complete pump packages. 260/824-2900; www.franklinwater.com.

SATELLITE SUITES USAGE CALCULATOR APP

The Usage Calc app from Satellite Suites works with Satellite Suite restroom trailers to help determine the right-size trailer to place on site. It is available



in both the Apple and Google Play stores under the name Usage Calc. The app provides information on trailer sizes 6 by 10, 6 by 14, 8 by 20 and 6 by 10 International with the allowable number of uses based on the trailer tank size. To use, open the app, choose trailer size, and use the slide bar and buttons to determine the maximum number of uses. 574/350-2150; www.satelliterestroomtrailers.com.

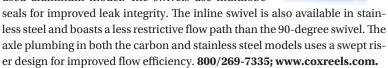


J&J Truck Bodies and Trailers stainless steel pressure vacuum tank has a 5,460-gallon capacity and is corrosion resistant. Tankers can be built in various configurations

with capacities ranging from 3,360 to 6,000 gallons and are outfitted with one-piece aluminum hose trays, anti-surge baffles, top and rear manways, and plug-and-play vacuum pumps. Options include toolboxes and onboard scales. 814/444-3400; www.jjbodies.com.

COXREELS NICKEL-PLATED STEEL INLINE SWIVEL

Spring-driven 1 1/4- and 1 1/2-inch SLPL models from COXREELS come with a nickel-plated steel inline swivel, which increases the pressure rating of the inline plumbing from 250 to 1,500 psi. The steel model is rugged and durable, and replaces the previously used aluminum model. The swivels use multilobe



ZOELLER 64 HD SERIES SOLIDS-HANDLING PUMP

The 64 HD Series pump from Zoeller Engineered Products is for commercial, municipal and industrial applications. Its motor is designed with finned castings for heat dissipation, and oil-filled housings and non-overloading windings enable the motor to maintain a low operating temperature in harsh

conditions. The pump is available in 25 to 60 bhp, with 4-and 6-inch discharge units, and 3 1/8- or 4-inch spherical passing capability. An inverter-duty motor is offered as an option. **800/298-7867**; www.zoellerengprod.com.

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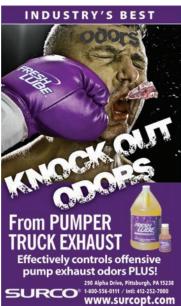
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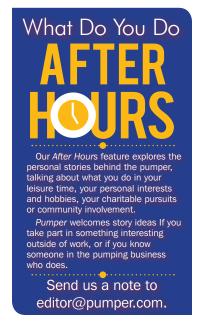














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INDUSTRY NEWS

NLB partners with Vac2Go

NLB Corp. announced that it has entered into an agreement with Vac-2Go. The reciprocal agreement will include Vac2Go's Louisville, Kentucky; Rock Hill, South Carolina; and Memphis, Tennessee locations featuring select NLB waterjetting units for rent and for long-term lease.

Reelcraft to join Madison Industries

Reelcraft will be acquired by Chicago-based Madison Industries, subject to regulatory approval. Customers will keep current sales representatives and source products through existing channels and points of contact.

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BUSINESSES

Septic pumping and service business in western WI. Two trucks, spare pumps, tools, parts, hoses, etc. \$75,000. Call Steve at 715-491-3828 for more information. (P10)

FOR SALE: 70-year established portable toilet business in Lubbock, TX area. (3) service trucks, portajohns, handicap units, holding tanks, hand sinks, mobile RV unit and trailers. With 70 years of large customer base. Only serious buyers need to inquire. PRICE NEGOTIABLE For more information call Lee or Dale 806-762-1066. (P09)

Eastern Massachusetts pumping, dumpster and excavation (Title V) business for sale. Large customer base and excellent reputation. 2014 3,500-gallon Mack pump truck. Call 413-531-2302 for inquiries. (P10)

East Texas grease trap/septic cleaning business for sale. Established 2007. Includes equipment, truck, disposal setup, clients. \$30,000. Call 903-701-0813, leave message. (P09)

Portable restroom equipment & accounts for sale. Septic & portable restroom company in Southwest Florida is looking to sell off portable restroom equipment and accounts. 5 service trucks, 8-unit toilet hauler, state & county contracts in place. Approximately 700 units currently in the field with long-term customer base. For more information call 941-270-0539. (P10)

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Septic business for sale, New York watershed. Includes trucks and equipment. 20+ years with same phone number. \$250,000. hacksaw12481@gmail.com (P09)

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P09

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Retired: Selling (3) 2013 F-550 pumper trucks, 1,100w/400f,(3) blue PJ3 portable toilets with sinks, (8) wash sinks for inside portable toilets. (61) 300-gallon holding tanks. small trailers to haul portable restrooms and parts to accommodate all of above. Call 956-844-4100. Located in Edinburg, TX.

2005 Ford F450, diesel, 5-speed manual transmission, split tank-500 waste/300 fresh. New paint all around, nice truck. \$18,500. Call/text 712-433-1662. (P09)



1999 International 4700 LP pumper, holds 500 gallons wastewater and 250 gallons freshwater. \$10,000

> Call 724-947-9008 P09



2004 Ford F750 CAT, Allison, aluminum 500 fresh/1,500 waste, Berks DC10, Masport. Dealer replaced motor at 118k. 345,000 miles. \$29,500. Also have 2005 International 4300, DT466, fresh motor, Allison, 400/1,000. \$26,500

> Cory@portabowlinc.com 215-416-3005, PA

PRM



2003 GMC: 240,000 miles. Steel tank has a 600-gallon waste capacity and 300-gallon water capacity. Call with any questions. \$19,000

> 518-622-3353, NY P09



Two (2) 4-Wheel Drive Ford F550s for sale. \$29,500 each. 2013 with 178,000 miles and 2012 with 182,000 miles. Both aluminum tanks have a 900-gallon waste capacity and 300-gallon water capacity. Call with any questions.

518-622-3353, NY



2009 Dodge 5500: 6.7 Cummins diesel, automatic transmission, 4x4. New aluminum vacuum tank, 700w/260f, Masport pump. Honda engine.

www.pumpertrucksales.com Call JR @ 720-253-8014, CO PBM



1996 International 4700 LP, holds 500 gallons wastewater and 250 gallons freshwater. \$10,000

Call 724-947-9008

1999 Ford F450, 7.3 diesel, 124,000 miles, 315-gallon freshwater and 400-gallon waste tanks. Porta-pot carrier on back. \$12,995. Call/text 712-433-1662

2004 Kenworth with 1,800-gallon Keith Huber tank. Service both sides, truck in good shape. 315,000 miles. Photos available. \$35,000. patrick@moorecans.com 817-(P09) 568-2333

2006 International 4400: 239,700 miles. fresh motor, new 1,200 waste/200 fresh, Conde 6 gas-powered pump. \$48,500. Crossville, TN. 931-260-4136

2014 International pump truck, Flow-Mark aluminum 1,850-gallon tank, 62,000 miles, \$85,000; 2007 International 4300 1,350-gallon, 265,000 miles, \$37,500. 256-757-9900 or www.pbsos.com

2005 Chevy Kodiak 4500: Duramax diesel, auto., 4x4, 13-ft flatbed, 52,000 miles. Likenew. Vacuum tank & pump can be added for additional cost. www.pumpertrucksales. com, Call JR. @ 720-253-8014, CO. (PBM)

PORTABLE SHOWER TRAILERS

Attention large outdoor events promoters and seasonal campgrounds requiring showers, sinks and hot water availability: FOR SALE: Two (2) 40-ft. shower containers. 14 shower heads per container, handicap accessible. Trailer and accessories included. For pictures go to www.candsshowers.com. 712-428-6143 or cell 712-880-1250. (PBM)

2005 Wells Cargo Elite 3-stall shower trailer for sale. Excellent shape. For more information, call 601-441-1642. (P09)

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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@gapvax.com or 575 Central Avenue, Johnstown, PA 15902. (PBM)

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Industrial Pressure Washer - New w/warranty \$9,500. 2,000psi, 18gpm. 999cc Kohler & AR pump. Will deliver. 321-800-5763

Honda horizontal GX engines, new in-the-box w/warranty. GX200QX - \$399; GX270QAG -\$579: GX390QA - \$599 delivered price, 800-363-9855 or GXParts.com

PUMPS



Hammelmann HDP500 high-pressure pump. 20,000 psi (1379 bar), 43 gpm (162.7 lpm). Two (2) units available. Call for pricing.

> **Waterblasting Technologies** 772-214-1714. FL P09

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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. (PBM) KLM Companies 617-909-9044

SEPTIC TRUCKS



2008 Kenworth Paccar PX-8, 66,000 miles, air ride, 10-speed transmission, new tires, 90-barrel stainless steel tank. 4310 vacuum pump. National Vacuum Equipment, NVE blower pkg, 5,600 hrs., heated valves, digital tank level reader. \$68,000 FIRM

678-898-2928, GA



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. \$38,500

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



2012 International 4300DT: 230hp. auto, Under CDL, New 1.850-gallon steel vacuum tank, new Masport pump.

> www.pumpertrucksales.com Call JR @ 720-253-8014. CO PBM



2015 International, 450hp, Cummins, 134k miles, 10-speed, a/c, cruise, jake. All new: 3,500-gallon tank, stainless steel hose trays, Jurop PN155R (liquidcooled) vacuum pump (538cfm), paint, tires and aluminum wheels. ... \$89,000

740-259-5555. OH



2007 GMC 7500 pumper truck, low mileage. 2,100 gallons, CAT-C7 with 65,000 miles, Allison automatic transmission. One owner/operator, all maintenance records available. All equipment and 140 ft. of hose included. Asking \$90,000

Call Jim 908-295-2392, NJ P09



2016 Peterbilt PB348: 3,000-gallon vacuum tank, Keith Huber Dominator Series III vacuum unit, Less than 4,000 miles. \$150,000

> **Call Sandy or Jack** 681-207-3079, WV

PN9



2005 Volvo VHD-64-T guad axle, D-12, 435/465hp, low miles, HD4560 6-speed auto. New 6,000-gallon septic tank, 18k/46k on Hendrickson air-ride. (2) new steerable pusher axles. Stock# 4769B.

> **Prairie Truck & Auto Sales** 608-842-3040. WI sales@ptatrucks.com



2007 International 4400: Automatic Allison transmission, 3,300-gallon tank. Truck and vacuum pump in good running condition, 325,000 miles, \$52,500 or will consider reasonable offer. Truck is in Sterlington, LA.

318-953-0914



1998 Mack TR600: 427hp Mack motor, Eaton 10-speed transmission. New 3,600-gallon tank (never been used), 500cfm Fruitland pump. \$45,000

763-213-8235



2005 Kenworth T-800: C-13 motor, 10-speed, 185k miles. Transway 1200 pump, 4,000-gallon tank, full hoist, full rear-opening door and shaker. 24.5 tires. In good shape, ready to work,\$75,000 OBO

802-658-6243, VT

2006 Freightliner M2: 2,800-gallon aluminum tank, C7, 245hp, 6-speed. New tires and brakes, Jurop vacuum pump. Ready to work w/100' of hose. Pictures available. James 713-992-0916 (P09)

1999 International 8100, M-11 Cummins, Twin-screw, air-bag suspension. 2,683-gal-Ion Imperial tank, Masport HXL400 pump. 3-stage hydro-hoist, 3 ft. hydro-manhole on back. Excellent condition. \$32,995. Call/text 712-433-1662

2004 Mack TM600 with 3.500-gallon Pik-Rite steel tank, Moro pump, lift axle, 236,000 miles. Working daily. \$45,000. Gene 410-294-9520



2007 Sterling Acterra with a brandnew 2,450-gallon steel tank. Brandnew PTO, and brand-new Jurop pump. Only 180,000 miles. Allison automatic. Backup camera, work lights, cold a/c, pre-emissions. Fully turnkey truck. Located in Central Arkansas. \$46,000. Call/text for more pictures:

Caleb 281-914-1192

790-0096

2012 International automatic. \$39,000. Ace Septic 804-790-0096

> **Call Tim Porter** 804-640-3606, VA

P09

P09



2000 International 4900, 210hp DT466, 6-speed Eaton Fuller, 2,100-gallon tank. Tank is in excellent condition. Good tires, runs great, very little rust. 462,000 miles, rebuilt engine - only 73,000 miles. Excellent starter or backup truck. \$15,000 OBO

> 814-590-0513, PA P09

1998 GMC 7500: 2,500-gallon, 6-speed, 256,000 miles. Good condition. Cash talks, let's deal. \$36,500. NW Florida. Email for photos dvwillson@outlook.com: 850-653-9406

2002 Peterbilt 330: 130,00 original miles, new 3,400-gallon tank just installed, Wittig pump. Truck ready to go. \$65,000. Call 781-864-3230 (P09)

2005 Kenworth T300: 2,000-gallon steel tank. Tank and pump are 1-year old. 215k miles, Manual, CAT 3126. We are getting out of the business. All hoses and tools included. \$51,000, Located in central Arkansas, 281-914-1192. Buy the business for \$65,000 or just the truck for \$51,000. (P09)

SEPTIC TRUCKS



2011 Kenworth T800: CAT C-13 AC-ERT engine with 430hp and 10-speed transmission. Power windows, cold a/c and everything works as it should. It runs and drives like a new truck. 2 brand new batteries installed last week, new starter, remanufactured water pump. Steers 90%, drives 60-70%. 2017 3,200/300 vacuum/freshwater tank with all new components. NVE Challenger 607 pump, 14apm sewer jetter in enclosed toolbox bay. Truck has heated valves, with a 4" suction and a 6" dump valve. This deal comes with 133' of vacuum hose and 250' of jetter line. Ready to go to work. Price is negotiable. \$120,000 OBO

765-230-7049, IN



2005 Peterbilt 379: 5,000-gallon Abernethy vac body, NVE max pack pump. Body and pump system is a 2013. New tires, all LED lighting, chrome everywhere. Factory heavy-spec axle truck including drop axles. See-level indicator, heavy hitch, heated valves. .. \$108,000

706-252-4743, GA P10



802-658-6243, VT

P09

1999 International 9100 septic/grease pump truck for sale. 2,500 gallons. Cummins ISM280. 550,000 miles. Great truck! \$25,000. Email portaproseptic@gmail.com; View photos: https://www.facebook.com/portapro.septic (P09)



1988 Kenworth pumper: LTA10 Cummins, Jurop R260 pump. Holds 4,000 gallons wastewater. \$22,500

Call 724-947-9008

P09



1996 International, 775,350 miles, new NVE 866 pump, 4,000-gallon tank (2002).\$25,000 OBO

401-688-0043, RI



Turn-Key Vacuum Tank Units: 3,600-gallon, 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
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2001 International 4900: DT466E, 6+1 transmission, 33,000 GVW, 2,500-gallon tank, HXLW20V pump. Works daily, asking \$19,000. Call 740-525-1726. (P09)

1995 Ford F800: 8.3 Cummins, 6-speed, 254k miles. NVE pump, 2,200-gallon tank. \$15,500. Serious inquiries only please. 951-830-4840 (P09)

1989 GMC 7000 pumper, 1,550-gallon tank. 5-speed transmission, high & low rear end. 208,381 miles. 28,000 GVW. Asking \$10,000 OBO. For more info call 219-462-5849. (P09)

2000 Freightliner: Detriot 60, Eaton-Fuller 10-speed, 3,100 gallons, new tires. Ready to work w/100' of hose. Pictures upon request. James 713-992-0916 (P09)



Call Tim 800-672-3402, NH P09



Call Rick 541-910-3458

1996 Freightliner M11: 330hp, 3,500-gallon tank. New tires, new wheels, less than 600,000 miles. Great truck. Asking \$24,500. Call John 937-926-1482. Springfield, OH (P10)

2012 International 7500: MaxxForce 350hp, Allison automatic transmission, pusher axle. 4,300 US gallon steel tank, NVE 500cfm pump, Transway system. 3" suction, 4" discharge valves. Side-mount toolbox, work tray in back, 72,000 original miles. \$105,000. Call 860-628-7355. (P09)

2011 International 4300: 230hp, diesel, auto. Under CDL. New 1,850-gallon steel vacuum tank, new Masport pump. www. pumpertrucksales.com. Call JR. @ 720-253-8014, CO. (PBM)

Pre-owned 3,000 U.S. gallon, carbon-steel vacuum tank with a Masport H75W vacuum-pressure pump installed on a 2000 Mack CH613 cab and chassis. (Stock# 8498C) www.VacuumSalesInc.com (888) VAC-UNIT (822-8648) (PBM)

2018 Peterbilt 348 with a new 4,000-gallon aluminum vacuum tank with Masport HX-L400wv pump and jet unit. (Stock# 13725) www.VacuumSalesInc.com (888) VAC-UNIT (822-8648) (PBM)

2005 Peterbilt 335 with 2,500-gallon, carbon-steel vacuum tank and Fruitland RCF500 vacuum pump package. (Stock# 8481C) www.VacuumSalesInc.com (888) VAC-UNIT (822-8648) (PBM)

1982 International with a Presvac 2,300-gallon carbon-steel tank and Masport pump. (Stock# 5532V) 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) (PBM)

2016 Peterbilt PB348 Keith Huber 3,000-gallon Dominator Series III vacuum unit. Only 3,933 miles. \$150,000. Call 239-849-0363 Ask for Jack or Sandy. (P10)

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> Call 269-751-5167, MI PBM

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Septic pumper and vacuum die-cast toy trucks: In your choice of colors and logos, several cabs available. Call 877-450-2100. write to Granite State Collectibles. PO Box 440, New Ipswich, NH 03071; or www. granitestatecollectibles.com.

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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

2011 Southern Vac steel vacuum/tanker trailer w/cat walk. 6.000-gallon. Good condition. \$9,000 OBO. Call/text 330-442-8070. (P09)

TRUCKS - MISC.



2004 International 4300 potable water truck with 2,000-gallon potable water tank, Good tires, A/T, Super clean, completely rebuilt engine.\$35,000

Call 601-297-7317



1999 International, 1.500-gallon tank. Truck is in great shape. Battioni pump is strong. \$21,500 OBO

Shannon 828-361-3390, NC P09

2008 Ford F750 for sale: 1.500/500 tank. 190.000 miles, \$40.000, Located in Orlando. FL. Email powerstip@aol.com for pics. (P09)

TV INSPECTION

WANTED: Grout trailer unit. Prefer Telespector unit. Must be in good condition. Call Jerry 813-677-7655 or e-mail jerrybaes@aol.com. (P09)

CUES Pipe Inspection unit with 16' box. 2008 Ford E450 with only 36,000 miles, V8 diesel, roof/dash a/c, 7.5kw Genset, Jenny compressor. ProData 2000. local gov't retired, Tampa FL. \$39,999. 813-877-6638 or www.shumatetruckcenter.com

VACUUM EQUIPMENT



2003 Keith Huber custom-built portable tank cleaning vac unit. 2,000-gallon, rear hydraulic-opening hatch, powered by 60hp diesel John Deer engine. 100hp hydraulic pump, 2 Becker rotary vane pressure/vac pumps. Both pumps can be brought online together to produce 800cfm @ 26Hq. Suitable for marine and sensitive environments. Clean. only 73 hours on machine, works as designed. Truck/Rail/Marine. \$55,000

360-468-4683 or 360-293-4300 ask for Chuck, WA

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2014 Freightliner 114SD with a Vacall AVRB-18 industial vacuum loader. (Stock# 9116C) www.VacuumSalesInc.com (888) VAC-UNIT (822-8648) (PBM)



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, \$79,500 OBO, Also available 1997 Ford Guzzler vacuum excavator same features as 1999 International. No washdown system. \$79,500 OBO.

617-212-0162, MA

P09

2009 Sterling LT9500 with a Vacall AVRB-18 industrial vacuum loader. (Stock# 4792C) www.VacuumSalesInc.com (888) VAC-UNIT (822-8648) (PBM)

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We are looking to purchase used equipment, such as portable toilets, half-high toilets. and restroom trailers. Please contact Lance at 561-346-9296 or lance@redtoilets.com

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Dual cabinets LED lighting

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