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FINDING A HOME

North Dakota oilfield contractors turn to pumping and portable restrooms for a more consistent revenue stream **PAGE 38**

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New York's Zuech's Environmental Services invests in equipment and education to meet broadening customer demands **PAGE 20**



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38 Finding a Home

- Dee Goerge

Two young business partners serving North Dakota's oilfield industry turned to pumping and portable sanitation and found consistent revenue and greater satisfaction.

ON THE COVER: Two young entrepreneurs in North Dakota's oilfield industry teamed up to take on A-1 Evans Septic Tank Service and carry on a tradition for quality wastewater service. New owners Cole Ritter, left, and Reid Hanson are shown with their 2014 Peterbilt vacuum truck build out by Imperial Industries and running a Masport pump. (Photo by Kyle Martin)

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While it can be time-consuming and it seems like you're repeating yourself all day long, constant customer education is the only way to keep foreign objects out of the septic tank.

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Published monthly by



COLE publishing

COLE Publishing Inc.
1720 Maple Lake Dam Rd.
PO Box 220
Three Lakes, WI 54562

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In U.S. or Canada call toll-free 800-257-7222. Elsewhere call 715-546-3346.

Email: info@pumper.com • Website: www.pumper.com

Fax: 715-546-3786

Office hours 7:30 a.m.-5:00 p.m. Central Time, Monday - Friday

SUBSCRIPTION INFORMATION: A one-year (12 issue) subscription to *Pumper* in the United States, Canada and Mexico is free to qualified subscribers. Subscriptions to all other foreign countries cost \$150 per year (\$290 for two years). Subscribers are guaranteed monthly delivery of the magazine. To subscribe please visit pumper.com or send company name, mailing address, phone number and check or money order (U.S. funds payable to COLE Publishing Inc.) to the address above. MasterCard, VISA, Discover and American Express are also accepted. Supply credit card information with your subscription order.

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CIRCULATION: 2017 circulation averaged 23,102 copies per month. This figure includes all circulation regions (nationwide) and international distribution.

REPRINTS AND BACK ISSUES: Visit www.pumper.com/order/reprints for options and pricing. To order reprints, call Jeff Lane at 800-257-7222 (715-546-3346) or email jeff.lane@colepublishing.com. To order back issues, call Nicole at 800-257-7222 (715-546-3346) or email nicole.labeau@colepublishing.com.

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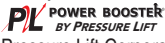

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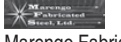

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Contact Jim with your comments, questions and opinions at editor@pumper.com.

It's Time to Talk About the No-Flush List Again

While it can be time-consuming and it seems like you're repeating yourself all day long, constant customer education is the only way to keep foreign objects out of the septic tank **By Jim Kneiszel, Editor**

How often is too often to cover the basics of septic system care with customers? Specifically what can and can't be flushed down the toilet? You can't review these recommendations too much.

As you prepare for the busy season ahead, it would be a good idea to create a new list of tips for homeowners. It could be a simple list printed out on a sheet of paper, added to the back of your business cards, included on your company website or fashioned into a brochure you hand out to all potential customers.

And when you put together this list, don't assume your customers know a lot about proper septic system care. Start with the premise that they might be dumping anything down the toilet or sink drain. Disregard all the most basic, commonsense advice you've ever heard or shared before. Consider your customer an empty vessel that needs to be filled with tips of the trade.

That's just what plumbing company Southern Trust Home Services did for a recent press release to inform the general public about clogs in home wastewater systems. Company officials in Roanoke, Virginia, have learned what's most important in customer education: repeat, repeat, repeat.

When in doubt, throw it out. That's what the plumbing outfit says.

"We see it all the time," Southern Trust Home Services owner Ted Puzio says. "People flush lots of things down the toilet and don't think twice about the consequence until their toilet doesn't work anymore. We've found a lot of interesting items in clogged drains and think it's important to encourage people to be more careful with what they flush."

The following are the items on the Southern Trust Home Services no-flush list, along with their explanations:

- **Sanitary and baby wipes:** Unfortunately, the majority of these wipes say they're flushable on the package, but they're not. The fibers in the wipes are much thicker than those of toilet paper, so they don't break down the same way.

- **Anything cotton:** Just like sanitary wipes, cotton does not break down enough to make it through the pipes. Eventually, it gets stuck in a pipe turn and causes a backup.

- **Paper towels:** It may seem OK to flush paper towels because they are of the same nature as toilet paper, but flushed paper towels are one of the leading causes of clogged pipes. They're made to be ultra-absorbent and, therefore, are considerably thicker than toilet paper, even when wet.

- **Cigarette butts:** Cigarettes are full of incredibly toxic chemicals that will seep into the water stream. If these are not completely filtered out, they could end up in the water supply.

- **Adhesive bandages:** They're made from nonbiodegradable plastic,

There's a pretty substantial public relations campaign to stop the flow of so-called flushable wipes into both septic systems and municipal treatment plants. But the problem persists.

which is bad for the environment. Also, adhesive bandages can easily stick to pipes and cause issues.

- **Medications:** It may seem like flushing expired medication is the right thing to do, but since medicine contains any number of chemicals and toxins, it can be dangerous. These chemicals are made to kill bacteria, which can have extreme effects on local wildlife and ecosystems.

- **Dental floss:** Waxed or unwaxed, don't flush it. Not only is floss not biodegradable, but it can also tangle up with other debris and turn small clogs into big ones. If flushed into a septic tank, floss can wind itself around a motor and cause it to burn out.

- **Kitty litter:** It may not seem that bad since it's cat waste, but kitty litter is made of clay and sand, which will create major problems for plumbing.

- **Feminine hygiene products:** These products expand when they come in contact with liquid. This means, when flushed, they absorb more water and get stuck in the pipes.

- **Fats, oils and grease:** Flushing food waste is a bad idea that will lead to any number of plumbing problems. When hot, these products are in a liquid state, but once they cool, they congeal and build up on the sides of the pipes.

MORE ON WIPES

I could suggest some more items for the list. One would be the hair that collects at the bottom of shower drains, which could cause a similar tangled mess in pipes as dental floss. And how about cleaning solutions and bleach that can negatively impact the beneficial bacteria in a septic tank? Any product that contains a laundry list of chemicals is probably a bad idea, including many corrosive drain cleaners and clog removers that require the user to wear rubber gloves and protective goggles to apply. Mechanical means of addressing clogs are usually the best way to attack slow drains, whether it be with a snake or a water jet, depending on the situation.

I know many pumpers will simply tell homeowners that the only things

(continued)

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that should go down the toilet are human wastes and toilet paper. That's good, solid, and simple advice, but it's apparently not enough given the variety of trash pumpers tell me they continue to find in septic tanks. Homeowners, even myself on occasion, follow an impulse to drop something else down the drain without thinking first. I've caught myself almost tossing a ball of hair or a facial tissue in the toilet bowl. ... And I've worked in the wastewater industry for 15 years.

And we also have to continue to fight misinformation in the marketplace concerning "flushability" of commercial products. You know what I'm referring to. Those nasty wipes. The makers of these products are being sued, and there's a pretty substantial public relations campaign to stop the flow of so-called flushable wipes into both septic systems and municipal treatment plants. But the problem persists.

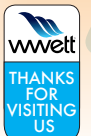
And it's serious enough that I know pumpers have started to apply a wipes surcharge to some customers who won't get with the program and keep filling their tanks with these problematic woven products. It's not out of sight, out of mind with wipes; they cause a pumping and disposal issue for pumpers, and treatment plants don't want to see clumps of wipes show up in your trucks.

PREACHING THE WORD

It's often said that common sense is not that common today. And that's the attitude you have to adopt when it comes to consumer education about septic system use. It's a brand-new year, and you have to approach each customer with an enthusiasm to share your knowledge and set them on the right path. This can be a huge challenge. ... But your efforts upfront will be rewarded with fewer emergency calls, fewer complaints from users, and less wipes and other foreign matter getting stuck in your hoses or filling up your vacuum tank. ■



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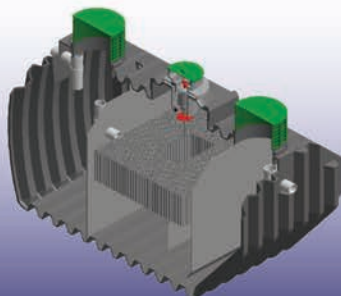


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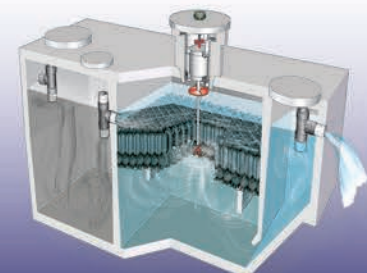


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AN INSTALLER'S GUIDE

wastewater pathogens

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humble beginnings

It's not always easy to know when it's the right time to start a septic pumping company. While business plans and careful market analysis are certainly good practices, pumpers don't always get their starts in such methodical ways. Whether you're buying out an employer, taking a chance on a new venture or slipping and falling into an industry you know nothing about, sometimes it helps to hear how other companies got started. pumper.com/featured



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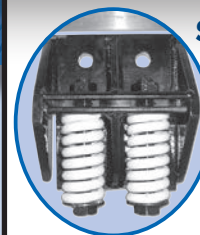
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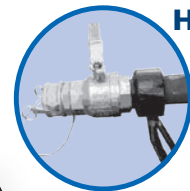
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Owners Vinnie Zuech (left) and Eric Zuech are shown with one of their trucks built out by Transway Systems. (Photos by Mark Webster)



READY FOR ANYTHING

When a customer comes calling with a request for a new type of service, New York's Zuech's Environmental Services invests in equipment and education to get the job done right **By Ken Wysocky**

Profile

What's in a name? Quite a bit in the case of Zuech's Environmental Services, based in Franklinville, New York — and formerly known as just Zuech's Septic Service.

That's what the late Fred Zuech named the company when he established it in 1955, and the straightforward, no-nonsense moniker served the company well for decades. But around 2005, Fritz Zuech — Fred Zuech's son, who bought the company in the late 1980s — changed the name to reflect the company's wider breadth of services, which had expanded well beyond just pumping septic tanks.

(continued)

Zuech's Environmental Services Inc.

Franklinville, New York



OWNERS: Eric and Vinnie Zuech

FOUNDED: 1955

EMPLOYEES: 8

SERVICES: Septic tank pumping; septic system installation, repairs, and maintenance; portable restroom rentals, drain cleaning, and drainline video inspections

SERVICE AREA: 50-mile radius around Franklinville

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The crew from Zuech Environmental Services includes (from left, front row) Rick Duncan, Moe Kurowski, and Kathy Colley; (back row) Harry MacElroy, Eric Zuech, Vinnie Zuech, Nick Terwilliger, and Jasin Dick.

Now Fritz Zuech's sons, Eric and Vinnie Zuech, are third-generation owners of the company. Pumping septic tanks still is a primary focal point for the business, accounting for about 60 percent of revenue. But the firm also installs, maintains, and repairs systems; rents and services portable restrooms; hauls sludge from local wastewater treatment plants; pumps out grease traps; and offers drain cleaning and pipeline inspection services, Eric Zuech explains.

"We're pretty much a one-stop shop for anything liquid-waste related," says Zuech, 42, of the company, which he and his brother bought from their father in 2016. That kind of service diversity keeps cash flow more consistent by offsetting reductions in seasonal-dependent revenue.

When portable restroom revenue slows, for example (the company has only about 70 units out during the middle of winter), septic pumping continues. So does grease trap pumping and hauling sludge. In addition, the acquisition of an enclosed, trailer-mounted water jetter, built by US Jetting, allows the company to clean clogged drain-lines in winter, as well as thaw frozen lines, Zuech adds.

"Three years ago, we were thawing three or four frozen laterals a day for about six weeks," he recalls. "That's what prompted us to buy a bigger, trailer-mounted machine. A lot of plumbers in our area don't have a jetter, so we get a lot of subcontracting work out of it, too."

“ Three years ago, we were thawing three or four frozen laterals a day for about six weeks. That's what prompted us to buy a bigger, trailer-mounted machine. A lot of plumbers in our area don't have a jetter. ”

ERIC ZUECH

(continued)

Good service is key to customer retention

There's a lot of competition for pumping septic tanks and renting portable restrooms in and around Franklinville, New York. As such, it's difficult to raise prices, says Eric Zuech of Zuech's Environmental Services.

"Our biggest challenge is pricing," he says. "Our septic pumping price has been the same for 10 years, and we're making less money on portable restrooms than we were 10 years ago. Yet equipment and paying good wages and benefits keeps getting more expensive. So we try to make it up on volume.

"My dad (Fritz Zuech) and I used to go back and forth on this issue," he continues. "It's always been my feeling that we should keep our price down (to compete) and do twice as much business. We have payroll to make. . . . Rather than have our guys standing around, I say let's put them to work."

Better customer service is the secret to customer retention, Zuech says, especially in an age where bad reviews on social media can damage a company's business prospects. "We have a method that works for the things we do," he notes. "All we can do is try to keep customers happy and charge a fair price."

Zuech also emphasizes to customers that his technicians will not do things like drive a truck onto their lawns; instead, they carry enough hose to pump out tanks from the side of a road — no driveways required. "And if we ever did make a mess of someone's lawn, we'd pay to fix it," he says. "That's huge." Technicians also go out of their way to educate customers about maintaining their systems.

In addition, the company retains customers through that old-fashioned, tried-but-true marketing staple: the reminder postcard. "It works fantastic," he notes. "We get about a 10 to 15 percent response rate."

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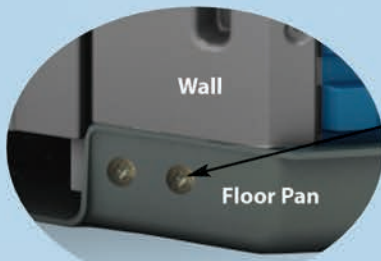
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The services complement each other and generate cross-business revenue. For example, when a technician doing routine pumping discovers that the system is failing, customers inevitably ask if the company does installations. “Probably 30 percent or so of our installations come directly from a pumping service call,” Zuech notes. “Or they perhaps have a clogged pipe that needs cleaning.”

STARTED OUT SMALL

Fred Zuech started out pumping septic tanks part time while working full time at a stamping plant operated by Ford. “He definitely was a self-made man,” Eric Zuech says. “He came to America from Italy when he was 16 years old, with just \$15 in his pocket.”

Eric Zuech worked for his father as a teenager, pumping tanks and delivering restrooms. He joined the company in 1996 after moving from North Carolina, where he worked as a drafter/construction field tech for a large corporation. “My dad expressed interest in getting a little extra help, especially with the restroom business, which had grown to between 175 and 200 units,” Zuech says. “At the time, I was working for a larger company and didn’t know how much room there was for career growth. Being out on my own sounded a little more intriguing, I guess. Plus, I missed the small-town feel of Franklinville.”

The company purchased four restrooms around 1987 in response to requests from customers. Today the company owns about 500 units, with about 20 percent of that growth coming from the acquisition of a competitor who also pumped septic tanks but wanted to divest the restroom end of the business.

“Our main business niche is larger special events,” Zuech explains, noting that the acquisition included all of the competitor’s accounts, including the Jam in the Valley, a large, annual country music festival held on

the Fourth of July. Zuech’s currently supplies about 275 restrooms for that event. The rest of the restroom revenue comes from construction and other monthly rentals, he says.

The firm started cleaning grease traps in the early 1990s. It’s a great complementary business, although the nearest disposal facilities for grease are in Jamestown and Buffalo, both about 50 to 60 miles away, which adds to maintenance and fuel costs, he says.

Grease customers range from casinos and fast-food restaurants to schools with cafeterias. One advantage of serving commercial customers: Repeat business is more frequent than getting a septic tank pumped every three years or so. “As long as we keep our customers happy, the work keeps coming back — you can rely on it,” Zuech says. “It’s a little more competitive, so the margins aren’t as good. But we make it up on volume.”

“It’s nice to be able to get three or four tanks cleaned on a route before you have to unload. The more volume you have, the more money you can make in a shorter period of time. We used to have 3,600-gallon trucks and I’d never go below 4,000 gallons these days.”

ERIC ZUECH

ADDING MORE SERVICES

In the early 2000s, Zuech steered the business into drainline cleaning and repair. A few years later, he started pushing to get the company more involved

(continued)



Above: Moe Kurowski, left, and Vinnie Zuech dig to locate a lid while serving a residential septic system.

Left: Vinnie Zuech runs hoses from a vacuum truck on a residential septic service job. The truck is from Transway Systems.



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Above, left: Technician Nick Terwilliger prepares to service a PolyJohn Enterprises restroom following an event at the American Legion grounds in Hinsdale, New York. **Above:** Vinnie Zuech loads PolyJohn Enterprises restrooms to take them back to the yard after an event at the local American Legion grounds. **Left:** Eric Zuech operates a Cat mini-excavator while installing a new system.

in septic system installations. “I was kind of bored with just pumping tanks and delivering restrooms,” he says. “It was getting monotonous, so I decided to change it up a little bit.”

The company used to do one or two installations a year but now averages between 30 and 35. “Most of those are replacements for older systems that are starting to fail. We even had to add an extra employee this year to handle all the installations,” Zuech explains.

Zuech says the company installs mostly concrete tanks made by Kistner Concrete Products and sand filter systems (65 to 70 percent). In residential yards with limited space, he sometimes uses alternative systems with Ecoflo (Premier Tech Aqua) coco filters.

To haul restrooms and equipment, the company uses two Dodge Ram pickup trucks — a 3500 and a 5500; the latter is outfitted with a utility body made by Bull Head Products. For installations, the company relies on a 2016 Cat mini-excavator, a 2015 Link-Belt 145 excavator (LBX) and a 2011 Case 320 track loader.

Most restrooms are from PolyJohn Enterprises and PolyPortables. To service restrooms, the company relies on a 2006 Freightliner M2 106 with a 1,500-gallon waste and 500-gallon freshwater aluminum tank built by Progress Tank; a 2010 Ram 5500 with a 550-gallon waste and 250-gallon fresh-

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water steel tank built by Crescent Tank; and a 2016 Ram 5500 with a 550-gallon waste and 250-gallon freshwater stainless steel tank fabricated in-house. All three trucks are equipped with Masport pumps. The company also is currently building a fourth restroom truck on a 2017 Ram 5500 featuring a 550-gallon waste and 250-gallon freshwater stainless steel tank with a Masport pump, Zuech says.

Zuech says the company aggressively encourages customers to install risers on their tanks for more convenient return visits. The company prefers to use 20- and 24-inch diameter risers made by TUF-TITE. "They've created a great little side business for us — about \$15,000 a year," he says.

BIG TRUCKS, BIG TANKS

On the septic side of the business, the company owns three vacuum trucks: a 2007 Freightliner M2 112, featuring a 4,000-gallon steel tank and pump (396 cfm) from Fruitland; a 2007 Kenworth T800 outfitted with a 4,600-gallon steel tank and a National Vacuum Equipment 500 cfm pump; and a 2012 Kenworth T800 equipped with a 4,300-gallon steel tank and National Vacuum Equipment blower (950 cfm). Transway Systems built all three tanks.

The company specs large vacuum tanks because most of its customers have 1,500-gallon septic tanks. "So it's nice to be able to get three or four tanks cleaned on a route before you have to unload," he says. "The more volume you have, the more money you can make in a shorter period of time. We used to have 3,600-gallon trucks, and I'd never go below 4,000 gallons these days."

For drain cleaning, the company relies on a trailer-mounted 4018 water jetter made by US Jetting (4,000 psi at 18 gpm); it's carried in a trailer made by Sundowner Trailer. The company also uses two RIDGID cable drain cleaning machines, a pipeline inspection camera system made by MyTana Mfg.; a locator made by General Pipe Cleaners; a Prototek sonde; and Warthog jetter nozzles made by StoneAge.

A LASTING LEGACY

Looking ahead, Zuech's Environmental Services shows no signs of slowing down. Zuech says company revenues have grown about 50 percent in the last four years since his father went into semiretirement. "I'm pretty proud that we've done that well," he says. He gives a lot of credit to the company's employees: his brother, Vinnie, who is a route driver and a portable restroom technician; Kathy Colley, office manager; Rick Duncan, portable restroom technician; Moe Kurowski, septic route driver; Jasin Dick, septic route driver; Nick Terwilliger, portable restroom

technician/installation equipment operator; and Harry MacElroy, installation technician/equipment operator.

Eric Zuech prefers slow and steady growth and believes 5 to 10 percent annual revenue growth is sustainable. "You have to be careful because growth can be a double-edged sword," he says. "You have to weigh whether the additional revenue is worth the added cost, aggravation and stress that comes with growth."

"I'm thinking we're pretty good where we stand right now," he continues. "I'm not sure

what other services we could add at this point, except for maybe a combination sewer (vacuum) truck or a restroom trailer. Our biggest goal when we bought the company was to maximize what we have, and now we've done that — it seems to be working. While we may not grow a lot more, we definitely plan to maintain the level of services we currently provide for our customers. That's always our top priority." ■



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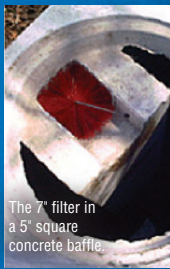
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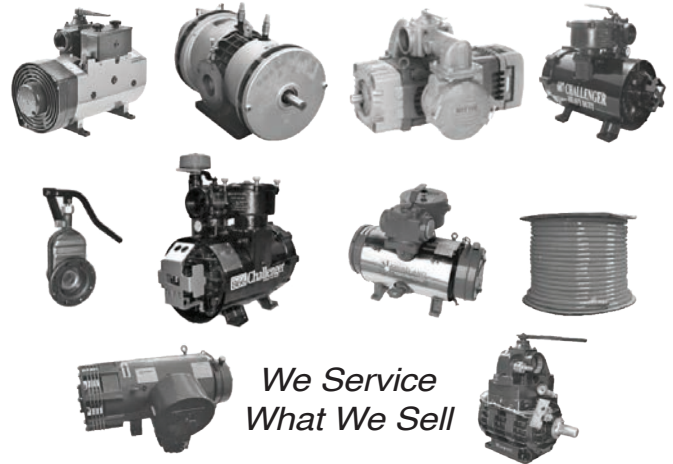
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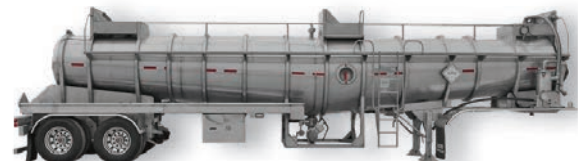
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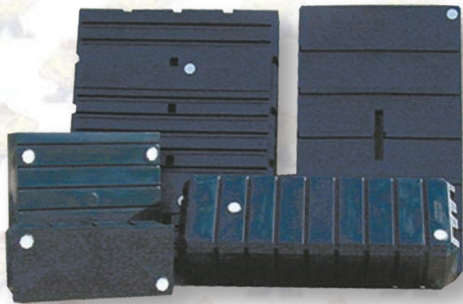
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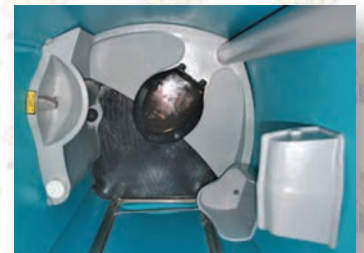
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Based in Racine, Wisconsin, Erik Gunn writes for magazines on business and other topics.

Should You Combine Vacation, Holiday and Sick Days Into a Single Benefit Pool?

Transitioning to a paid time off system may make your employees happier and save you time, money and human resources headaches down the road **By Erik Gunn**

Vacation. Sick time. Holidays. Personal days. If you offer some or all of these to your employees, it can be dizzying to keep track of it all. And chances are, you'll run into confusion or even conflicts about how you administer them — from people taking sick days just because they've run out of vacation to which holidays people observe based on their culture, religion or other circumstances.

For these and countless other reasons, more and more employers are taking a different approach — paid time off, or PTO.

"Paid time off is a policy that combines leave into one bank," explains Sylvia Francis, who oversees compensation and benefits for the Regional Transportation District in Denver. Francis also serves on an advisory panel on employee benefits for the Society for Human Resource Management.

MORE FLEXIBILITY

Francis considers PTO an improvement over traditional, categorized time off. "It is an alternative that seems to fit our society much better, as folks strive for a better balance between work, home and play," she says.

An estimated 57 percent of employers offer PTO plans, and while many are mid- to large-size firms, Francis considers them suitable for employers of any size, including small service-companies in the wastewater industry.

"I believe that small employers may actually benefit more from a PTO plan than a large employer," she says. Small employers with fewer resources may be harder pressed to cover unscheduled absences, she points out. "If an employee has PTO, they can plan absences, thus giving the organization the ability to plan for coverage.

"For the employer, PTO has been proven to reduce unscheduled absences," Francis says. The out-of-vacation employee who decides to take a sick day for an extra day off won't call in until that day. "Under PTO, you can schedule that day off, aiding the employer in covering your absence more easily."

PTO can also streamline recordkeeping and personnel management. "Instead of managing different time-off categories for each employee, managing a PTO plan is a simple matter of noting when an employee uses some of his or her banked days of PTO," she observes.

EMPLOYEES BENEFIT

But PTO isn't just good for employers. It offers "more flexibility for the employee," she says. "If they do not use sick time regularly, they have a choice to use the time for vacation or just personal days. No questions asked; no doctor's notes."

The so-called millennial generation (typically identified as workers now anywhere from their late teens or early 20s to perhaps as old as 40, depending on whom you ask) are said to especially seek better work-life balance. "But I think this cuts across generations," says Francis, who first implemented a PTO plan more than 15 years ago. Aging baby boomers and midlife members of Generation X "want more flexibility to travel, spend time with grandkids, etc."

And if workers view the plans positively, that helps the employer as well. Increasingly, job seekers "are requiring flexibility in their workplace," she says. "I believe PTO helps companies to recruit, engage and retain employees. In this tight labor market, anything you can do to entice a candidate to your organization or an employee to stay with you is a benefit."

“ I believe PTO helps companies to recruit, engage and retain employees. In this tight labor market, anything you can do to entice a candidate to your organization or an employee to stay with you is a benefit. ”

Sylvia Francis

how new and old plans compare with respect to the total number of days off provided.

WorldatWork, an organization for human resources professionals that focuses on compensation, found in a 2016 survey that, on average, PTO plans reduced total time off to 16 days from 20 days for first-year employees and to 27 days from 37 days for employees with 20 or more years. But that's "really a moving target, based on how the organization structures its PTO plan," Francis notes.

And there are costs to putting a new plan in place — updating your payroll software, for example, but perhaps more significantly, taking the time to



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It's also critical to understand what regulations apply to PTO plans. The federal government doesn't regulate them currently, but individual states have implemented rules, and they aren't all the same.

Colorado, where Francis works, requires employers to permit employees to use PTO as soon as they earn it, for example: that's different from most vacation plans in which workers accrue time off over the course of the year but typically have to wait until the next year to take it.

MAKING THE SWITCH

Employers switching to a PTO plan from one that differentiates kinds of time off need to carefully plan for it. How will current leave be converted to PTO? What policies will you set for how, or whether, leftover PTO time at the end of the year can be carried over to the next? How do you manage the cost of paying out unused PTO to a worker who leaves your employment with time still "in the bank"?

And because lengthy illnesses happen, some workplaces add in a separate extended illness bank that may accrue a handful of days a year and takes effect when a verified illness lasts beyond a certain amount of time, such as three days.

When making the change from traditional time-off policies to PTO, Francis says, "You also must communicate, communicate, communicate to employees about the PTO benefits to the employee."

Some employees may view a PTO conversion as taking away sick time or forcing them to take vacation time when illness strikes.

"In my experience, a good explanation and plenty of communication can reduce the 'noise' about the change," says Francis, who recommends that employers be transparent and "honest about why you implemented PTO and the benefits to the employee as well as the organization."

Consider surveying employees or enlisting a committee to help develop a PTO plan, she adds: A committee that has bought into the change "will become champions and make the transition a heck of a lot easier."

And communication needs to continue after implementation so that expectations are clear all-around. "The biggest problem I have seen is that employees see PTO as vacation only and 'forget' that sick time was combined with vacation to become PTO. Some will use all their PTO for fun and neglect to save any for illness."

If you find that managing many different categories of time off is becoming more complicated for your business, consider whether the PTO approach could help you. It might save you money and time in the long run. ■



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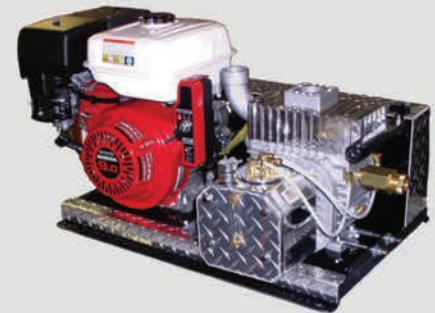


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Eric Bloom is president and founder of Manager Mechanics, a speaker, and author of *Productivity Driven Success: Hidden Secrets of Organizational Efficiency*. He can be reached through www.mrproductivity.com.

7 Steps to Unleash the Power of Delegating Workload

The success of your wastewater business depends on knowing how to assign the right tasks to the right workers ... and then overseeing projects and making sure the customer is happy **By Eric Bloom**

One of the great things about being a small-business owner or manager is that you can delegate various tasks to other people instead of having to do them yourself. This may sound like a rather cavalier statement, but it's true. As the boss, to do your job efficiently and effectively, you must delegate necessary duties to your staff. If you don't delegate, you will be overworked and your staff will be underutilized. In fact, you do a disservice to your staff if you don't delegate because this inhibits employees' ability to learn new things and grow professionally.

Like all management activities, delegation must be done in a thoughtful, ethical and forward-thinking manner. To that end, consider the following tips when delegating tasks to your staff, contractors, vendors and others.

1. Clearly define what can and cannot be delegated

Be mindful of what should and should not be delegated. For example, specific tasks may contain proprietary information that should not be shared at your crew's organizational level. There are also tasks your employees may not be qualified to perform, thus setting them up for failure. Lastly, don't just dump unwanted activities onto your staff to get them off your plate. Your team will eventually figure this out, and it will hurt your credibility as the boss.

Delegation is a powerful tool to maximize your team's productivity, enhance its skill set, help it grow professionally, and free you up to perform higher level tasks. All that said — make sure that you are delegating the right tasks for the right reasons.

2. Create a prioritized delegation plan

Knowing what to delegate, your next step is to develop a plan outlining what tasks should be delegated to which staff member. You should consider the following:

- Who is fully qualified to perform the task?
- Who could perform the task with proper instruction and mentoring with the goal of enhancing his or her skill set?
- Who should not be given the task because of his or her skills weaknesses or for other reasons?
- Who deserves the task based on seniority, past performance and relevant considerations?
- The visibility and importance of the task to your company.

Delegating the right tasks to the right people is not always easy or popular, but if you do it with transparency, fairness, and consistency and for the good of the company, your staff will learn to respect your decisions.

Delegation is a powerful tool to maximize your team's productivity, enhance its skill set, help it grow professionally, and free you up to perform higher level tasks.

3. Provide clear instructions, and define expectations

There is nothing worse than being delegated a task, not given instructions on how the task should be performed, not told what is expected, working diligently to complete the task, and then being told it isn't what the boss wanted. Give specific instructions about what needs to be done and your expectation of the end result. This combination of instructions and expectations establishes criteria as to how your employee will be judged when the task is completed.

4. Provide a safety net

When delegating tasks — particularly if it's a new experience for the employee being assigned the task — you must be willing to provide appropriate support to help assure success, for both the employee and the task. This means creating a safety net by providing the necessary resources and training and allowing time to properly perform the delegated tasks.

5. Let go, and allow people to do their work

If you delegate a task and then micromanage it to the extent that you have actually performed the task yourself, it's not delegation. Neither should you totally divest yourself from the delegated task because you are still ultimately responsible for all work performed by your employees. The trick is to walk that fine line between being overbearing and nonparticipatory.

6. Give credit to those doing the work

As the boss, you should adhere to the philosophy of "it's the team's success or my failure." This philosophy causes you to raise the visibility of your staff's good work, which motivates your employees and helps instill their loyalty toward you and the company. This approach is a reminder that you are ultimately responsible for employee growth and company performance and productivity.

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7. Actively solicit feedback from your team

Ask members of your team if they believe you have delegated the right tasks to the right people. This helps you grow as a manager, improves team performance and shows you are willing to accept suggestions, which makes you more approachable with ideas to grow the company and improve efficiency.

THE BOTTOM LINE

For some business owners, learning to delegate workload is going outside a comfort zone. Many started a business because they enjoy the work of operating equipment, driving a truck or dealing with customers. Your willingness to take this leap of managing employees will build a better, more profitable company as well as advance the professionalism of your crew. ■

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Cole Ritter (left), 34, and Reid Hanson, 31, bought A-1 Evans Septic Tank Service in Minot, North Dakota. They are shown with a vacuum truck built out by Imperial Industries. (Photos by Kyle Martin)

FINDING A HOME

Two young business partners serving North Dakota's oilfield industry turned to pumping and portable sanitation and found consistent revenue and greater satisfaction

By Dee Goerge

When a 30-year-old business is doing well, it's best not to make drastic changes. And, if you have a good team of workers, make sure you keep them happy.

Reid Hanson and Cole Ritter figured that out immediately after purchasing A-1 Evans Septic Tank Service in 2016. As previous owners of a business that did commercial cleaning and transported water for fracking in North Dakota oilfields, they know the Minot, North Dakota, area. Plus they had hired A-1 Evans Septic Tank Service to clean out tanks for their business, so they were familiar with pumping services. In 2014, when work in the oilfields slowed down, former A-1 Evans Septic Tank Service owner, Sandon Varty, let Hanson and Ritter know his business was for sale. They decided to purchase it.

A couple of years into the ownership, the partners are adapting to their new business and utilizing their oilfield experience and contacts to broaden their market and services across northern North Dakota.

(continued)

Profile

A-1 Evans Septic Tank Service

Minot, North Dakota



North Dakota

OWNERS: Reid Hanson and Cole Ritter

FOUNDED: 1983
(purchased in 2016)

EMPLOYEES: 9

SERVICES: Septic service, onsite installation and inspection; grease trap service; jetting; portable sanitation

SERVICE AREA: Northwestern North Dakota

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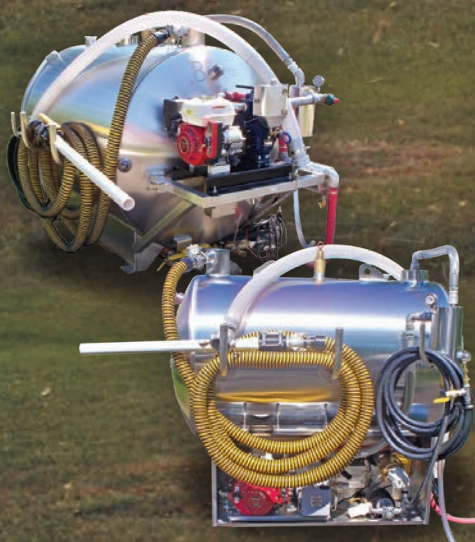
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Left: Reid Hanson pumps a residential septic tank near Minot, North Dakota, using a truck outfitted by Imperial Industries and running a Masport pump.

Below: Stopped at a construction site, Cole Ritter services a Satellite Industries Tufway restroom using a vacuum truck carrying a tank from Progress Tank and pump from Masport.



TAKING AN OPPORTUNITY

Ritter's wife, BreeAnna, is Hanson's sister, and the brothers-in-law worked well together for four years in their oilfield/water transfer business. Ritter handled the office work, while Hanson managed employees and worked in the field.

Hanson, 31, and Ritter, 34, were just building their business when they lost the work from their main contractor. "We had planned in the back of our minds to transition out of the oilfields so the work wasn't so up and down," Hanson says. "Not enough work made up our minds for us."

A-1 Evans Septic Tank Service was a good option. "It was a turnkey business; that was appealing to us. It took the startup work off of us," Hanson says.

The company not only provides regular work, but also opportunity. "We got calls the first day, and at local home and garden shows, people asked if we installed septic systems," Hanson says.

Utilizing employees with experience installing systems and who were already making small repairs and pump changes, A-1 Evans Septic Tank Service added installing complete systems within a year after the new owners took over. By the end of 2017, they earned National Association of Wastewater Technicians certification to add tank inspection to their list of services.

As in their other business, Ritter and Hanson divide duties. Ritter handles the office work, and Hanson deals with sales. Both are hands-on and can fill in wherever needed, from servicing portable restrooms to pumping tanks and cleaning drains.

TRANSITION TIME

"Dude (Varty) stayed on for a couple of months," Hanson says, to help

“ We see the repair and install side of the business as having very good potential. But at the same time, you have to get out there and sell yourself with pumping. ”

REID HANSON

with the transition. "He's been a great help and is a phone call away." For example, customers who haven't had their septic tanks pumped for years may not know where the lid is.

"They say, 'Dude knows where it is,'" Hanson says. "He has a very good memory."

Besides his hands-on help, Varty left the business with another important asset — a good reputation. "He (Varty) definitely had a good client base and a very good reputation for service and cleanliness on the portable restroom side. It's something we are definitely mirroring as we go forward," Hanson notes. "We don't want to disturb that," Ritter adds.

ASSET - EMPLOYEES

Varty also passed on a team of good employees.

"It's nice with our business being a family operation and close-knit," Ritter says.

Though high wages luring workers to the oilfield creates retention issues for some employers, A-1 Evans Septic Tank Service employees have been with the company for an average of six years.

"We very seldom have a turnover," says Carson Varty, who first started working for his cousin about nine years ago and works on the portable restroom side of the business. "We are getting benefits, good wages, and they are treating us right. They ask for our opinions."

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Those benefits include a 401(k) match, 100 percent health insurance coverage, and other insurance options, Ritter adds. Employees also appreciate the regular hours and being close to home instead of far off in an oilfield.

"All of our guys are very well-trained," Hanson says, and most know how to work on both the pumping side and portable restroom side of the business. All can do jetting and drain cleaning. A-1 Evans Septic Tank Service pays for training they need for certifications. Between informal meetings in the morning when getting the day's schedule and their experience and common sense, workers know their routes, their jobs, and how to dress appropriately for the weather that can be hot or frigid.

NEW SERVICES

One thing that has changed for employees is the expansion of customers. Contacts from their previous oilfield business have been helpful in adding to A-1 Evans Septic Tank Service's customer list, Hanson notes.

"We've gotten busier in the oilfields," Varty says. "It's not harder, just more miles." Working on the restroom side of the business, he is one of four drivers who easily drive 250 miles a day servicing a route.

"We see the repair and install side of the business as having very good potential," Hanson adds. "But at the same time, you have to get out there and sell yourself with pumping."



Oilfield networking

Cole Ritter and Reid Hanson take advantage of their experience operating a business in the oilfields. When the partners switched to the pumping industry, they sold off most of their equipment and trucks. But they didn't forget their contacts.

"We didn't expand the territory, but we did expand the customer base," Hanson says, especially with previous contacts from the oilfields.

"We had a good reputation before, and we told them we can take care of all your toilet and septic needs," he says. "So, they gave us a chance, and it's been a trickle effect from there. We inched our way in and proved ourselves, when given an opportunity, with good service and pricing."

The partners had hired A-1 Evans Septic Tank Service to pump tanks from their industrial cleaning job and to clean out shop drains, so they knew what wastewater services oilfield shops needed. "We make a lot of cold calls in the oilfield and to businesses around town," Hanson says.

Between that and putting out bids for work, the partners believe there is one more thing important to be successful. "The harder you work, the more work you get. Keep your nose to the grindstone," Hanson says. "It's always worked for us that way."

Two employees are certified to make installations with a Bobcat excavator and a couple of Bobcat skid loaders. Hanson and Ritter kept one of the Bobcats, along with a variety of shop tools, from their previous business.

A-1 Evans Septic Tank Service installed eight systems in 2017 and hopes to build up to 20 systems in 2018.

To accomplish the goal, they are taking out ads and promoting their installation services at trade shows.

THE FLEET

With the purchase of A-1 Evans Septic Tank Service, Hanson and Ritter acquired a good fleet of trucks.

Reid Hanson (foreground) and Cole Ritter drag a long hose to reach a pumping location.

Hanson pumps out a lift station outside of Minot, North Dakota.

Because the business serves a big area, the pump-trucks and tanks are large including two semis — a 2005 Peterbilt 379 and a 2006 Kenworth T600 that each pull 5,000-gallon tanker trailers from Troxell and (R-Way) Krain Creek Fabrication, all equipped with Masport pumps. Other large trucks include a 2014 Peterbilt with a 4,200-gallon Imperial Industries aluminum tank and a Masport pump; a 2008 Kenworth with a 3,000-gallon Progress Tank aluminum tank and a National Vacuum Equipment pump; a 2002 International

with a 3,500-gallon steel tank with a Masport pump, and 2005 Freightliner with a 3,000-gallon steel tank and Masport pump, both from Transport Truck Sales; a 2011 International with a 4,200-gallon Progress Tank aluminum tank with an National Vacuum Equipment pump; and a 1993 International with a 1,500-gallon steel tank.

A-1 Evans Septic Tank Service land-applies some septage on certified rented fields. The rest goes to Minot's wastewater facility.

The company also has an old International jetter truck with a 3/4-inch line, and hot water/steam jetter trailer and cart jetter to clear frozen and plugged rural and municipal lines and for drain cleaning services for a variety of businesses including car washes, shop drains and mechanic shops. They plan to update jetter equipment in the near future, Hanson says.

For the portable restroom side, the partners acquired four Chevrolet and one Dodge 3500 trucks between 2006 and 2015 with Imperial Indus-

(continued)

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tries slide-in units as well as a 2013 Dodge 5500 with a 1,000-gallon waste and 500-gallon freshwater tank (Progress Tank). They purchased a 2017 Chevy 3500 with a Progress Tank slide-in unit. All have Masport pumps. With about half the restrooms in the oilfields, it takes four trucks a day to handle the long routes to service them.

Reid Hanson cleans a commercial floor drain in a garage in Minot, North Dakota.

About 800 portable restrooms are in A-1 Evans Septic Tank Service's inventory. Most are Satellite Industries Tufway models, including standard skid-mounted units, single and double trailer-mounted units, 20 heated trailer units, washstands and crane units. Being in the center of North Dakota, the crane units work well for projects like a grain elevator that was recently built.

Restrooms for the oilfields and construction create a steady service schedule year-round. Summertime is busiest for providing restrooms for events throughout the region, including the North Dakota State Fair in Minot.

Keeping equipment and trucks in good shape is important to maintaining a good reputation.

"We have a maintenance program and have started to rotate vehicle inventory," Hanson says, to make sure trucks are available for pumping, servicing restrooms, and jetting.

Drivers are responsible for the maintenance (such as oil changes) for their trucks. "They make the place go. Having a truck down costs money," Ritter adds.

Maintenance is important because trucks put on about 5,000 miles a month. A-1 Evans Septic Tank Service has two shops, one for pumper trucks and the other for portable restroom trucks, so drivers have a dry, comfortable space to work.

OLD SCHOOL/NEW SCHOOL

As young businessmen, Hanson and Ritter recognize the benefits of technology and social media for running and promoting the business, but they believe old-school methods are important too. "We're in the Yellow Pages and run ads on the radio. We feel radio is very beneficial," Hanson says.

They also use social media with a presence on Instagram and Facebook, and they plan to update the business website, build on social media, and

eventually go paperless with electronic invoicing and e-commerce. Currently, they use QuickBooks for accounting.

The trucks have GPS, but drivers tend to use their smartphones for navigation.

"With the (oil) boom, cell service is one thing that really improved in western North Dakota," Hanson says.

To learn more about the industry, the partners were excited about attending their first Water & Wastewater Equipment, Treatment & Transport (WWETT) Show in 2018. "We wanted to see new ideas, new technologies, anything we could bring back to better service our customers," Hanson says. For example, A-1 Evans Septic Tank Service has a MyTana Mfg. push camera that is mostly used for inspecting residential lines. The partners plan to purchase a bigger unit and grow the camera business in Minot and the small municipalities nearby.

FUTURE PLANS

While Varty says the workplace hasn't changed with the transition to new owners, the company is growing — geographically and with expanded services. Though they are still learning about the pumping and portable restroom business, it's been fairly easy to adapt, the partners say.

"We've all been around big trucks, so it's not a large learning curve," Hanson says. "The hard work and long hours stayed the same." Part of those long hours includes looking for more work and more growth while balancing serving current customers.

"We're a 24/7 operation," Hanson says, so someone is always on call after hours to handle emergencies. "We offer good service, a friendly face, and can talk customers through things."

By adding installation and repair to their services, A-1 Evans Septic Tank Service is a one-stop business that continues to build on successes the former owner left them. "Our biggest goal is to maintain our good service and reputation and to expand our service area," Ritter concludes. ■

“ They gave us a chance, and it's been a trickle effect from there. We inched our way in and proved ourselves, when given an opportunity, with good service and pricing.”

REID HANSON

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Masport, Inc.

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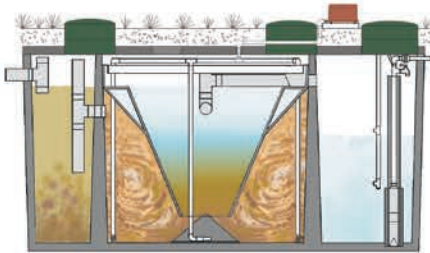
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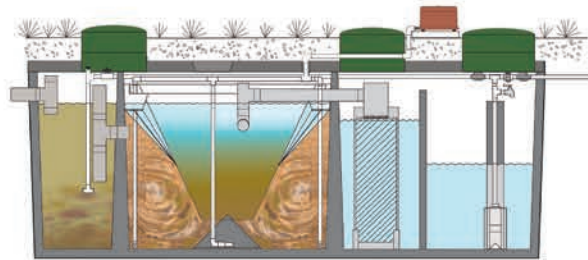
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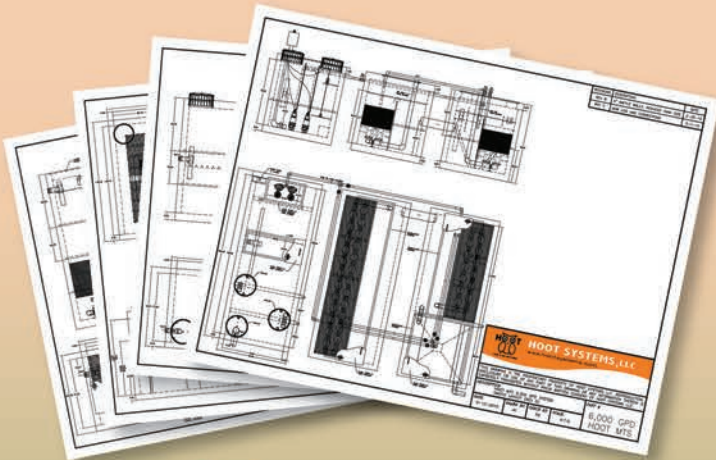


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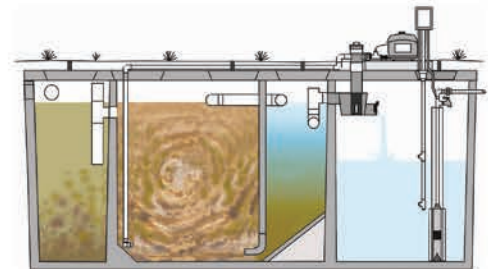
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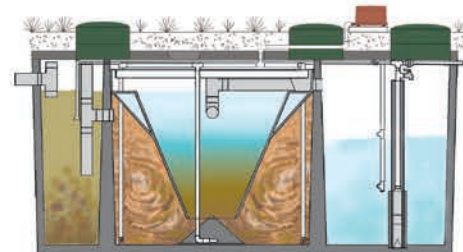


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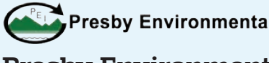
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MANUFACTURER	BRAND	GPD	RELEASED	DESCRIPTION	DISTRIBUTOR LOCATIONS
 <p>Bio-Microbics, Inc. 8450 Cole Parkway Shawnee, KS 66227 800-753-3278 • 913-422-0707 Fax: 913-422-0808 sales@biomicrobics.com www.biomicrobics.com See ad, page 62</p>	FAST	150 to 2.5 million	1996	Simple, works on any scale. Recommended for various residential/commercial property needs for any size from upgrading existing septic systems to multi-family, new construction developments, using FAST Systems solves most onsite wastewater treatment issues. With a small footprint, the RetroFAST system is ideal to upgrade an existing tank. The MicroFAST offers higher levels of nitrogen removal (NSF/ANSI 245). With the SFR feature, intermittent operation of the blower reduces electricity usage up to 45% and can provide improved nitrogen performance (in specific situations). Enables cost-effective treatment with less maintenance and more reliability, than most other biological process treatment systems.	U.S. and 70+ Countries
	BioBarrier MBR	500 to 160,000+	1996	Sustainable Water Engineering dramatically simplifies the settling, screening, direct aeration and ultrafiltration of the wastewater treatment process to remove 99.9% of the contaminants. Installed above or below grade, locally-sourced tanks and certified to NSF/ANSI 40 class 1, NSF/ANSI 245 (nitrogen reduction), and NSF/ANSI 350 standards, this blackwater/greywater treatment system establishes the material, design, construction and performance requirements for onsite residential and commercial applications. The BioBarrier MBR and HSMBR, from 500 GPD to 100,000+ GPD flows, meets water quality requirements that can be used for restricted indoor water use and/or unrestricted outdoor water use.	
	SeptiTech STARR	500 to 27,000+	1996	Trickling Filter Systems. STAAR (Smart Trickling Anaerobic/Aerobic Recirculation) Filter Systems are designed for both residential and commercial wastewater treatment applications. The STAAR System treats high organic loads that integrate with other technologies and accessories. The simple, automatic and reliable equalization and clarification process maintains low levels of Nitrate-N with all below-grade components that fit in readily available concrete, plastic or fiberglass tanks. SeptiTech's "Smart" technology allows the system to go into a sleep mode that will dial down activity and eventually shut all power off until normal flow conditions are detected.	
 <p>Eliminite, Inc. PO Box 359 Belgrade, MT 59714 888-406-2289 info@elimininite.com www.elimininite.com</p>	Eliminite Grizzly	Up to 50,000	1997	The Eliminite Grizzly system is designed for large-scale, high-volume, high-strength commercial applications where advanced nitrogen reduction is necessary. The system was originally developed to serve high-altitude commercial and resort developments in the Rocky Mountains where winter temperatures linger at or below 0 degrees F, and seasonal use patterns/dramatic fluctuations in flow and wastewater strength are the norm. It functions with little operator input and simple maintenance. C-Series systems serve high-altitude highway rest areas, resort communities, golf courses, ski areas, mixed-use residential communities, restaurants, RV parks, worker camps, corporate retreats, business parks and convenience stores. It is suited for use in multi-stage treatment trains and as a means of reducing waste strength prior to conveyance to municipal treatment facilities.	U.S.
 <p>Eljen Corporation 125 McKee St. East Hartford, CT 06108 800-444-1359 info@eljen.com www.eljen.com See ad, page 12</p>	GSF	Scalable to site conditions	1982	The Eljen Geotextile Sand Filter (GSF) is an advanced wastewater treatment and dispersal technology. The GSF's unique design provides treatment and dispersal in the same footprint while keeping installations easy and maintenance minimal. Independent testing has shown that the Eljen GSF's performance meets NSF/ANSI Standard 40 and provides advanced treatment of septic tank effluent to better-than-secondary levels.	North America and Australia

MANUFACTURER	BRAND	GPD	RELEASED	DESCRIPTION	DISTRIBUTOR LOCATIONS
<p>Fuji Clean USA 41-2 Greenwood Rd. Brunswick, ME 04011 207-406-2927 Fax: 207-406-2929 info@fujicleanusa.com www.fujicleanusa.com</p>	CE	450 to 2,700 (6 Models)	2010	Fuji Clean's CE model series averages 50,000 systems being installed annually worldwide. The popularity is driven by a small footprint (about 7' x 4' for CE5), low power draw (1.1kWh/day for CE5), easy plug & play installation and simple, efficient O&M and consistent treatment (95% BOD and TS removal, NSF 40 certified, no preceding septic tank). There are no moving parts in the "contact filtration" treatment process. One 80 L/min external air blower (FujiMAC Series) introduces oxygen into aerobic chambers and powers internal air lift pumps, which facilitate sludge return and discharge of clean effluent.	Most States
	CEN	450 to 1,900 (4 Models)	2010	Fuji Clean's CEN technology provides enhanced denitrification into its standard contact filtration treatment process and produces a consistent high quality effluent (NSF 40/245 certified: 5 BOD, 6 TSS and 10 TN) from straight septic wastewater – no preceding septic tank necessary. There are no moving parts in the treatment process. Extremely compact (about 8' x 4' for CEN5), lightweight (about 475 lbs for CEN5), highly maneuverable and features a low power draw (one 80 L/min blower drawing 1.1 kWh/day for CEN5), plug & play installation and optional wireless telecommunication package that offers both dial and text capabilities. A proprietary electrolysis-based phosphorus reduction option is also available with this system.	
	CE6KG	6,000	2015	Fuji Clean's largest CE commercial system, is now available to supplement its existing CE21 (1,900 gpd) and CE30 (2,700 gpd) models. The CE6KG, which can treat up to 6,000 gpd, uses the same treatment technology, process flow and one-tank structure as the smaller CE systems and can be squeezed into the tightest of sites. The footprint size on the CE6KLG is only 36' x 6.5' (including built-in septic tank).	
 <p>Hoot Systems, LLC 2885 Highway 14 E Lake Charles, LA 70607 888-878-4668 • 337-474-2804 questions@hootsystems.com www.hootsystems.com See ad, page 47</p>	LA-Hoot	500 to 1,000	1986	LA-Hoot is an improved version from the original Hoot Treatment System introduced in 1984. Results are better than 10/10 mg/L on CBOD and TSS, with more than a 95% reduction of the wastewater influent. Two-year warranty/NSF Standard 40 certified.	Nationwide
	H-Series	500 to 1,200	1995	Five-stage, one piece system with a pretreatment tank, aeration chamber, final clarifier, optional disinfection device and a pump tank. Results are better than 5/5 mg/L on CBOD/TSS. A 99% reduction on CBOD and TSS. Marketed as BNR in MD and FL with Biological Nitrogen Reduction of >50%. Three-year warranty/NSF Standard 40 certified.	
	ANR	450 to 900	2007	Adds Advanced Nutrient Reduction to the Hoot System. Results of 5.8 mg/L on TN, better than 10/10/10 mg/L on CBOD/TSS and Total Nitrogen. Areas where 10 mg/L is the discharge limit for Total Nitrogen, the federal level for drinking water. Three-year warranty/NSF Standard 40 and 245 certified.	
	MTS	3,000 to 500,000	2011	The Hoot MTS, (Media Treatment System) is a series of larger treatment systems that were tested and verified under NSF Standard 40/245 protocol. The Hoot MTS is used for Residential, Commercial and High Strength wastewater applications and can also be set up to treat for Ammonia, Total Nitrogen, Phosphorus and other discharge parameters. Instead of selling a one size fits all box, or multiple boxes, Hoot can deploy our MTS technology into locally sourced concrete castings, retrofit into existing structures or fabricated for new, poured in place vessels. We have substantial experience with RV parks, camps, convenience stores, restaurants, shopping plazas, schools, churches, brewery/winery tasting rooms and other challenging applications.	
 <p>Jet, Inc. 750 Alpha Dr. Cleveland, OH 44143 800-321-6960 • 440-461-2000 Fax: 440-442-9008 email@jetincorp.com www.jetincorp.com See ad, page 14</p>	J 1500 BAT Media Plant; J 500-800 PLT	500 to 1,500		Jet's residential wastewater treatment plants employ the Jet BAT Process Media which provides the ideal environment for nature's own bacteria to thrive and grow. Great numbers of these living microorganisms attach themselves to this submerged structure to create a "biomass" that rapidly treats wastewater. The Jet 700++ Aerator provides the mixing and fresh oxygen the microorganisms require to live while the Jet BAT Process Media provides the environment to support the microorganisms that allow natural filtration and biological reduction to take place. Available in concrete and plastic.	U.S. and International
	R-Series	450 to 1,500			

MANUFACTURER	BRAND	GPD	RELEASED	DESCRIPTION	DISTRIBUTOR LOCATIONS
 <p>MST Manufacturing, LLC 23362 Medero, Ste. C Mission Viejo, CA 92691 877-473-7842 • 949-297-4590 Fax: 949-916-2093 microseptec@microseptec.com www.microseptec.com</p>	EnviroServer	600, 1,200 and 2,500	1998	The EnviroServer ES is a combination of primary treatment, flow equalization, and secondary treatment by both fixed-growth and suspended-growth aerobic processes. The system consists of five chambers in one compact pre-engineered unit. The first chamber is a primary clarifier, the second chamber is the first aeration zone, the third chamber is the second aeration zone, the fourth chamber is the final clarifier, and the fifth chamber is the effluent chamber where an optional pump(s) and disinfection device may be installed.	AZ, CA, DC, DE, MD, NJ, NV, PA, VA
 <p>Norweco, Inc. 220 Republic St. Norwalk, OH 44857 800-667-9326 419-668-4471 Fax: 419-663-5440 email@norweco.com www.norweco.com See ad, page 71</p>	Hydro-Kinetic	500 to 1,500		The Hydro-Kinetic wastewater treatment system employs innovative Hydro-Kinetic filtration technology to produce the cleanest, most consistent effluent quality available. They Hydro-Kinetic system uses the extended aeration and attached growth processes to treat wastewater, and features innovative nitrification-denitrification technology. The Hydro-Kinetic FEU system is the only NSF/ANSI Standard 40 and 245 certified residential wastewater treatment system to pass two consecutive back-to-back tests without performing routine maintenance for a full 12 months. It quietly, efficiently and automatically pretreats, aerates, flow equalizes and filters all wastewater returning only the purest effluent back to the environment.	North America, Central America, South America, Europe, Africa and Middle East
 <p>Premier Tech Aqua 1 Avenue Premier Riviere-du-Loup QC G5R 6C1 Canada 800-632-6356 • 418-867-8883 Fax: 418-862-6642 pta@premiertech.com www.premiertechaqua.com</p>	Ecoflo	1 to Unlimited (cluster)	1995	Ecoflo is a wastewater treatment system that can be installed in different site conditions. It features a concrete or polyethylene tank, high-resistance plastic distribution system and integrated pump vault (when the treated effluent has to be pumped out to a surface disposal). It uses a quality-controlled filtering media to treat wastewater coming from the septic tank. No electric power is required to achieve treatment which exceeds standards. Filtering media and mechanical components are accessible for routine maintenance and verifications. Compact and modular, Ecoflo can be used for residential, commercial and small community projects.	US and Canada
 <p>Presby Environmental 143 Airport Rd. Whitefield, NH 03598 800-473-5298 603-837-3826 Fax: 603-837-9864 info@presbyeco.com www.presbyenvironmental.com See ad, page 18</p>	Advanced Enviro- Septic	Varies	2005	Advanced Enviro-Septic (AES) is a passive treatment and dispersal system. This effective and non-mechanical onsite system is designed for residential, commercial, and community use. AES has been proven to remove up to 99% of wastewater contaminants without the use of electricity or replacement media. AES does this quickly and naturally establishing multiple bacterial treatment environments throughout the system that break down and digest wastewater contaminants leaving the septic tank. This passive process allows the system to discharge highly purified wastewater, preventing soil clogging and groundwater contamination. AES has third party certifications from NSF, Cebedeau, BNQ, and SAI Global.	30 States and 14 Countries
	EnviroFin	Residential/ Commercial	2016	The Enviro-Fin passive onsite wastewater treatment and dispersal system is designed to have a small footprint and ship easily, while maintaining and exceeding NSF/ANSI Standard 40 treatment. Effluent leaves the septic tank and enters the fin distribution unit, where it settles and breaks down suspended solids. Effluent is distributed to the eight treatment fins, which are filled with coarse green plastic fibers, filtering and digesting more suspended solids.	NH, ME, AL

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Florida Inspection Bill Is Watered Down; Jacksonville Reels From Septic Tragedy

By David Steinkraus

When a Florida legislator introduced a bill in early 2017 to require point-of-sale inspections, part of the justification for the bill was the contribution of septic tanks to poor water quality in the Indian River Lagoon along Florida's east coast. No one argues the water quality point, but there is reason to doubt how much septic tanks contribute.

In 2016, there was a massive algae bloom in the St. Lucie River at the southern end of the lagoon. Because of the bloom, St. Lucie County closed its beaches for the first time, manatees died, and the local tourism economy generally took a hit.

The lagoon starts at about the latitude of Orlando and stretches south for about 50 miles along the coast to Port St. Lucie. Experts agree the prime cause of the algae bloom was a discharge from Lake Okeechobee, which takes in fertilizer-rich water flowing off the vegetable farms that cover central Florida. Algae grew there and flowed downstream in rivers and streams until they collected in the lagoon.

The continuing question, reports the *TCPalm* newspapers, is whether nutrients leaking from septic tanks turned the algae bloom into what more than one news outlet described as a guacamole-like blanket that covers the water. The paper interviewed three scientists who had differing views.

Brian Lapointe at Florida Atlantic University says he took samples during the bloom and found algae were feeding. He maintains septic tank nutrients fed the bloom.

Edward J. Philips of the University of Florida says algae in the lagoon were dying and not feeding. Algae can be found at all depths in a lake, but when they reached the lagoon, they were stressed by the increased salinity, began dying, and floated to the top of the water. Instead of a bloom, the algae mass was concentrated by winds.

Edith Widder, founder and head of the Ocean Research & Conservation Association in Fort Pierce, says algae probably didn't feed on septic tank nutrients. Freshwater from the lake would have floated above the saltier water in the estuary, and that means any nutrients feeding the algae would have come with them in the freshwater from the lake, she says.

As to the Florida Legislature bill requiring septic inspections, it never went anywhere. A committee diluted the bill to require only that a property seller disclose the presence of an onsite system, and it also requires the state to build a database of all properties with onsite systems. That version passed the House, but it died in a state Senate committee.

In other Florida news, a state report suggests the city of Jacksonville may have hired an improperly licensed contractor following the death of a 3-year-old boy who fell into a septic tank and drowned.

Amari Harley died on Oct. 22 after he fell into the tank in Bruce Park during a party. The city had received complaints about an uncovered tank

in the park, and a girl told television station WJAX that she fell into the same tank about two months before Harley.

The TV station subsequently reported that the state Department of Health contacted Environmental Remediation Services, hired by the city to perform maintenance work, and was told the company did not have licensed people on staff. When the station asked the city about the state report, a spokesperson said the company is licensed to repair lift station pumps and dosing tank pumps and met the city's bid specifications.

An attorney for Harley's family says the city either did not do its due diligence or knew the contractor was not licensed and hired them anyway. She says the family plans to take legal action against the city.

New York

In keeping with a push to control nitrogen in the waters of the Atlantic Ocean, Suffolk County is proposing a bill that would require homeowners to replace failing cesspools with a septic system.

Cesspools are widespread in the county, which covers the eastern end of Long Island and includes such wealthy communities as the Hamptons. Since 1973, the county has allowed homeowners to replace a failing cesspool with another cesspool, reports *Newsday*. County officials estimate that of 360,000 homes not on municipal sewer service, 252,000 have cesspools.

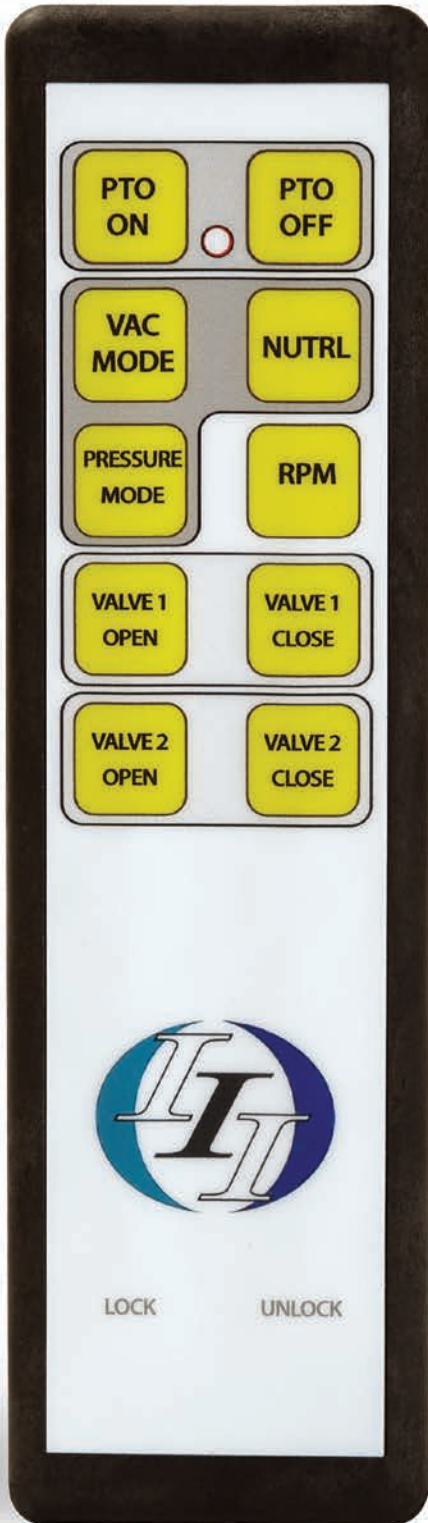
If approved, the bill would take effect in 2019 and would affect 5,000 to 9,000 homes each year. The bill would also require liquid waste haulers to report pumpouts to the county. Three or more pumpouts in a year would indicate a failed system. Deputy County Executive Peter Scully says county legislators will probably be asked this year to approve a bill requiring advanced treatment systems for new construction and as replacements for failing systems.

Colorado

New regulations will give homeowners in three counties more wastewater system choices and require inspections at the time of property sale. The regulations were adopted by the San Juan Basin Public Health Board. It covers La Plata, San Juan and Archuleta counties in the southwestern corner of Colorado near the New Mexico border.

Under the regulations, tiny homes (typically up to about 400 square feet) may have smaller wastewater systems than traditional homes. Homes using advanced treatment systems may have smaller systems with regular maintenance. Also, homeowners will be required to obtain permits if they intend to use any low-cost remediations on septic systems.

The rules took effect in January, but the point-of-sale inspection rule will not take effect until January 2019 to allow time to train inspectors, reports the *Durango Herald*. ■



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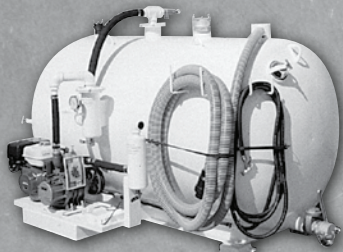


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Jim Anderson, Ph.D., is an emeritus professor at the University of Minnesota Department of Soil, Water and Climate and recipient of the pumping industry's Ralph Macchio Lifetime Achievement Award. Email Jim questions about septic system maintenance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

Wastewater Woes for a Pumper on Vacation in Central America

How can septic systems be improved or upgraded in popular tropical destinations to avoid bad experiences for tourists and local users? **By Jim Anderson, Ph.D.**

A reader contacted me and explained he just returned from a vacation that involved umbrella drinks and tropical beaches. Since these are things I really like as well, he captured my attention. Unfortunately, his experience was something less than desirable due to sewage odors and backups into his bungalow. His comment was: Why can't some of the technologies we use be applied to these areas, and what would be a process to make this happen?

I then saw an article in a scientific journal about an area in Belize (a Central American country bordered on the north by Mexico and to the east by the Caribbean Sea) that had received grants to establish better water delivery and sewage treatment. Over the last decade, the area experienced a large influx of tourists, and the local population recognized that substandard or direct-discharging systems were impacting water and reef quality — the very things that were drawing tourists.

It was very important to the locals in this area of Belize to protect their resources as well as maintaining small, family-run resorts as opposed to encouraging large-scale resort development.

Since the area did not have a large population center and small resorts and residences were scattered, officials followed a decentralized approach to solve the problem. Individual household treatment systems were installed as well as cluster systems for the larger resorts. Currently, there is an effort to install a centralized sewage treatment system over a larger part of the area. Some residents fear this will affect their livelihoods and the character of the region.

Interesting how familiar that story sounds, isn't it? It plays out regularly in communities in our country too, and it is why we need to continually demonstrate that, if done correctly, the decentralized approach can be a viable alternative. A well-designed and -installed sewage treatment system will protect the environment and human health without odor and backup problems.

REVIEWING SYSTEM USE

After reading the article and reader comments, I thought back to the beginnings of the sewage treatment programs I have been involved with over the years in Minnesota and Wisconsin. In both cases, the programs began in large part due to resort owners and local residents who saw their lakes and water resources being impacted in a negative way by the lack of treatment practices. They also recognized that if they did not do something, the tourists would stop coming. In the early days of the Minnesota program, a lot of time was spent working with resort owners to upgrade systems using the best and newest technologies available.

We need to continually demonstrate that if done correctly, the decentralized approach can be a viable alternative. A well-designed and -installed sewage treatment system will protect the environment and human health without odor and backup problems.

The process involved looking at each unique situation and then coming up with the appropriate design solution. It starts with an evaluation of the source and amount of sewage flow as well as the character of that flow. Is the flow from a housekeeping cabin with kitchen facilities? Does the flow involve a restaurant or lodge? Is there a campground with central facilities? Location of these facilities relative to the availability of area to install a soil treatment unit is a part of the analysis.

Estimating sewage flows is always something of an art. And with tourist facilities, it is not only the total flows that are important, but also the peak flows on a daily, weekly and monthly basis. This will help determine tank capacities and storage needs to help manage the system going forward. This requires actually metering the flow and evaluating those flow numbers for a period of time during peak seasons to get an accurate determination of flow characteristics. Tables and charts can be used to estimate the flows, but they are no substitute for real data on the specific resort.

THE SURVEY SAYS

The areas available for installation of the soil treatment units are evaluated for the presence of suitable soil conditions. A site evaluation is conducted to determine the necessary setback distances from the lake, water-supply wells, buildings, etc. These take into account additional plans such as swimming pools, basketball or tennis courts. Based on soil conditions, the necessary type of final treatment system is determined. Soil texture, structure, depth to limiting soil condition and permeability estimates are made. This will determine if the site is suitable for sewage treatment trenches or requires an at-grade or mound system.

A detailed survey of the sources of sewage, likely location of the sewage tanks and other system components is made. It will look at elevation differences to determine if sewage from the facilities can run by gravity to the final treatment area or if pump tanks and pumps are required to move the sewage.



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If some of the existing sewage treatment facilities are going to be used, they need to be inspected to determine correct operation and that they are in good condition for future use or will need to be upgraded.

Finally, the resort operators must recognize the need for regular system maintenance. They should have a maintenance plan and follow it. Most routine items can be scheduled for off-season times or times of lower usage so customers are not inconvenienced. This requires continual inputs of labor and money; so they need to be part of the long-term operation plan for the resort.

So to answer the earlier question, yes we can use our technologies to improve wastewater systems at these resort areas. There is a process; it is not just a one-time effort, but rather a continuing series of activities to ensure proper system functions. ■

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New Jersey Inspector Aims to Remove Perceived Conflicts of Interest

Joseph Garner transitions from a general onsite model to an inspection-first business to build on his expertise and give customers more peace of mind **By David Steinkraus**

Joseph Garner spent years working for others through companies in the wastewater industry. But he wanted to become an independent onsite wastewater certified system inspector and project manager. Today, Garner owns and operates Garner Septics in Vineland, about 42 miles south of Philadelphia and in the middle of southern New Jersey. He and his four full-time employees provide inspection services within an hour's drive of the office.

He was asked to elaborate on his career path:

Pumper: Why did you start Garner Septics?

Garner: I wanted to be in a position where customers did not distrust my motives, and I have been in a position like that. A company I used to work for did installations as well as inspections. Our recommendations were honest, but customers and real estate agents were suspicious that I advocated a particular solution in order to squeeze more money from them. Garner Septics does repairs, but 48 percent of our business is inspections, and another 20 percent is additional testing to follow up on those inspections. Customers who ask us to do repairs in addition to an inspection must sign a form that acknowledges they are not concerned about a conflict of interest.



Joseph Garner

Pumper: Those are detailed numbers.

Garner: Details matter. People want facts, and I want to be able to produce facts. That's especially important to younger people.

Pumper: Your younger customers are more interested in details?

Garner: Yes, especially those younger than 30 or 35. They research stuff, sometimes to a fault, but they research it. We follow state standards for inspections, and from comments people have made to me, it's clear they read those standards and know, for example, that a hydraulic load test requires two days. When I'm speaking with a customer, I have to be prepared because if I give them the wrong information, or if I give them information that's contrary to what they already looked up, they're going to call me on it.

Pumper: How do you market your services?

Garner: I don't pay for advertising, and I really haven't since I started the company. I do social media, digital media, and a lot of direct contact with real estate offices. They're our primary customers. I do a class for them

because they need to know a bit about how onsite systems work and, more importantly, why an inspection is so important and what is included.

Pumper: Are advanced units more common in your area, and are they harder to inspect?

Garner: The numbers are going up but not at the rate everyone thought they would when those systems first became prevalent about five years ago. Inspecting advanced units is not complicated. It's an extension of what you already do. You're still inspecting the drainfield or dispersal system. You're still going to test the unit; you're still going to clean it because all of that's required. You're just spending a little more time with the tank and the various components in it. And each manufacturer already has a set of standards for

their own unit. A lot of that information is included in the regular maintenance procedures.

Pumper: What are the "second-opinion inspections" mentioned on your website?

Garner: Some Realtors come to us because they're dealing with companies that they believe have a conflict of interest. From February to April in 2017, we had 20 or 25 inspections where we came up with findings similar to the first inspection, but in 90 percent of those, we recommended repairs instead of the complete system replacement recommended by the first inspector. Replacing a system is the easy solution. It's more expensive for the customer, but it is safer, with the potential for fewer issues. We first look for the opportunity to repair a system and keep it func-

tional. It's less expensive for the customer, but the ability to troubleshoot an ailing system and make it work takes more experience.

Pumper: Why do you think the number of advanced units has not grown as rapidly as expected?

Garner: Most of it is price-driven. Advanced treatment units certainly have advantages on processing and pretreating waste. But they're also

“We first look for the opportunity to repair a system and keep it functional. It's less expensive for the customer, but the ability to troubleshoot an ailing system and make it work takes more experience.”

– Joseph Garner

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more expensive than conventional systems, and in the state of New Jersey, a maintenance contract is required. It should be common sense to maintain your system, but when people are told to do something, they tend to react negatively. That's where it's important to be an educated service provider because you can talk intelligently about the pros and cons.

Pumper: Does New Jersey require inspections at the time of sale?

Garner: It does not, but a lot of mortgage companies want to see an inspection done. They want to make sure a system is in decent functional shape so buyers don't default because there is some issue they cannot afford to fix.

Pumper: You have other full-time Pennsylvania Septage Management Association-certified employees; and how did you find those people?

Garner: All my employees were found and hired from the South Jersey area and subsequently trained and certified through the Pennsylvania Septage Management Association. I've been on the board for four years and am currently the president. Two of my recent hires aren't certified yet, but they will be once they've taken my class. (I'm also a certified Pennsylvania Septage Management Association instructor.)

Pumper: Does networking through the Pennsylvania Septage Management Association play an important role in your business growth?

Garner: Through meetings and various gatherings, I have met like-minded people. I use the association to find inspectors who I refer work to in Pennsylvania, northern New Jersey and Delaware. And they refer to me. Referrals keep us doing inspections instead of driving. For example, if we drive two hours to northern Jersey for a job, that's four hours total on the road, plus two hours on site. Add lunch breaks and other breaks, and one inspection consumes an entire day. And I have to charge more, which risks making the customer unhappy.

Pumper: Given that you are president of the Pennsylvania Septage Management Association but live in New Jersey, could you explain the importance of the association?

Garner: The Pennsylvania Septage Management Association is a model in many ways in our area of the country because of the standards and certifications it has developed. For example, the New Jersey state wastewater system inspection standard is derived from the Pennsylvania Septage Management Association standard. New Jersey is the association's Region 7, so people from here can join Pennsylvania Septage Management Association and be certified by it. ■

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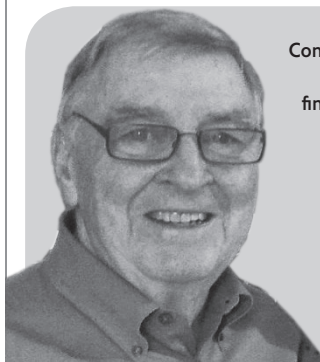
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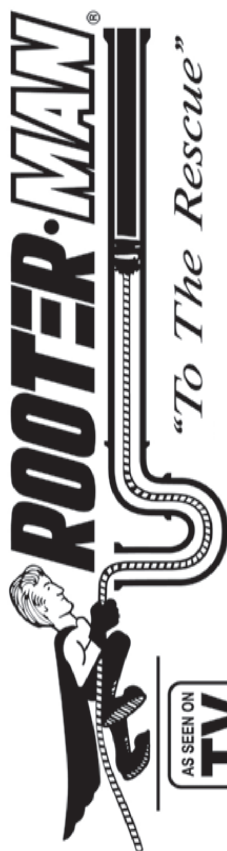


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No Such Thing as a Routine Service Call

In rural New Mexico, Jay Carroll has learned to expect the unexpected when inspecting, pumping or installing a septic system

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 Professional Onsite Wastewater Reuse Association of New Mexico.

Name and title or job description: Jay Carroll, owner

Business name and location: Stool Bus, Pie Town, New Mexico

Age: 60

Years in the industry: 10

Association involvement: We have been a member of the Professional Onsite Wastewater Reuse Association of New Mexico for the last seven years. We are grateful for the organization and its professional leadership.

Benefits of belonging to the association: The ability to periodically gather with other professionals in our industry. I am always gratified by the fact that there is a sense of camaraderie among our members. While the Stool Bus provides a service to a primarily rural community with a plethora of conventional systems, I am always interested to get some schooling from other technicians who deal with advanced systems and technologies.

Biggest issue facing your association right now: Just as in every other industry — government! In the end, the customer is the most important person in the mix, and the business of wastewater professionals is to provide a reliable service at an affordable price. The service professional carries the burden of providing that service while abiding by the sometimes-oppressive regulations.

Our crew includes: We are a family-owned and -operated company. My wife, Penny, handles paperwork and office functions. The primary truck and equipment operators are my son, Justin, and myself, but we are always accompanied by Agustin Contreras, Adrian Martinez or Jerry Hicks. In our remote area, we rarely travel alone. The distances are too great, and no call is routine.

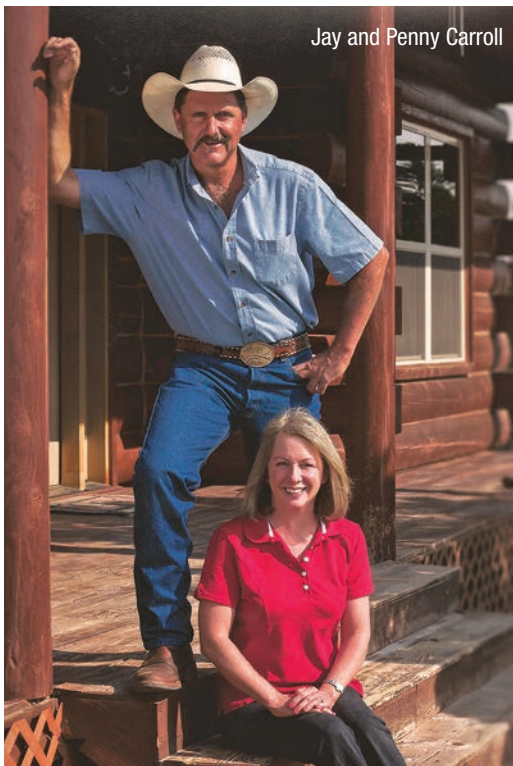
Typical day on the job: When it rains, it pours. Our service area encompasses a large

portion of rural western New Mexico, which is about a 10,000-square-mile range. We don't get a call every day, but when we do, it can be anything from a simple pumping to an emergency repair, inspection, installation, drain cleaning or a request for a portable restroom. Adding to the challenge of providing the wide range of services, we might travel 70 miles one-way to perform a given task.

Helping hands - Indispensable crew member: Our MVP is, without a doubt, my wife and life partner of 42 years, Penny. She keeps us on track with all of the calls, inquiries, scheduling, permits and jobs. Her impeccable attention to detail and timely reminders are invaluable.

The job I'll never forget: "Unacceptable and deadly" comes to mind immediately. We were called to do an inspection on an old ranch property, which was under contract to be sold. Naturally, no one could tell us the location of the septic tank, as is so often the case. Corey (a former employee) and I arrived and began to probe in the areas where we suspected the system might be located. We found a spot that seemed worthy of further investigation. While I went to unload the excavator, Corey continued with a little shovel work. When I returned five minutes later, he had opened up a small hole that was completely open beneath. I plunged the bucket of the excavator through the opening and a 5-foot-diameter area suddenly gave way, exposing an 8-foot-high culvert filled with "goo." As it turned out, the homemade "system" had been covered with a layer of rough-sawn lumber and a few inches of New Mexico dirt, decades ago. The sweet spot we had discovered, to begin our excavation, was dead in the center of the 5-foot-diameter area where 15 minutes earlier our combined 450 pounds was supported by a mere 4-inch layer of New Mexico soil, laced with grass roots. To this day, I still get a cold chill that runs up my spine when I recall that inspection. No call is routine!

Most challenging site I've worked on: We started the company on a shoestring budget. And while we've seen our share of job site challenges, the most challenging obstacle we have overcome is that we built our first truck with an old, 1,200-gallon water tank and a piston and





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diaphragm trash pump. It was a sight. ... But it worked. And after a year of making do with what we had, Penny came to me and said, "Babe, that thing is making money."

The craziest question I've been asked by a customer: "How could my septic tank be full? It's only been three years." I'm always amused at the general lack of understanding that some people have with regard to how a septic system works.

If I could change one industry regulation, it would be: In certain cases, a more liberal interpretation of codes and regulations should be applied. I understand that the rules are the rules, but there are certain situations where a commonsense variance might apply. For instance, the gallons per day design flow rate for a small seasonal RV park versus one that has continuous year-round occupancy.

Best piece of small-business advice I've heard: "You have to learn to say no." I'm still working on this one. I hate to turn down work. But the necessity to balance quality production, maintain one's sanity, and achieve customer satisfaction is essential. You can't be all things to all people, but you can try.

If I wasn't working in the wastewater industry, I would: Be doing construction, which is what we do when we're not doing septic-related work — though I prefer the septic business to construction these days. People call with a need, and we show up, solve their problem, get paid, and move on to the next call. ■

- Compiled by Betty Dageforde

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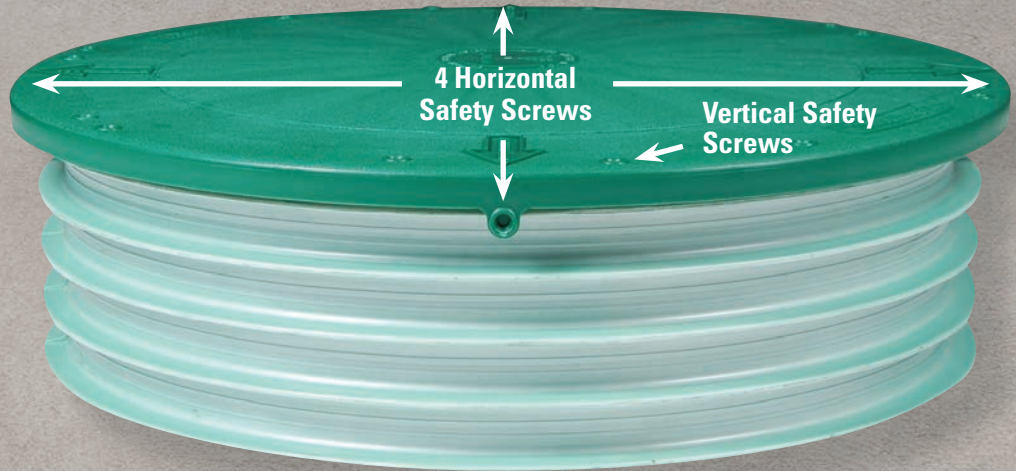


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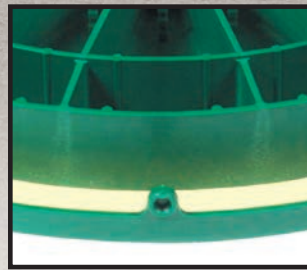
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Ronnie and Jennifer Tamez are owners of First Call Septic Services in Battle Ground, Washington. Send your Truck Corner questions to editor@pumper.com.

Should You Choose a Vane Pump or Blower for Your Next Truck?

Your company's workload and the capacity of your vacuum tank will dictate which suction choice is right for you **By Ronnie Tamez**

A vane pump or rotary blower for wastewater vacuum trucks? It's a question I have been toying around with for some time. There are appropriate uses and situations for each vacuum technology, but before I share my suction strategies, I should explain in detail how each machine works.

A vane pump compresses air to create a void where vacuum is created. Depending on the model, it will take anywhere from 45 seconds to 2 minutes to build up vacuum to start working. A rotary blower displaces air to create that vacuum, creating negative pressure in seconds, and the technician is ready to work.

There are a few factors to consider either way to go. For example, the size of hoses you're using and the size of your truck's vacuum tank.

Vane Example: If your vacuum tank is on a portable restroom service truck and you're using 2-inch hoses, a rotary vane pump wouldn't take very long to build vacuum and you can start working pretty quickly. But let's say you have a 6,000-gallon tanker trailer with the same rotary vane pump. You'll wait a few minutes to have the air vacuumed out of that tank before generating adequate vacuum to begin work. Also, let's not forget that most of us backflush when we pump septic tanks. That means every time we have to reverse the truck and put the waste back into the septic tank to stir its contents, we have to switch the pump back into vacuum and build up vacuum again. You're spending a lot of time building vacuum.

Blower Example: Tiny restroom service trucks will have vacuum immediately. Using a blower, you'll maybe save a few seconds, if any. But on that 6,000-gallon tanker trailer, you would have instant suction. No more waiting on the truck to build vacuum. During the backflush cycle — after putting the waste into the septic tank to stir it and putting the valve back into vacuum — we would have instant suction again to start pumping. I see this as offering a huge time savings.

CHOOSING A VANE PUMP

Rotary vane pumps are typically what we pumpers carry and have serviced. They usually offer trouble-free operation. They last 10 to 20 years. They do require turbine oil and the draining of mufflers daily. High use and high cubic feet per minute usually require a liquid cooling of the pump, while the smaller pumps are air-cooled.

Vanes in the pump rotate around a rotor. The rotor has two bearings that allow it to rotate with little to no friction. These pumps can range from creating a mild pump noise to becoming really loud. These pumps take power

from the PTO, and the truck usually runs at 900 to 1300 rpms. So, noise will range with the specifications of the pump and truck.

Vanes aren't too costly if they break, usually about \$400 for the set. And they are replaced as needed. We've gone 13 years on a set, and they measure out near new. And if a prefilter fails and a rock gets in, the repair cost is about \$100. We keep extras in our shop. The purchase cost of rotary vane pumps can range from \$2,000 to about \$6,000, depending on features and cubic feet per minute rating.

The only two wear items on the rotary vane blower are the vanes themselves and the bearings. Special turbine oil is required to keep the pump operating. An oil catch following the pump collects the oil used during operation, and it must be drained daily or you'll leave "oil blast" marks on your client's driveway.

This pump is designed to "use/consume" oil. So the driver needs to keep the oil tank full and check the level often. We purchase our oil in 5-gallon buckets, and it runs about \$95. With three trucks, including one backup rig, the bucket lasts us about a month. The waste oil collected out of the oil catches goes to an oil recycler after we've saved 100 gallons.

GOING WITH A BLOWER

Rotary blowers — you may have heard them called "displacement blowers" — displace air to create their vacuum. I don't have any of these yet, but in my research, I have found they don't require any oil, and just like vane pumps, some have liquid cooling and some don't. Displacement blowers require higher revolutions per minute, so a 2:1 gearbox will be needed so you don't have to run your engine up so high.

In my research, I have found that displacement blowers are loud, and I mean very loud. In order to combat that, the manufacturers have enclosed pump features with exhaust silencers that have helped significantly. Blower maintenance costs are low. There is only one wear item, the bearings of the rotor. That's not too bad. But they have an Achilles' heel: overheating and liquids or debris contact. These are significantly more expensive to repair, and their down time is longer waiting for parts. Cost of a blower is usually \$10,000 and up.

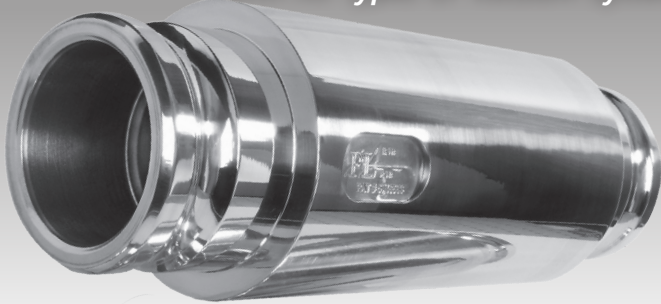
OUR VACUUM PLANS

So what are we going to do at our shop? Well, we aren't going to take down a perfectly good vane pump and replace it with a blower. Also, judging that we've never broke a vane or a vane pump, it's going to be a long time

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before we replace a pump with a blower, if ever.

Our plan is to purchase a newer truck in about a year and have a new blower placed on it. It will be great to see the difference in performance on the bigger trucks.

On smaller septic or restroom trucks that don't require extended time to build pressure, a vane pump remains a common choice. Most pumpers I have talked to about this continue to use vane pumps when they don't have a special reason to go with a blower. They view blowers as more expensive at the outset and that breakdowns are more expensive to fix. Although I have to believe if I maintain my secondary and prefilters, I will be most happy with a blower on larger trucks and rotary vane pumps on the smaller trucks. ■

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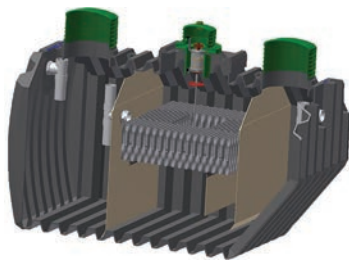
Advanced Treatment Units

By Craig Mandli

ADVANCED TREATMENT UNITS

JET INC. J-500-800PLT

The **J-500-800PLT** plastic tank from **Jet Inc.** offers a lightweight alternative to concrete J-1500 Series BAT Media Plants. The tanks offer variable treatment capacity from 500 to 800 gpd. They are rotational molded out of lightweight polyethylene material to offer a seamless tank with maximum strength and durability. They are easy to transport and install in difficult site conditions. **800-321-6960; www.jetincorp.com.**



NITROGEN REDUCTION SYSTEMS



ANUA PURAFLO DN

The **Puraflo Dn** peat fiber biofilter system from **Anua** provides enhanced denitrification below 20 mg/L through recirculating 50 percent of the treated effluent back to the front end of the septic tank, according to the maker. Flow proportioning

is accomplished through simple adaptations to external plumbing, allowing for a single-pump system with no aerators. In recirculation mode, each module is rated for domestic strength at 240 gpd total hydraulic loading equivalent and 120 gpd forward flow. It can be designed and installed as a combined treatment and effluent dispersal system. Treated effluent exits the modules via weep holes around the perimeter at the module base, and flows into the dispersal system situated directly beneath the modules. Available dispersal system options are in-ground pad or mounded pad. **336-547-9338; www.anuainternational.com.**

BIO-MICROBICS MICROFAST

MicroFAST wastewater treatment systems or **MicroFITT-ee** (energy-efficient version) systems from **Bio-Microbics** are integrated into a standard septic tank. With the SFR feature, alternate modes of operation include intermittent operation of the blower to reduce electricity usage up to 45 percent and recirculation of nitrified wastewater to the primary settling chamber for extra denitrification. Its biosolids treatment and sludge digestion enable cost-effective treatment with less maintenance. Available from 500 to more than 9,000 gpd applications, technology easily scales up for larger residential and commercial flows. The stability of the treatment process with fully submerged, fixed-film media and the effectiveness of activated sludge treatment helps in certain difficult applications and where there may or may not be infrastructure available. The effluent meets secondary quality requirements and can be distributed to a soil treatment system or water reuse applications (with drip-tubing irrigation or other nonpotable use). **913-422-0707; www.biomicrobics.com.**



ELIMINITE COMMERCIAL C-SERIES

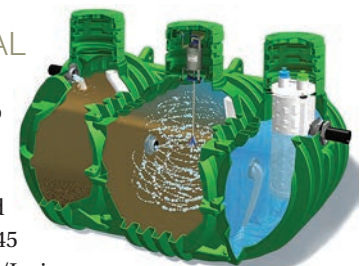
The **Commercial C-Series** system from **Eliminite** is designed to provide reliable treatment results, with specific emphasis on total nitrogen reduction, for high-strength waste applications such as worker

camp, RV parks, restaurants, ski and golf resorts, breweries, mines and agricultural operations. It works with local tank manufacturers and contractors to adapt components into locally sourced tanks when possible. MetaRocks treatment media are designed to withstand a variety of high-strength wastewater loading scenarios, particularly where clogging and odor control are major considerations. The system is scalable and may be adapted to suit specific phasing requirements, site constraints and unique demands. **888-406-2289; www.eliminite.com.**

NORWECO SINGULAIR TOTAL NITROGEN TREATMENT

The **Singulair TNT** system from **Norweco** is a nitrogen-reducing advanced wastewater treatment system that reduces total nitrogen by more than 68 percent. Certified performance data from NSF Standard 245 verifies that average effluent contains 7 mg/L nitrate, 12 mg/L total nitrogen, 4 mg/L CBOD₅ and 9 mg/L TSS.

The system offers flow equalization, effluent filtration and low electrical usage. It is designed for easy installation, operation and maintenance to reliably minimize effluent nitrogen concentrations. Nitrogen reduction is achieved without requiring effluent recirculation or the addition of chemicals. All treatment is accomplished within the tank. **800-667-9326; www.norweco.com.**



(continued)



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NITROGEN REDUCTION SYSTEMS

ORENCO SYSTEMS ADVANTEX AX20-RTUV

The **Advantex AX20-RTUV** treatment system from **Orenco Systems** is a self-contained module that treats typical septic tank effluent to better than secondary standards, with nitrogen reduction and UV disinfection. It's designed for homes with up to four bedrooms and is especially suited for small sites with poor soils or that require shallow bury. It helps protect surface waters and aquifers and can be an effective solution for areas that have strict discharge limits, according to the maker. It is installed following a septic tank equipped with Biotube effluent filters. The unit eliminates the need for separate recirculation, treatment, discharge and disinfection tanks and basins, and it reduces the number of risers and lids needed in the treatment train. **800-348-9843; www.orencosystems.com.**



PREMIER TECH AQUA ECOFLO COCO FILTER

Installers now have a UV disinfection option integrated as a kit in most **Ecoflo Coco Filter** models from **Premier Tech Aqua**. Factory prewired and easy to install, this simple disinfection option facilitates maintenance and bulb replacement. A single alarm box is needed for both the UV kit and the pump. Through regulated flow, the UV disinfection option offers robust treatment performance, according to the maker. **800-632-6356; www.ecoflobiofilter.com.**



WASTEWATER TREATMENT SYSTEMS

ARCAN ENTERPRISES SEPTIC-SCRUB

Septic-Scrub chemical additive from **Arcan Enterprises** is designed to help remove sludge that builds up and sticks to the stone in a drainfield, pit or sand mound to rejuvenate the drainfield. According to the maker, it works in the first 24 hours after application. It can serve as part of a maintenance program. It works with all types of systems, is safe to handle and is environmentally friendly. **888-352-7226; www.arcan.com.**



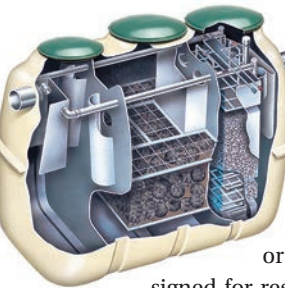
SEPTITECH STAAR FILTER SYSTEM

SeptiTech STAAR (Smart Trickling Anaerobic/Aerobic Recirculation) filter systems are designed for both multifamily domestic and high-strength commercial wastewater from 100 to more than 150,000 gpd. Systems use partially submerged media to treat high organic loads that integrate with other technologies and accessories.

The biological trickling filter also maintains low levels of Nitrate-N with all below-grade components that fit in available concrete, plastic or fiberglass tanks. Smart technology allows the system to go into a sleep mode that will dial down activity and eventually shut all power off until normal flow conditions are detected. This allows the system to achieve lower operating costs and power requirements. **207-333-6940; www.septitech.com.**



CLARUS ENVIRONMENTAL FUSION SERIES



Fusion Series treatment systems from **Clarus Environmental** are drop-in wastewater treatment units designed for use in decentralized applications where effluent quality must meet or exceed secondary treatment standards. It is designed for residential, commercial, and small community applications and is available in treatment capacities, from 450 to 4,000 gpd. All models up to 800 gpd are NSF Standard 40 certified to produce effluent quality of 9 mg/L CBOD₅ and 9 mg/L TSS. The design enables it to be installed without a pretreatment tank on sites with limited space. Effluent disposal options include conventional trenches, dosed systems, drip irrigation or disinfection with direct discharge. **800-928-7867; www.clarusenvironmental.com.**

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UV DISINFECTION EQUIPMENT

POLYLOK INC. / ZABEL PL-UV1 UV DISINFECTION UNIT

The **PL-UV1 UV Disinfection Unit** from **Polylok Inc. / Zabel** reduces bacteria levels from secondary effluent to achieve strict water-quality standards. Every component of the compact unit is engineered and constructed to provide reliable disinfection and long operational life, according to the manufacturer. It has a dual-pass design, a long-life UV bulb, weatherproof electrical components and no chemical residual or harmful byproducts. It is easy and inexpensive to install and operate, and it has low electrical usage. Flow rates for gravity flow only are 100 through 8,640 gpd, with 100 through 4,320 gpd with 30 mg/L BOD and 30 mg/L SS, and 4,321 to 8,640 gpd with 10 mg/L BOD and 10 mg/L SS. It offers a UV dose greater than 40,000 microwatt-seconds per square cm at 254 nanometers, with transmissivity of 65 percent. **888-765-9565; www.polylok.com.**



GEOMATRIX SYSTEMS GST LEACHING SYSTEM

The **GST Leaching System** from **Geomatrix Systems** uses a removable form to accurately shape and construct leaching fingers along the sides of a central distribution channel. The system is constructed with 3.4 inches of washed stone and is surrounded with ASTM C-33 sand. The fingers increase the sidewall surface area by more than six times over a traditional stone trench. The narrow profile of the leaching fingers and central distribution channel, combined with the uniform profile of the sand treatment media, enhance oxygen transfer efficiency, resulting in better treatment of the wastewater pollutants and a leachfield with a longer life span. Its direct stone-to-soil contact enhances long-term performance. It can be configured with standard gravity, pressure and/or time-dosed distribution. **888-764-5247; www.geomatrixsystems.com. ■**





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Advanced Treatment Units

By Craig Mandli

CASE STUDY

SYSTEM ALLOWS LIGHTHOUSE TO BE CONVERTED INTO A BED-AND-BREAKFAST

Problem: When the lighthouse keeper's house on Cuckolds Island in Maine was in use, it had an overboard discharge. Faced with demolition, a local group fought to save the lighthouse. During the renovation, it was decided to make the residence a bed-and-breakfast. There needed to be a way to treat and dispose of about 500 gpd of wastewater. The initial plan was to pump the wastewater through a 1.5-mile pipe on the ocean bed and up the shore to the mainland, where it would go under a pond and road to a septic field. This plan was opposed by both the Army Corps of Engineers and the state.



Solution: Albert Frick of Albert Frick and Associates designed a system meeting the state's criteria using a **BUSSE GT500** system coupled with a SoilAir disposal field that fit within the limited area of a small lawn next to the lighthouse. This was possible because the system produces an effluent that has less than 5 mg/L of TSS and BOD as well as less than 1 fecal coliform bacterium per liter, so little or no breakdown of the wastewater takes place in the disposal field. The effluent then naturally flows through rocks, sand and soils into the ocean. Because the system is seasonal, fall shutdown and spring startup can be accomplished without the need to remove any sludge from the property.

Result: The system meets or exceeds all required standards. It makes the property useable as a bed-and-breakfast. **708-204-3504; www.busse-gt.com.**

CASE STUDY

COMPACT SYSTEM RECOMMENDED FOR TIGHT FIRE STATION PROPERTY

Problem: Skylonda Fire Station in Woodside, California, needed a septic system to accommodate a new fire station. The site had significant constraints including reserve areas; space for a required redundant system; setbacks; and large, protected redwood trees. Many technologies were prohibitive due to space constraints and were too costly.



Solution: San Mateo County approved the **Advanced Enviro-Septic** treatment and dispersal technology from **Presby Environmental** for a 1,620 gpd, 540-linear-foot primary system with a 600-linear-foot redundant system to be installed under pavement. The primary system has gravity flow to the septic tank and to the pump chamber, then volume lift dose to the Advanced Enviro-Septic system.

Result: The system allowed for construction of the new fire station and has performed as advertised. **800-473-5298; www.presbyeco.com.**

CASE STUDY

SYSTEM ALLOWS HOMEOWNER TO LIST HOME FOR SALE

Problem: A six-bedroom home in Snyder County, Pennsylvania, needed a replacement septic system. The older, existing cesspool failed and had to be repaired in order to sell the home. The site had multiple constraints, including 20 inches to a limiting factor, a poor perc rate, and setback constraints from a township diversion ditch, property line, neighbor's well, and creek. A new system required over 1,700 square feet to meet regulations. An elevated sand mound would not fit on the site, and there were limited options for the usable available space.



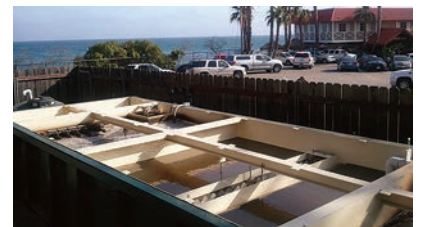
Solution: Jim Sanders' design included 80 **B43** geotextile sand filter modules from **Eljen** in a nontraditional bed configuration to meet sizing and square-footage requirements. The low-pressurized system was shaped to meet unique site features by using six rows of differing lengths, keeping laterals on contour and stepping laterals down the slope. Timed dosing was also used to spread out the total gpd over a 24-hour period. The system, along with the new septic and dose tanks, was installed by Cliff Crider and Matt Good, and the units and onsite training were provided by Expert Septic.

Result: The homeowner now has a code-compliant system and is able to list it for sale. The system had lower material costs than an elevated sand mound, treats the effluent to NSF Standard 40 and meets Pennsylvania's treatment standards. The system has minimal maintenance requirements, and no future media replacement is necessary. **800-444-1359; www.eljen.com.**

CASE STUDY

UV USED TO DISINFECT MALIBU, CALIFORNIA, RESTAURANT EFFLUENT

Problem: Located on the oceanfront in Malibu, California, Duke's Malibu is a popular restaurant, dedicated to Duke Kahanamoku, the father of surfing. Wastewater from the restaurant averages 6,000 gpd, and it must be treated on site and directly discharged to the sensitive beach environment. The existing treatment system was outdated and was causing numerous water quality and discharge violations.



Solution: Carlile Macy was selected to provide an upgraded treatment system. They chose an upflow sludge blanket filtration system, or USBF, and **SALCOR UV** disinfection system, consisting of four **3G UV** units in two parallel tracks. The California Regional Water Quality Control Board and city of Malibu approved their design.

Result: The new treatment system produced high-quality effluent, which has met the stringent disinfection requirement of California Title 22. Results have been consistent over five years of operation. Effluent total coliform count has been nondetectable, and the dissolved oxygen concentration has averaged 6 mg/L. The high-quality discharge has reduced coliform levels in the groundwater from more than 1,600 MPN to less than 2 MPN. Because of wastewater fat, oil and grease content, the UV units were initially inspected weekly for possible fouling of the Teflon barrier. Those inspections were suspended during the first year of operation because no fouling had occurred. **760-731-0745.**

CASE STUDY

ADVANCED TREATMENT SYSTEM GOES UNDERCOVER ON COSTA RICAN ISLAND

Problem: Isla Chiquita is a luxury island camping resort in Costa Rica that is only accessible by small boat. To gain approval, owners needed a high-yield advanced wastewater treatment system that would meet stringent environmental codes that preserve the protected island. The system had to be prefabricated, transported to the island by small boat, installed with no concrete, invisible to guests once installed, and removable at the end of a limited-time concession. Treated effluent of less than 30 mg/L FOG and 150 mg/L COD was required with no noticeable septic odors, and the system couldn't exceed 38 dB for environmental noise.



Solution: Bionest Costa Rica designed a modular wastewater treatment system with a design flow of 2,378 gpd to serve 15 tents, a restaurant and other resort facilities. The design features two modular Bionest 1,189 gpd fixed-media bioreactor systems installed in parallel. All wastewater from the facilities is conveyed by PVC pipes to four IM-1060 settling tanks from Infiltrator Water Technologies. Solids and liquid separation and anaerobic biological treatment of the effluent is completed in the tanks. Following the settling tanks, the effluent travels to bioreactors inside four additional IM-1060 tanks equipped with Bionest media, fine-bubble diffusers, and a recirculation system for tertiary treatment. The treated water then travels through a disinfection unit before use in the resort's underground drip irrigation system.

Result: The resort opened in spring 2017, and the wastewater treatment system is functioning well with no visual, noise or odor issues to distract resort guests. **800-221-4436; www.infiltratorwater.com.**

CASE STUDY

SYSTEM USED TO TREAT LAGOON WASTEWATER

Problem: A small community in Tennessee was utilizing a lagoon system to treat domestic wastewater. The state issued the community a more stringent permit for discharge of the wastewater into a nearby tributary. The primary concern was the lower ammonia limit established in the new permit.



Solution: The project contractor selected Delta Environmental's ECOPOD-N to further treat all of the wastewater constituents down to the new permit requirement. The design utilizes a two-staged ECOPOD-N FBBR treatment system, consisting of two engineered ECOPOD-N models. Incoming flow to the treatment system is 5,000 gpd with an average ammonia concentration of 45 mg/L. The system is designed to facilitate the nitrification process by providing required aeration and using a fixed-bed biological reactor to promote bacterial growth for biological ammonia reduction. The second-stage unit provides further BOD/TSS reduction to ensure effluent meets the discharge standard. The external controls also incorporated variable-frequency drives for ease of adjustment to the air supply in the event that ammonia levels or environmental factors fluctuate. The effluent gravity flows through a chlorine disinfection system, followed by dechlorination treatment, before final release into the tributary.

Result: The project contractor was able to quickly and easily install the new treatment system. The site has successfully maintained discharge permit requirements. **800-219-9183; www.deltaenvironmental.com.** ■

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	7.9	30.0	4350	300	1450	24.3	0.787	20	0.906	23

RTX 30.500N	Max GPM.	Max. LMP	Max. PSI	Max. Bar	Max. RPM	Req. HP	Bore Dia. in.	Bore Dia. mm	Stroke in.	Stroke mm
	7.9	30.0	7250	500	1450	24.3	0.787	20	0.906	23

RTX 50	Max GPM.	Max. LMP	Max. PSI	Max. Bar	Max. RPM	Req. HP	Bore Dia. in.	Bore Dia. mm	Stroke in.	Stroke mm
	13.2	50.0	4350	300	1450	27.2	0.984	25	0.906	23

RTX 60	Max GPM.	Max. LMP	Max. PSI	Max. Bar	Max. RPM	Req. HP	Bore Dia. in.	Bore Dia. mm	Stroke in.	Stroke mm
	15.8	60.0	4350	300	1450	47.2	0.984	25	1.012	28

RTX 70	Max GPM.	Max. LMP	Max. PSI	Max. Bar	Max. RPM	Req. HP	Bore Dia. in.	Bore Dia. mm	Stroke in.	Stroke mm
	18.5	70.0	3000	206	1450	25.4	1.181	30	0.906	23

RTX 85	Max GPM.	Max. LMP	Max. PSI	Max. Bar	Max. RPM	Req. HP	Bore Dia. in.	Bore Dia. mm	Stroke in.	Stroke mm
	22.5	85.0	2200	151.7	1450	34.0	1.181	30	1.102	28

RTX 100	Max GPM.	Max. LMP	Max. PSI	Max. Bar	Max. RPM	Req. HP	Bore Dia. in.	Bore Dia. mm	Stroke in.	Stroke mm
	26.4	100	1800	124	1450	27.2	1.417	36	0.906	23



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PRODUCT NEWS

in the
SPOTLIGHT
By Craig Mandli



P-POD OFFERS HAULING AND STORAGE CONVENIENCE

Portable restroom rentals can be a strong added service for septic pumpers. Having units on hand does require storage space, though. For some companies, that may be hard to come by. That's where the **P-Pod** portable restroom comes in.

The unit was invented by Canadian tent rental business owner Rob Weir after years of facing just such a space problem. "I was used to tents folding up and taking up hardly any space," he says. "When I started offering portable restrooms, they just took up so much space in my yard. I thought there had to be a better way."

When his P-Pod portable restroom is collapsed, it stands just one-third the height of a traditional unit. That means companies can transport three times as many units with the same delivery equipment. The design uses a single bar inside the unit to hold it upright. Release the bar, and the portable toilet folds into its compact position. At 36 inches high in its folded-down position and 160 pounds, it can be tossed easily into the back of a small pickup truck or even a minivan.

The P-Pod's collapsible design also allows for more efficient storage. Its nesting base allows PROs to stack three units in the same space as one conventional portable restroom, meaning that if a truck or trailer currently holds 10 conventional units, it can hold as many as 30 P-Pods.

"We feel this product is a great fit for anyone with space limitations," Weir says. "We've had a ton of interest from European companies, and I think when companies in the U.S. crunch the numbers, they see the benefits as well."

The units feature wide door openings, and a spring-assisted door hinge for easy opening and closing. They fit in a standard portable restroom footprint, can be easily company-branded, and are easy to service, according to Weir. Interchangeable and sealable waste vessels are accessible through the back of the unit for no-mess transport and clean-out and come in several sizes.

A bumper hauler model allows for easy transportation to sporting events, campgrounds, tailgate parties, or job sites, providing customer convenience to rent, use, and return the unit. It is available in several colors to match existing fleets.

519-980-0163; www.p-pod.ca.

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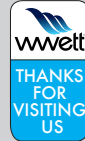
Your Classy Truck submission must include your name, company name, mailing address, phone number, and details about the truck including tank size, cab/chassis information, pump information, the company that built the truck and any other details you consider important. In particular, tell us what features of the truck help make your work life more efficient and more profitable.

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

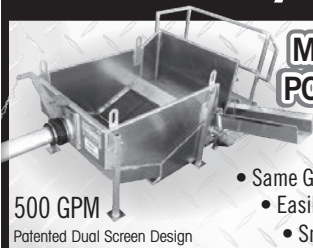
The EF4000 Everflo 12-volt diaphragm pump from Water Cannon Inc. - MWBE is designed for fluid transfer applications, agricultural sprayers and spot sprayers. The lightweight and versatile pump comes equipped with a polypropylene housing and valve plate, Viton valves, and a Santoprene diaphragm. It also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





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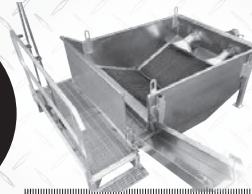
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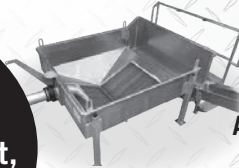
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Vacuum truck innovator LaVerne Charlet passes away

Wastewater industry pioneer LaVerne Charlet passed away Dec. 20 in Paducah, Kentucky. He was 83. Charlet was a manufacturer, marketer, and innovator in the vacuum truck industry and a recipient of the prestigious Ralph Macchio Lifetime Achievement Award presented by COLE Publishing founder Bob Kendall at the Pumper & Cleaner Environmental Expo.

In 2004, Charlet was honored by *Pumper* as influential in vacuum truck technology. He was instrumental in septic service companies moving away from rudimentary diaphragm pumps or creating suction off a truck's intake manifold and utilizing modern pumps and vacuum tanks.

"We'd buy a truck and build a body. I'd jump in to the truck and go out and do some demonstrations and sell it. Then I'd come back and we would do it all again," he recalled at the time. "When I demonstrated a truck with a vacuum pump, they were amazed. Some people, after the demonstration, would refuse to buy one. They'd say, 'People wouldn't pay me — they'd think I was getting money too easily.'"

Charlet operated the vacuum tank manufacturing company Industrial Municipal Engineering, or IME, with Leland Pearson and then later started an aluminum tank distributorship, LC Tanks. In 2004, he told *Pumper* that IME was the first company to introduce full-opening rear doors and hoisted tanks, and brought Moro pumps to the U.S. market. Charlet also served as president of Kentucky-based IBEX, which manufactured vacuum trucks and dewatering systems.

In a 2012 letter in *Pumper*, Charlet announced the sale of LC Tanks and his retirement after 45 years in the liquid waste industry. Charlet was a U.S. Navy veteran. Memorials may be made to the Alzheimer's Association, Greater Kentucky Chapter, 6100 Dutchmans Lane, Suite 401, Louisville, KY 40206-3506.

Founder of Jack Doheny Cos. passes away

Vacuum truck and sewer cleaning industry leader John "Jack" Leary Doheny, founder of Jack Doheny Cos., passed away Jan. 1 at his home in Vero Beach, Florida. He was 87.

After serving the country in the U.S. Air Force, Doheny joined his uncle's company and traveled across the U.S. with his father to demonstrate coiled and sectional rodding machines. In 1973, he started his own business, Jack Doheny Supplies, which today is under the Jack Doheny Cos. umbrella. Jack Doheny Cos. is North America's largest provider of sewer cleaning, pipeline inspection, and multiuse vacuum trucks for sale, rental, service, parts and training.



John 'Jack' Leary Doheny was an industry leader for more than four decades

Doheny will be remembered for his industry leadership. In 2014, he was named a Standard Bearer by NASSCO, one of a select group of leaders who have contributed to the protection of underground infrastructure through the development and implementation of industry standards.

"I believe it would be hard to find anyone who is against sewer cleanup," Doheny shared during his Standard Bearer interview. "It's as American as Chevrolet and apple pie. For me, it's also a family tradition. My father lived to be 107 and was instrumental in changing the way sewers are cleaned. I am proud to be part of this legacy and hope to follow in his footsteps to contribute to this great industry for many years to come."

In lieu of flowers, the family requests donations be made to the Jack Doheny Memorial PACP Scholarship Fund, c/o NASSCO Inc., 2470 Longstone Lane, Suite M, Marriottsville, MD 21104.

Bio-Microbics wins i-NOVO award

Bio-Microbics announced it won the DirectIndustry 2017 i-NOVO Award for its BioBarrier GWMBR Greywater Treatment System. It was voted most innovative in the i-NOVO Eco category by a three-step voting process. The Eco award is given to products that lessen or eliminate impact on the environment.



Infiltrator Water Technologies works with Habitat for Humanity

Members of the Infiltrator Water Technologies team joined Habitat for Humanity of Eastern Connecticut to help in the early renovation stages of a four-bedroom home in Montville, Connecticut.

A septic system was also installed by Norman Wood Excavating using donated products from Infiltrator Water Technologies' line of onsite wastewater products.

Jim LeBoeuf Septic Service acquired by Wind River Environmental

Wind River Environmental of Marlborough, Massachusetts, has acquired Jim LeBoeuf Septic Service of Hyannis, according to a statement from the company. The acquisition allows Wind River Environmental to increase its service delivery capabilities in Massachusetts. Jim LeBoeuf Septic Service began service in 1993 and provides septic pumping, Title 5 inspections, and system repairs, including new installations.

Davis appointed vice president of manufacturing for Lely Tank & Waste Solutions

Chad Davis has been promoted to vice president of manufacturing for Lely Tank & Waste Solutions in Wilson, South Carolina. He formerly served as operations and service manager for the company and has worked for Lely Tank & Waste Solutions since 2003. He will oversee manufacturing operations in North Carolina and Texas.



Chad Davis

Palmer named president and CEO of Mitsubishi Fuso Truck of America

Mitsubishi Fuso Truck of America promoted Justin Palmer to president and CEO. He replaces Jack Glasman. Palmer joined the company in 2015 and spent the last two years as its director of business operations. ■

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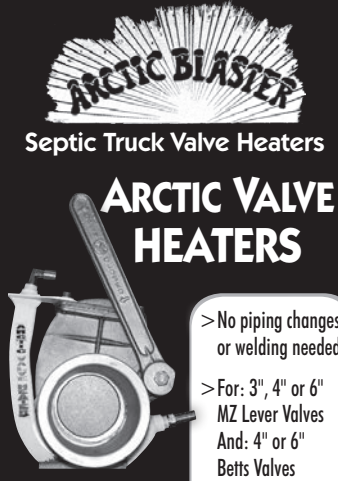
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Bruce 701-471-4098, ND P03



2005 Sterling Acterra, 2010 Crescent tank 900w/350f. Mercedes MBE900, 161k miles, Allison transmission, non-CDL. Dual side service, Masport pump, Burks DC10, Theiman TVL16 liftgate, new tires. Nice truck \$27,999 OBO

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217-344-5004, IL P03
ipt-info@gullifordservices.com



2005 Sterling Acterra, 2010 Crescent tank 900w/350f. Mercedes MBE900, 158k miles, Allison transmission, non-CDL. Dual side service, Masport pump, Burks DC10, Theiman liftgate, new tires. \$29,999 OBO

Call/text 330-416-6212, OH P03



2007 International 4300: DT466, automatic, air breaks, 267k miles. 1,500-gallon tank (1,100 waste/400 freshwater). Rebuilt engine and transmission in 2016. \$29,000

Call Mike or Josh
901-452-7040, TN P04

Two (2) trucks for sale: 2007 International, 295,000 miles with flat tank. Hauls 8 units. 900/350, HXL4 pump. Good working condition. \$18,000. Also a 2011 Ford F550, 170,000 miles with an older Crescent tank 650/300. Also with HXL4 and in good working condition. Both trucks came with a business we bought and we no longer use this style truck. I will text or email any pictures. You can call, text or email me with any other questions. 920-979-7711; braddean_11@yahoo.com (P04)



2011 Ford F550 diesel, auto., 2WD, new aluminum 650w/300f vacuum tank, Conde SDS6 pump.

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



2007 Kenworth T300: 1,700/300 Progress aluminum tank, Cummins w/ Allison auto. transmission, 303k miles. Masport vacuum pump, Pumptec pressure washer, 2-unit toilet carrier. Well maintained. \$37,000 OBO. Call, text or email for more information:

805-714-2363, CA P03
rpenvironmental@yahoo.com



2007 Chevy C6500, 600-gallon waste tank, 400-gallon freshwater. 16-foot flatbed. \$30,000

Chris 702-604-9880, NV
sincityportables@aol.com P03

2005 GMC C4500: 8.1-litre gas, 70k miles, 500-gallon waste, 250-gallon fresh Crescent tank. Gasoline pump, dual service sides. Carries 4 toilets, no liftgate. \$18,000. 860-377-7483 (P03)

2007 Isuzu with Progress slide-in 400/200, 143,594 miles. All service records from purchase date included. \$30,000. Please contact Jason for more information: 208-467-0089; jason@portapros.com (P04)

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www.pumper.com

Portable Toilet Truck: 2008 Ford F550, 4x4, V-8 diesel, automatic. 232,000 miles with new engine at 158,000 miles. 225-gallon freshwater, 650-gallon waste water. Can haul 8 toilets. Still used everyday, want to update. \$34,000 OBO. Text 989-737-1920 for photo. E-mail ptoilet@charter.net (P04)

2007 Ford F550 diesel, 345,000 miles. Imperial 800/300 aluminum tank. Masport HXL4 vacuum pump, shaft driven. \$15,000. Please contact Tim at 585-738-5381. (P03)

2014 Isuzu, FMI Workmate 1050, 122,646 miles. All service records from purchase date included. \$42,000. Please contact Jason for more information: jason@portapros.com; 208-467-0089 (P04)

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 (PBM)

2006 Chevrolet C5500 with 14' tuck-under liftgate and Progress slide-in unit. New Honda pack installed last year. Please contact Cory @ 330-807-1490 or cjursik@tomssewer.net. Serious inquiries only. (P03)

2003 Ford F550, Satellite tank, 251,000 miles. Good or better condition, red in color. Aluminum wheels, nice truck. Still pumping tanks but out of toilet business. \$16,500. Can send pictures. 815-716-0528; furrexc@yahoo.com (P03)

2007 Isuzu, Progress aluminum tank, 925w/375f, Masport HXL4, DC10 washdown pump. Dual side service, two-unit carrier. Well maintained, works everyday. 300,000 miles. Pics available. \$25,000. 815-877-9770; portajohn@portajohn1.com (P03)

2018 Hino 268A cab & chassis, 25,950 GVW with a new 1,600-gallon portable toilet service unit. (Stock# 13762) **www.vacuumsalesinc.com (888) VAC-UNIT (822-8648)** (PBM)

2011 GMC Sierra 3500HD: Duramax diesel, auto., 4WD. Flat bed, new aluminum vac tank 400w/200f, Conde pump. 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.candsshower.com. 712-428-6143 or cell 712-880-1250. (PBM)

2014 Rich 16-stall shower trailer, 8/8 make up, 1,700-gallon gray water, 550 fresh. (4) 100 lb. LP tanks, a/c, heat. National Restroom Trailers, 877-727-3621 ext. 101; bill@nationalrestroomtrailers.com (P03)

Two (2) 12-stall/dressing room American shower trailer units and 2001 International 4700 potable water truck - 1,600 gallons, 41k miles. Excellent condition. Located in Tonopah, NV. \$85,000 for package. mandkshannon@hotmail.com; 775-482-6841 Email for pictures. (P03)

POSITIONS AVAILABLE

Sansom Industries hiring sales personnel, preferably with sales experience & skills for a new line of portable restrooms. Southwest region. Call Clyde @ 314-277-2873. (PBM)

GapVax, Inc., a nationally recognized manufacturing business, is seeking a talented, highly motivated individual to fill a full-time Sales Position in the Midwest (Iowa 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)

PUMPS

Masport HXL20MV w/400 Series gearbox. Rebuilt May 2014. 400cfm. Liquid cooled. Very strong pump. \$1,500. 262-689-7496 WI (P03)

NVE/F360 vacuum pump purchased new in 2002. Dismantled truck in 2007. Sitting since then. Asking \$600. Call 207-745-2541. (P03)

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

RENTAL EQUIPMENT

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

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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. KLM Companies 617-909-9044 (PBM)

SEPTIC TRUCKS



2014 Mack GU-713, 5,000-gallon tank, 425hp Mack engine, Fuller 10-speed manual transmission, pusher axle. Less than 90k miles.

818-373-9282, CA
alphapumping@yahoo.com P03



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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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. \$37,500. KLM Rentals Inc. 617-909-9044 (PBM)

1994 Ford F750 with 1,500w/500f. Used daily, runs great. \$20,000. 2002 Ford F350 7.3 diesel, 2WD, automatic transmission. 600w/300f. Runs good. \$6,000. Call Aaron 276-620-0533. (P04)



2011 International 4400: DT466, 230hp, auto., 124,000 miles. New 2,500-gallon steel vacuum tank, new Jurup PN43 317cfm vacuum pump.

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



2007 Sterling LT9513, pre-emission, 267,500 miles. 450hp Mercedes, 10-spd., 20K front, 44K rears. 3,150-gallon steel tank, Masport pump. Very clean inside & out. \$65,000

Call Shon 209-329-3679, CA P03
or email cstele1322@yahoo.com



Two (2) 2006 Peterbilt 335s: Both have Cummins, 10-speed, 3,600-gallon Transway, full hoist, vibrator, 36" rear door. 4" intake, 6" discharge. One truck has 217k miles, the other 249k miles. Nice, clean, one-owner trucks ready to work. Located in Utah. \$85,000 each

Call Ryan 801-430-7287 P04



2002 Peterbilt 330, CAT diesel, Allison automatic transmission, 143k miles. Brand-new 3,400-gallon tank with heated valves, Wittig pump, all hoses included. Asking \$75,000. Portable toilet business also available.

Call Steve 781-864-3230, MA P03



2007 GMC 7500, 7.8-liter Isuzu (Duramax) diesel, pre-emission, 186k miles, auto transmission, a/c, under CDL. All new: 2,000-gallon tank with stainless-steel hose trays, Jurup PN84 vacuum pump, paint, steer tires and aluminum wheels. Very clean Southern truck. Financing & delivery available. ..\$48,500

Call/text 740-961-7431, OH P03



2005 International 4400 DT with a 466 E engine. 2,500-gallon aluminum tank (2,000 waste/500 fresh), air conditioning, air-ride, DC10 washdown pump. 231,713 miles, dual aluminum tool-boxes. Use for a small septic and large portable restroom truck. \$39,900

For more pics/information
call 800-979-0013, MD P03



2004 International 7600, 400hp CAT C-12 pre-emissions, 10-speed, air-ride. 3,150-gallon tank with Masport pump. 218,000 miles. Contact Shon for more information and pictures. \$65,000

Call 209-329-3679, CA P03
or email cstele1322@yahoo.com

1991 International 4900 - has newer 2,500-gallon tank with Moro pump, 5- & 2-speed, 210 hp rebuilt DT466 motor. Runs great. \$25,000. Call 440-236-6202, Ohio (P03)

2003 International 4300: DT466E with 250hp, 6-speed manual transmission, 252k miles. New paint, aluminum rims, virgin 11R22.5 tires, brakes, drums, sandblasted and painted frame. 2,300-gallon vacuum tank, NEW Jurup PN84 vacuum/pressure pump, sandblasted tank white, primed and painted Ford metallic grey. Spray liner in troughs, new valves, sight glasses, LED lights. Best of everything. \$38,000 delivered to your door. Call or text for pictures: 734-777-0390 (P03)



1989 Kenworth T800, 2003 3,600-gallon tank. Many new parts & very clean. BigCam Cummins, 8LL, 18k fronts, 46k rears. \$58,000. Contact Clark's Truck Center, Jericho, Vermont:

802-899-3753 P04
russ.clark@clarktruckcenter.com



1990 Chevrolet C70 septic tank vac truck - only 65,500 miles. Air brakes, 427 gas, 5+2-speed transmission. 2,000 gallons, Monster 400cfm vacuum pump, new valves. Starts and runs excellent, no leaks or drips, fresh paint on tank. Cab is original, excellent paint, absolutely no rust on cab, tilt fiberglass hood. New 22.5 drive tires, front tires @ 90%. Ex-county truck. Turn the key and go to work. \$14,900

330-725-0209, OH P03



2004 Kenworth T300: Pacarr engine, auto., 10 new tires. \$60,000

Sin City Portables
702-604-9880, NV P03

2006 C8500, 2,500-gallon tank, 6-speed, 70,000 miles. Asking \$57,500 OBO. Mike Kitchens 770-443-1700 (P04)

Septic trucks for sale. All shapes and sizes. Over- and under-CDL. Automatic and manuals. New tanks and pumps. Shipping and financing available. 281-914-1192. Central Arkansas. (P04)

1998 Chevy 6500, 1,500-gallon steel tank with Masport pump. Tank and pump are in great shape. Needs head gasket. \$14,000 OBO. Call Mort 252-795-4978 (P04)

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SEPTIC TRUCKS

2012 International 7000 Series: MaxxForce 350hp, Allison transmission, pusher axle. 4,300 US gallon steel tank, NVE 500cfm pump. Transway system 3" suction, 4" discharge. Side-mount toolbox, work tray in back. 72,000 miles. Garaged all year. \$85,000. Call 860-628-7355. (P04)

2012 International 4300: MFDT466 engine, 129k miles, automatic transmission, air-ride suspension, dual fuel tanks. Brand-new 2,100-gallon tank, brand-new Juroop PN84 pump, brand-new PTO. 2-year/100,000 mile warranty. Financing and delivery available. Call/text for pictures. \$47,950. Caleb @ 281-914-1192. Central Arkansas. (P03)

2008 9200i, 350k miles, ISX 485hp, double frame, 14/46 air ride, 13-speed, clean, no rust. New Transway 3,600-gallon tank, new Fruitland 500cfm pump. 100-gallon jetter. \$90,000 negotiable. rdwyanu@outlook.com (P03)

2014 International 4300: DT466, under CDL. 109,000 miles. New 2,000-gallon aluminum vac tank, new Juroop PN84 vac pump. www.pumpertrucksales.com. Call JR. @ 720-253-8014, CO. (PBM)

2011 International 4400: DT466, 230hp, auto., 95,000 miles. New 2,500-gallon aluminum vacuum tank, new NVE607 386cfm vacuum pump. www.pumpertrucksales.com. Call JR. @ 720-253-8014, CO. (PBM)

1995 Freightliner, Detroit diesel, 13-speed, 3,365-gallon vacuum tank, Masport W75 pump. www.pumpertrucksales.com. Call JR @ 720-253-8014, CO. (PBM)

2004 Peterbilt 335 with a 2,500 U.S. gallon, carbon-steel vacuum tank and a Fruitland RCF500 vacuum pump. (Stock# 8481C) **www.VacuumSalesInc.com (888) VAC-UNIT (822-8648)** (PBM)

2004 Western Star 4900 with a 3,500 U.S. gallon, carbon-steel vacuum tank and a Masport HXL20WV water-cooled pump. (Stock# 7361C) **www.VacuumSalesInc.com (888) VAC-UNIT (822-8648)** (PBM)

2011 International 7500 (low miles) with a 3,600 U.S. gallon, aluminum vacuum tank and a Juroop LC420 vacuum pump. (Stock# 9242V) **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)

1989 Freightliner with a Presvac 3,500-gallon, carbon-steel vacuum tank and a PV750 vacuum pump. (Stock# 9382V) **www.vacuum-sales-inc.com (888) VAC-UNIT (822-8648)** (PBM)

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SLIDE-IN UNITS



800-gallon aluminum, 115cfm, new 9hp Yamaha, great shape, 2012 year. Use on flatbed or frame. \$8,995 **740-357-1208, OH** P03

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Very good, used, late-model vacuum truck tanks. Over a dozen 110 bbl. J&J and Dragon tanks available. Asking \$7,500 each with pumps. Located in Throop, PA. Tank and truck packages are also available.

Call Bill @ 570-347-5125 P04



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

Call 269-751-5167, MI PBM



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www.genevaequipment.com PBM

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TOYS

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. (PBM)

TRAILERS- VACUUM/TANKER

1999 Freightliner and 2002 Acro 7,000-gallon vacuum trailer with Fruitland 500 vac pump. Ready to work. \$45,000 OBO. Call 419-358-1936 or email basi_mm@yahoo.com (P03)



1988 Keith Huber, steel barrel & sub-frame, 4,500 gallons, rear dump, tandem axle, single comp., spring suspension. \$79,000

Rich 734-368-4127, MI P03



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

Call Kyle
800-558-2945 Ext. 424 PBM



2012 NATSA 5,500 gallons with Fruitland pump. Catwalks, good condition. \$30,000

Call Shon 209-329-3679, OR P03
or email csteale1322@yahoo.com

2015 Wesco goose-neck vacuum trailer. 1,000-gallon waste, 200-gallon freshwater. In great condition. \$14,500. Call Jason Morgan 361-484-9583 for more information. (P03)

2012 Dragon 5,460-gallon carbon-steel vacuum tank trailer. (Stock# 3901C) **www.VacuumSalesInc.com (888) VAC-UNIT (822-8648)** (PBM)

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TRUCKS – MISC.



2013 Freightliner 114SD vacuum tank truck, Detroit DD13 @ 500hp, 10-speed, 20/44 on air ride, KeeVac 4,000-gallon aluminum tank. 60-gallon fuel tank, potable water truck with hose reel. \$129,500

800-825-1255, OH P03
www.premiertrucksales.com



2003 International 4400: DT466 E engine, 2,000-gallon steel tank, Jurop R260 pump, dual toolboxes. 245,074 miles. Runs well. Priced to sell at \$22,500

For more pictures/information call Terry 440-522-7783, OH P03

TV INSPECTION

Mainline setup Pearpoint 2008 Dodge Sprinter diesel - 57,800 miles. Onan diesel generator, 3,500 hrs., 420, 440 tractor, zoom/non-zoom cameras, 1200' cable, computer, monitors, keyboards, printer. \$45,000 OBO. Brett - SLC, UT 801-960-7786 (P06)

VACUUM EQUIPMENT



2008 Sterling Guzzler, 27" blower.

Ken's Truck & Equipment
972-938-1905, TX P03

3-yard Aquatech positive displacement vacuum trailer (hydraulic boom & dump). Photo available. \$12,000 OBO, credit card accepted. Frank 914-235-2500. (P04)

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VACUUM LOADERS



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. \$69,500 OBO. Also available **1997 Ford Guzzler** vacuum excavator - same features as 1999 International. No washdown system. \$69,500 OBO.

617-212-0162, MA P03



Two (2) King Vac trucks sold as package deal. 3,000 US gallon tank capacity. Tank diameter: 78 O.D 120 LG. 5/16; KWP-6000 belt-drive vacuum pump. CAT 70 hydraulic-drive water pump. Truck chassis: Freightliner FL112 CT198, Fuller RTO-14908LL FLR-57 transmission. King Vac Model K30-D-L-SPT-B-LR4K-IB. Year: 2001 (white truck) 239,000 miles; Year: 1999 (brown truck) 248,000 miles. Price for both \$80,000

Lanie 504-450-5417, LA
lanie.lanie@mail.com P03



Pre-owned Vacall Model VC13 catch basin cleaning unit mounted on a 2006 Sterling SC8000 cab & chassis. (Stock# 1536V)

www.VacuumSalesInc.com
(888) VAC-UNIT (822-8648) PBM

1999 Peterbilt 378 triaxle with a Presvac Powervac 5300, 3,250-gallon carbon steel, DOT, industrial vacuum loader. (Stock# 4387V)
www.VacuumSalesInc.com (888) VAC-UNIT (822-8648) (PBM)



2001 International Guzzler, CAT C10 engine, Fuller 10-speed transmission. Guzzler tank 3,000-gallon capacity. Tandem axle. Currently being refurbished. \$79,500

Rich 734-368-4127, MI P03



2003 Guzzler Ace, 5,500cfm, 27" Hibon blower with Fruitland 500 pressure offloading pump. Also 2,000psi wash-down system with 150-gallon poly tank. CAT 435hp engine with Fuller 8LL transmission. 46k rears, 20k front. Work ready.

KLM Companies
617-909-9044 PBM

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Wanted to Buy: Vactor 2100s and late model Guzzlers. Cash. Phone 800-336-4369. (PBM)

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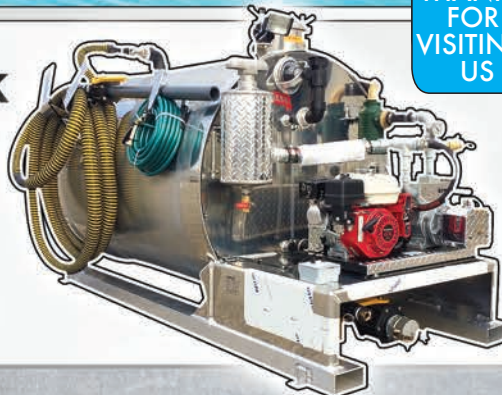


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