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A scratch-built land application program in Maine boosts the bottom line for Ken Allen's Septic

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Thomson's Septic Tank Service has built a family tradition of self-reliance and innovation on Prince Edward Island PAGE 18

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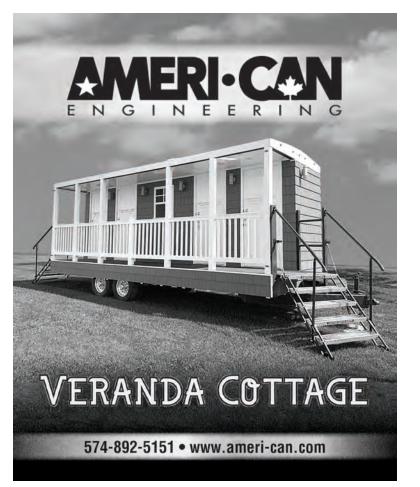


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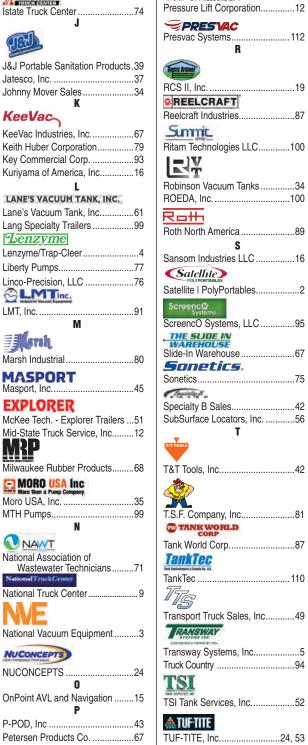
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What's the Best Toilet Paper for Septic Systems?

Research shows tissues break up about the same in laboratory tests, but experience tells pumpers that's not necessarily true By Jim Kneiszel, Editor

or some folks, the brand and type of toilet paper to use is an intensely personal choice. When something comes between the user's hand and the source of human waste, product brand loyalty may be difficult to shake.

I suspect most people head for the same packaging every time when they reach the paper products aisle at their favorite grocery story. They might go for the cuddly bear family, the baby angel with wings, the quilting pattern or look for marketing terms like soft, velvet or comfort.

Pumpers might not be so quick to fall for the many bathroom-tissue marketing messages that fight for the consumer's attention. You care more about results after the flush. How do different types of toilet papers move through the plumbing and react once they reach the septic system? What brands and ply configurations most often bring you out on emergency calls?

Given your experience with thousands of septic tanks, the question for you is: Do you recommend specific brands of toilet paper to your customers based on what you believe are issues of breakdown performance in the tank?

BUTTING IN

Many pumpers have strong opinions and believe sharing their considerable experience with customers is part of their service, according to Kim Seipp, education coordinator for the National Association of Wastewater Technicians and part of the pumping family for High Plains Sanitation Service in Strasburg, Colorado.

"We do advise people to stay away from the heavier toilet paper. You're going to have more problems with the thick, strong, super-cushy and plush toilet paper that people want to use," Seipp says. Her husband, Jeff, can identify three brands of toilet paper when he goes out on an emergency clog call: Charmin, Cottonelle and Quilted Northern. And they recommend using less-plush, one- and two-ply tissue, which they say causes fewer problems.

But not so fast, says Sara Heger, Ph.D., engineer, researcher and instructor of the Onsite Sewage Treatment Program at the Water Resources Center at the University of Minnesota. A few years ago, Heger co-authored a study, Biodegradability Analysis of Toilet Papers and Flushed Paper Product Under Anaerobic Conditions, on behalf of the Minnesota Department of Transportation. MnDOT wanted to know the optimal tissue to order for the state's more than 100 highway rest stops with high-volume onsite systems.

The 10-page study illuminated experiments on the biodegradability of a dozen brands and types of toilet paper using "a widely accepted and standardized" biomethane potential test, or BMT. Light microscopy images were taken of the samples to determine fiber structure; and volatile solids, total solids and moisture content were gauged to evaluate anaerobic digestibility and biogas production. Three papers showed the highest degradability in the MnDOT study in this order: Quilted Northern Ultra Plush, Equate Flushable Wipes and Kleenex - Kimberly Clark Professional. However, Heger says the study ultimately showed all samples performed about the same.

"The bottom line is there was no difference on how they broke down under anaerobic conditions. I think any opinions or recommendations about toilet paper are just that," Heger says. "MnDOT was hoping to see a

L The bottom line is there was no difference on how they broke down under anaerobic conditions. I think any opinions or recommendations about toilet paper are just that. ... Based on (the study) and the lack of other information, I don't know how pumpers could recommend one versus another unless they have personal experience.

Sara Heger

into account for this specific test. These results can be used as a reference on which toilet paper would have the higher biodegradation. However, the specific degradation would depend on the specific conditions and operation of a specific system."

Or as the Seipps might explain it in plain English, seeing is believing.

"When you put a piece of toilet paper into a solution, it's going to dissolve, but the problem is the way people use toilet paper and what happens in the tank," Kim Seipp says. "A lot of people use a bunch of toilet paper at once, and that leads to problems in the waste stream."

To their way of thinking, bigger clumps of thicker toilet paper increase

difference and make buying decisions based on (the study), but since there wasn't any, they leave it up to regional staff (to choose toilet paper)."

OPEN TO DEBATE

But Heger says something that seems to leave the door open for pumpers to develop strong opinions ... and ultimately share their feelings with septic system users.

"Based on (the study) and the lack of other information, I don't know how pumpers could recommend one versus another unless they have personal experience," Heger says.

According to the study, "It is important to mention that the operational parameters and the environmental conditions of septic systems are different from the conditions used in this experiment. ... In addition, the loading rate (i.e., amount of paper flushed into the septic system) has not been taken Who else has an opinion on the best toilet paper for septic systems? You could turn to blogger Jimmy Olivas, who created a list of the eight best toilet papers for septic systems in 2019 for the www.twimbow.com website. Twinbow claims to strive to be the best source of information for bathroom products and toilet accessories. Here is the list of top picks:

- 1. Quilted Northern Ultra Plush
- 2. Amazon Presto! Ultra Soft
- 3. Scott Rapid-Dissolving
- 4. Angel Soft
- 5. Cottonelle Ultra ComfortCare
- 6. Quilted Northern
- 7. Firebelly Outfitters RV

the potential for chronic trouble in the septic system. Bigger clumps happen when using the plusher papers, but the type of user in each home is also a factor, she says. On an emergency call, they'll ask who's flushing the toilet. Families with teenage daughters and younger children tend to introduce more paper into the plumbing, and that's where the recommendation for generic single- or double-ply tissue is most important, she says.

CHECK THE PLUMBING

But it's not always user habits that lead to problems. Seipp says flatter plumbing runs and tanks with a concrete inlet baffle rather than a sanitary tee often account for the paper dams that cause backups. They noticed a big difference when they moved from the mountain region of Colorado to the plains, where pipe runs are naturally flatter and water moves slower through the system.

The Seipps observe that paper moves more efficiently into the tank and breaks up better in systems with a sanitary tee. These are more common in their region, but when they find a paper problem, it's often when clumps get hung up around the concrete inlet baffle and don't land properly in the tank.

"If you have a flat line or a long line with any bowing in it, that slows the flow," Seipp says. The slow-moving waste stream — exacerbated by low-flow plumbing fixtures and efficient appliances like clothes and dishwashers — lead to buildups. Lighter paper will help, but if the homeowner isn't ready for one-ply, the Seipps have other recommendations.

"We've had customers who don't want to give up their Charmin, and if (clogging) is a problem for them, get the tank pumped more often," Seipp says. "If there are problems, Jeff will tell people to take a 5-gallon bucket of water and pour it down the toilet once a week to give it a good clean-out."

Seipp says the plusher brands are unmistakable when you open the tank; Cottonelle, for example, appears like cotton balls in the septic tank, and others exhibit unique textures. When do you know you should choose a different paper? "When they start advertising how many quarters it can hold or how soft and plush it is," she says.

SHARE YOUR THOUGHTS

Seipp trust the observations of pumpers. "I know what we see in the field can be very different than what they find in research," she says.

So how do you handle the toilet paper discussion with customers? Do you tell them to ditch the comfort they know and love to keep their pipes clear? Or tell them to ration the squares with the teenagers at home? Share your list of the best and worst toilet paper at editor@ pumper.com and we'll compare notes.



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When Jason Turcotte gets an idea, he goes all in. In 2006, he and his uncle, Bob Tupper (now retired), started a septic division called A Plus Septic Service to add onto an existing excavating company in Durham, Maine. He noticed during his excavation jobs that his customers weren't maintaining their septic systems, so he moved some money into a new account and got to work pumping.

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Over the years, Koberlein Environmental Services has built a large fleet of septic pumping equipment that's worth more than \$1 million. But a smaller investment has yielded an outsized impact on operations: the 2017 purchase of a ScreencO Maxi Screen 400, which separates solid waste during land-application of septage.

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sanitation; waste management for agricultural businesses **WEBSITE:** www.thomsonsseptic.com

Thomson's Septic Tank Service has built a family tradition in Prince Edward Island based on providing good service, innovation and self-reliance By Peter Kenter

homson's Septic Tank Service was founded in the province of Prince Edward Island in 1952 by David Thomson and his wife, Loretta, offering three main services — construction of septic tanks, septic tank service and cleaning sewer laterals. Today, the business continues to thrive on its devotion to traditional service, willingness to embrace new products and technology, and a healthy dose of island grit and self-reliance.

The company is now owned by David Thomson Jr., who is 77, and his wife, Gloria, the company's office administrator. David is still heavily involved, handling all the estimates, permits and the lion's share of troubleshooting.

"My father was a plumber and pipe fitter by trade, and he worked for a local foundry," David says. "He left that position to start the septic business when I was 10. It was hard work. They — he and a couple of men he'd hired — dug the septic tank and field beds by hand and built the tanks of cement blocks."

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It was already a family business. David Sr.'s grandfather Fulton worked for the company, and young David was soon also attracted to the business, fascinated by the equipment his father operated. Their first service truck was a 1947 Chevrolet 1-ton with a 360-gallon tow-behind tank outfitted with a Monarch pump driven by a Wisconsin engine. His father died in 1962, and David Jr., at age 20, stepped up to operate the business alongside his mother. He bought the business outright in 1970.

His son, Clay Thomson, the company foreman, was born in 1965 and his first recollections regarding the business begin when he was 4 years old. "I was born in the business," he says. "It was also the equipment that drew me — trucks, backhoes and whatever. I remember riding along on the old diaphragm pumper trucks. I jumped in here full time after high school and never left."

TOOLS IMPROVE

As time marched forward, Thomson's took advantage of new technology. Vacuum pumps replaced diaphragm pumps in the 1970s. In 1988, the company switched to polyethylene septic tanks and currently purchase them from Infiltrator Water Technologies. In 1991, Thomson's began using leachfield chambers from Infiltrator.

"I liked the idea of leaching chambers instead of pipe and gravel," David says. "It cut down on transporting gravel and took up less space. Many of the older lots here are 100 by 100 feet, and you have to keep the septic system 50 feet from the well."

The company added portable restrooms in 1999. It was a last-minute decision to meet a request from the provincial Department of Fisheries to supply long-term rental units, which Thomson's would service.

Today, Thomson's offers services in a 25-mile radius of Warren Grove, near the capital city of Charlottetown. But 25 miles covers a lot of the territory of the small island province.

The family business employs five people full time, including Clay's stepson John MacRae and Mike Appleton, who isn't related. Three part-time employees also help out, including Clay's son Alan, who keeps busy on welding chores. "We buy the ends of the tanks at Vacutrux in Elmira, Ontario, and we go on from there, getting the barrel rolled and installing the frame rails and baffles," Clay says. "It provides work for our staff during the slower winter months. We have a 30-by-50-foot shop with all the amenities — welders and torches and a steel lathe. We'll also handle other chores, from engine tuneups to regrooving our truck tires."

Thomson's recently moved an older 3,850-gallon steel tank from the Freightliner and secured it to a pup trailer the company assembled about a dozen years ago. The Freightliner will haul the trailer to increase liquid waste capacity.

"Not only that, but you can haul two different types of liquid loads at the

As pumpers as well as installers, we have the experience and ability to identify existing or potential problems that might not be apparent to someone who is primarily a septic pumper.

CLAY THOMSON

same time since the units are independent," Clay says. Thomson's also employs a John

Bean sewer jetter used in combination with a vacuum truck to rejuvenate traditional tile beds or clean leaching chambers of sludge.

A pair of Caterpillar machines provide construction support: a 2002 420 backhoe loader and a 2011 303C mini hydraulic excavator.

GETTING WORK DONE

Thomson's offers 28 single portable restrooms supplied by PolyJohn Canada. They're used primarily for long-term rentals to construction or agriculture clients, but the company also takes on weekend weddings and other small events.

(continued)

DO IT YOURSELF

Thomson's operates two vacuum trucks, both built out in-house. The first is a 1995 International with a 5,050-gallon steel tank and Fruitland pump. The second is a 1989 Freightliner, with a 4,325-gallon steel tank and Fruitland pump.

Technicians Allen Thomson, left, and Clay Thomson service a residential septic tank. They are using the company's International vacuum truck, built out in-house using Vacutrux tank ends and carrying a National Vacuum Equipment pump.

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FOLLOW THE RULES

The pumping business in Prince Edward Island is heavily regulated. Several years ago, the province ended the practice of land-applying septage. Now, only two locations accept liquid waste: the municipal systems of the cities of Charlottetown and Summerside. That's increased disposal costs, but it has also resulted in a better environmental profile for the industry.

However, the two locations are only open from 8 a.m. to 4 p.m. To cope, Thomson's has installed two 10,800-gallon, double-wall, fiberglass storage tanks — formerly underground gasoline storage tanks — on its premises.

In order to meet all regulatory requirements, Thomson's sometimes visits a site 15 to 18 times before a septic system installation is complete.

(continued)

A passion for vintage equipment

David Thomson Jr., co-owner of Thomson's Septic Tank Service, recalls he first became interested in his father's business when the company purchased a small Farmall Cub tractor to backfill the tank and tile bed installations with gravel.

"I loved that little tractor and never forgot it," he says.

In fact, Thomson remained so intrigued with those early memories that he restored two vintage Farmall Cub tractors — a 1948 and 1950 model.

"The 1950 model was built out of two Cubs, which we joined together as a fun project," David says. "We widened it out to two seats and installed air horns and a hydraulic canopy that goes up and down for special events and parades."

A 1948 Ford 8N rounds out the tractor collection. The family has also restored a 1967 Harley-Davidson three-wheel side-by-side golf cart, but Thomson recently traded it for a 2010 Polaris all-terrain vehicle with four-wheel drive and a small dump box.

"I'm eager to take it out to the shore this year and load it up with bar clams," he says.

Right: David Jr. and Gloria Thomson are shown with the company's Freightliner vacuum truck. The truck was built in-house using tank ends from Vacutrux and a Fruitland pump.

Below: Allen Thomson starts the suction on a local residential septic service job.



"The portable restrooms can help fill out a week if business is slow," Clay says. "But at the end of the day, the numbers are also good."

Pumping keeps the company busy, whether it's service to customers with septic tanks, pumping its own portable restrooms or serving island industries and communities.

"We've done municipal pumping, potato processing plants, fish processing plants, ships, dairies and feed mills," Clay says. "We've even pumped a few trains and one jet plane. Most of this work isn't contracted. It's requested on an as-needed basis."

About half the residential septic pumping customers are regularly scheduled, while the other half shops around on

price. Thomson's, however, won't engage in price wars.

"My opinion is that as pumpers as well as installers, we have the experience and ability to identify existing or potential problems that might not be apparent to someone who is primarily a septic pumper," Clay says. "That's worth something."

The company encourages customers to treat their septic waste with enzymes to keep septic systems clear. They're currently using enzymes supplied by Lenzyme Trap-Cleer.

22 Pumper • October 2019

We support the regulations, but we'd like to see more vigorous inspections of the final work to ensure all contractors play by the same rules.

DAVID THOMSON JR.

"I USED TO HATE MY TECHS."

"As a former military member, I knew I wanted a company that ran like clockwork, one that didn't require me to do everything myself for it to be done right. I just couldn't get it there. I was sure my employees were the problem. I actually hated them! Then, one change ... changed everything.

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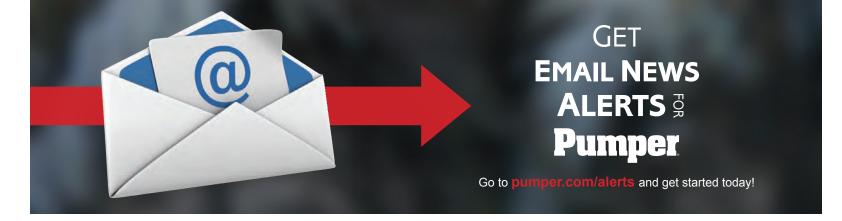
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David Thomson Jr., 77, is an awardwinning fiddle player, and he also builds his own instruments as a hobby. Read more about Thomson's musical talents and hear a song he plays in an online exclusive story at www.pumper.com.



"We're also asked to inspect our own work," David says. "But government reinspections are rare. We support the regulations, but we'd like to see more vigorous inspections of the final work to ensure all contractors play by the same rules."

The company has, however, resisted a provincial initiative encouraging all installers to become certified to offer perc tests directly to property owners.

"It offers the potential for installers to categorize the condition of the soil in such a way as to create more work for themselves," Clay says. "We continue to dig the holes for the test pit, but use a third-party engineer to conduct the perc test. That way the customer can have confidence in the results."

KEEP PLUGGING AWAY

Thomson's advertised on radio years ago but finds that traditional advertising has diminished in effectiveness — no flyers, mailers or other advertising. More and more customers are finding the Thomson's website using search engines. A new website may be under development soon, and Clay says they will become more proactive in figuring out exactly how customers are finding them.

A charitable effort also builds goodwill.

"If we do a certain amount of work in some smaller communities and they need the septic tank in their community hall pumped, for instance, we'll often do that for free," Clay says. "We might be named on their signboard for a week or so, and it builds recognition."

One day, Clay is likely to take the helm of the business, but his father shows no signs of slowing down.

"We'll all stay involved as long as we can," Clay says. "I enjoy the business. You'll never get rich working here, but I love the tremendous variety of the work. You're always learning something new, and no two days are the same."

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John Bean Jetters 800-241-2308 www.johnbeanjetter.com

Lenzyme Trap-Cleer Inc. 800-223-3083 www.lenzyme.com (See ad, page 4) National Vacuum Equipment, Inc. 800-253-5500 www.natvac.com *(See ad, page 3)*

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Mitzi Perdue is a speaker, familybusiness owner and author of *How to Make Your Family Business Last.* For more information, visit www.mitziperdue.com

Keeping the Peace Is Critical to Preserving a Family Business

Follow these five tips to ensure your company will survive and thrive into the next generation By Mitzi Perdue

here's no such thing as a family business without conflict. If you search "family business feud" on Google, in less than a second, you'll get roughly 1.2 million hits. And that, of course, is the tiniest fraction of the number of family business disputes that show up in the Google search engines.

At their worst, a quarrel in the family business can become a threat to everything the family business holds dear, including relationships, wealth and position in the community. About 70% of family-owned businesses won't make it to the next generation, and the biggest reason for this sad fact is family quarrels.

Since every family is going to have conflict, the fundamental question is how do you deal with these quarrels so they don't cause lasting damage?

THE COVENANT CULTURE

An answer that has worked for many family businesses is to create a covenant culture. Do it long before it's needed.

In a family business, this means family members agree that while they have a right to air their differences, when a decision is made, they come together. They agree to move on.

Part of a covenant culture is that everyone gets to be heard. Participants agree to listen to all sides and to value robust discussion.

Another essential element — possibly the most important — is a commitment that issues will be resolved within the group. The reason for this is that in cases where members of a family business go to the media or get into litigation to resolve a conflict, they are likely to unleash an uncontrollable chain of events that predictably will endanger the entire enterprise. By the time a family member exposes a conflict to the press or initiates litigation, there's usually no turning back.

Since conflicts are inevitable, what can members of a family business do to commit to keeping quarrels within the family? The answer is that the business family needs to consciously work on developing a culture for resolving conflict. Culture is how we do things, and if the important work of developing a strong, supportive culture is left to chance, members of the family business may never learn key attitudes they'll need to keep disputes from escalating.

Developing a positive family-business-friendly culture requires time together, discussions and, above all, role modeling. To prevent disputes from getting out of hand, practice these five techniques to tamp down trouble.

1. Take a moral stand that it's wrong to move disagreements outside the family.

The experience of many thousands of family businesses shows that once

a family starts down the road of a public dispute or litigation, the usual end result is the end of the family business. Positions harden, reason goes out the window, and it's a rarity for any members of any family business to change course. The usual endpoint is either severe weakening of the business or its complete destruction. Members of business families need to know it is morally wrong to be the cause of this.

2. Let family members know this isn't just about their wishes.

Because any public acrimony so often leads to the family company's failing, it threatens the well-being of innocent bystanders including employees, financial partners, lenders and even the tax base of the community. Members of family businesses need to know they have a responsibility to large numbers of people beyond themselves.

3. Put relationships ahead of ego.

Members of family businesses need to know there are times when they have a choice between getting their way and having a relationship. Being a member of a family business at times means sacrifice, and for the business to continue, this can mean giving up the ego gratification of getting their way. However, in return they'll get something of vastly greater importance — the chance for the family legacy to continue and thrive.

4. Compromise is key.

Members of a family business need to learn to listen to each other, and they need to avoid the temptation to "stand on principle." In the context of a family business, "standing on principle" is a synonym for "being stubborn." It means "I'm not going to listen to you." It also tends to shut down discussion and the give-and-take that's essential for compromise.

5. Be careful of what is said in anger.

Angry words can be self-fulfilling, such as disparaging someone's competence or expressing preference for one family member over another. A person may say something in momentary anger, but the person hearing what was said may remember those words for a lifetime. Garbage can come out of Pandora's box that can't be stuffed back in again.

THE NEXT GENERATION

Done right, the family and all its benefits will endure. Done wrong, the family business blows up. By considering and practicing these five attitudes and techniques, you can quell any family business dissent before it jeopardizes the health of the company as a whole. ■



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PUMPER **PROFILE**

COVER

STORY

Caston Lovely is shown with one of his septic service trucks, a Volvo VHD with a tank from Keith Huber and pump built by Utile Engineering. (*Photos by Becky Shea*)

SPREADING I HE PROFIS

Caston Lovely bought and cleared 50 acres of property to create a new land application program and to ensure his family company's success for years to come By Ken Wysocky

aught between fast-rising disposal costs, restrictive disposal policies at local treatment plants and the closure of municipal land application sites, Caston Lovely — the owner of Ken Allen's Septic in Presque Isle, Maine — was increasingly alarmed by the shrinking profit margins at the company his grandfather established in 1957.

The solution: purchase 50 acres of farmland on the outskirts of Presque Isle that now handles an average of about 500,000 gallons of land-applied waste annually. "We basically ensured the future of our company," says Lovely, 34, noting that he land-applies about 95% of the septage he collects. "Financially, it really tipped the scales in our favor.

"Sure, land is expensive and there's upkeep involved, too," he continues. "But so far the advantages have far outweighed the disadvantages."

Ken Allen's Septic Presque Isle, Maine

OWNERS: Caston Lovely FOUNDED: 1957 EMPLOYEES: 2 SERVICE AREA: 50-mile radius around Presque Isle SERVICES: Septic pumping, system inspections and repairs; portable sanitation Maine

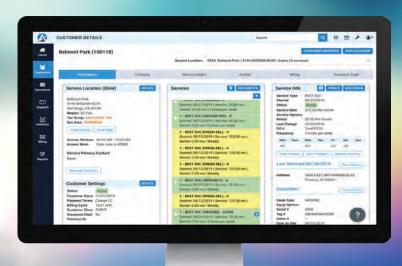
Furthermore, owning property for land application essentially future-proofs the company against whatever other unexpected events might disrupt local waste-disposal options, such as more price hikes, even more restrictive acceptance policies or even plant closings.

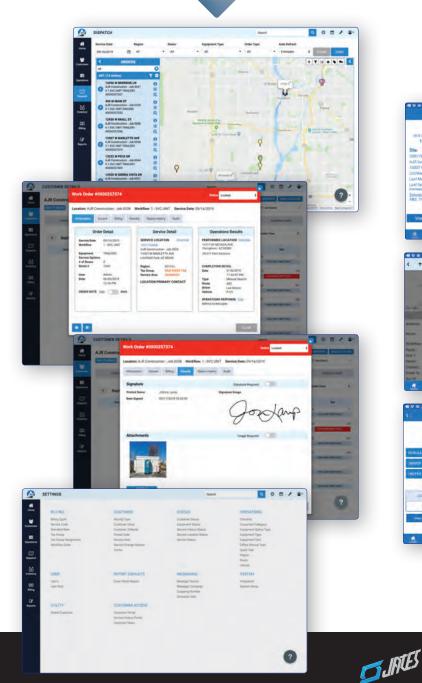
"You just don't know how things will change in the future when it comes to waste disposal," Lovely says. "So far, all (continued)



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the changes that have occurred around here have affected us negatively, so I wouldn't expect them to get better going forward. We decided we'd rather be masters of our own destiny."

In addition, Lovely also adds a per-gallon surcharge to the company's flat rate for pumping tanks. That charge is equal to the local going rate for disposing of septage. "So we're making that money rather than giving it away (to a treatment facility)," he notes.

Lovely's situation will resonate with pumpers nationwide who face increasingly higher waste-disposal costs. Of course, land application isn't allowed everywhere. And even where it is



Caston Lovely returns a hose to his vacuum truck after a septic service call in Presque Isle, Maine.

allowed, getting site approval can be a costly, time-consuming process that requires jumping through myriad regulatory hoops.

It also can entail contending with antagonistic owners of neighboring properties who oppose land application. But the financial benefits often make navigating the headwinds a worthwhile endeavor, according to Lovely.

One important caveat also applies: Lovely says pumpers must collect enough waste to make land application economically feasible. If pumpers already own land that qualifies for land application, that's one thing. If not, pumpers need to be sure they'll save enough money through reduced disposal costs to make mortgage payments on the acquired land, he says.

A HISTORY OF SPREADING

Lovely is no stranger to land-applying waste. His grandfather, Ken Allen, did so for decades. And many of the neighboring towns around Presque Isle used to own their own land application sites. "We've always relied on a mix of land-applying on people's personal property or on municipal-owned land and (to a lesser extent) on wastewater treatment plants," he says.

That started to change about 15 years ago, when a local landfill built a sewage dewatering facility. One by one, local municipalities - motivated by a chance to streamline operations - contracted with the landfill to handle their septage, which allowed them to close their land application sites, Lovely says.

At one point, only two local municipal land application sites remained open, and eventually officials decided to only accept waste generated within their municipal boundaries. More-

over, disposal rates at local treatment

centers continued to rise, and one fa-

cility even temporarily stopped taking

waste because disposal demand had

was putting a big dent in the compa-

ny's profit margins. Plus, fuel prices at the time were exceeding \$4 a gallon.

"We started getting passionate about

alternative sources for waste disposal

when we realized the treatment cen-

Simply put, the disposal situation

outstripped its capacity, Lovely says.

You just don't know how things will change in the future when it comes to waste disposal. ... We decided we'd rather be masters of our own destiny.

CASTON LOVELY

ters were making more on disposal fees than we were making on pumping out tanks," he says. "That's when the gears started turning in my head, even though I didn't even own the company yet," he adds. "I talked to the Maine Department of

THE SEARCH BEGINS

That initial inquiry led Lovely on a four-year search for a parcel of land that met Maine Department of Environmental Protection requirements. To cut down on legwork, he used Google Earth satellite maps to scope out potential properties.

Environmental Protection about the possibility of land-applying waste."

While laws vary from state to state, Maine regulations require sites to meet certain requirements such as passing soil tests, analysis of the sand and gravel aquifer, minimum setbacks and buffer zones, daily vehicular traf-

(continued)





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fic estimates, proximity to bodies of water, expected volume of septage and so forth.

"It was extremely difficult to find a property that met all the requirements," he says. At one point, he found a viable parcel but the purchase was derailed by three-years' worth of legal proceedings initiated by neighboring residents who opposed it. Ken Allen's Septic has an inventory of restrooms from Armal, Satellite I PolyPortables and PolyJohn Enterprises. The company uses a Wesco trailer frame customized by Lane's Vacuum Tank to transport the units.

But Lovely finally found the 50-acre par-

cel, which is only 4 miles from his company's shop. The land was mostly wooded and he cleared it. Fortunately, the land is adjacent to a municipal property that also stores and land-applies waste, which minimized residents' opposition. "People who live around there were already used to seeing trucks come through several times a day," he says.

The company is permitted to land-apply waste on 15 acres of the parcel. Lovely is allowed to expand that area, if need be, but not to the full 50 acres, he explains.

Generally, the company land-applies waste May through early November. To apply septage, the company uses a self-fabricated spreader that attaches to the rear of a pump truck.

For the rest of the year, Lovely hauls what little septage he collects to a treatment facility in Presque Isle. But he's applying for permission to store waste in belowground tanks (with 50,000 gallons of total capacity) during winter and rainy periods, when land application isn't allowed. The tanks would be located on the 50-acre parcel.

Caston Lovely uses a Hitachi Zaxis 26U miniexcavator to backfill a new onsite system. To pump out septic tanks, the company relies on a 1994 White/GMC HD chassis with a 3,500-gallon steel tank, equipped with a Moro USA pump; and a 2002 Volvo VHD chassis outfitted by Keith Huber with a 4,500-gallon steel tank featuring a pump built by Utile Engineering. The company also owns a Hitachi Zaxis 26U mini-

excavator, RIDGID pipeline locator and Prototek sonde to find tank lids.

PORTABLE RESTROOMS

To generate some additional revenue, the company also carries about 40 restrooms, an inventory mix from Armal, Satellite | PolyPortables and PolyJohn Enterprises. It also owns two hand-wash stations from Satellite | PolyPortables and uses deodorizers and scented discs from Walex Products. To service restrooms, the company invested in a 2002 International 4300 with a 1,000-gallon waste and 500-gallon freshwater steel tank from Keith Huber with a Masport pump. Lovely prefers a restroom service truck with a tank on the larger side.

"We do a lot of large special events where there are lots of campers with RVs that need waste tanks pumped," he explains. "So with that bigger tank, we're not running back and forth all the time for dumping."

Five top tips for pumpers

Like so many one-person septic pumping companies across the country, Caston Lovely couldn't make it without significant contributions from his wife, Erica Lovely. In this case, Erica, a business teacher at a local high school, also happens to have a master's degree in business administration, which helps the company operate at a higher level.

"Erica does a lot of our marketing, especially through Facebook," Caston says. "She also takes care of all the finances and billing. She has an MBA, so that's invaluable to the business. And since she's a teacher and has summers off, she also helps out with large special events (for portable restroom rentals). She's been so great on the business side of things."

Based on their years of experience in the industry and Erica's background, here are five business tips they've found beneficial over the years:

1. Remain as debt-free as possible.

2. Consistently stick with methods and processes that work. In the case of Ken Allen's Septic, that means doing things like returning customer phone calls in a timely manner and cleaning each tank the same way. "We rinse out tanks completely, along with the inlet and outlet ports," he says. "So customers always start out with a clean slate."

3. Go above and beyond for customers and be professional. "I look presentable when I get out of the truck and have a smile on my face, ready to tackle the job," he says. "I look customers in the eye and shake hands." The company uses Square software for in-the-field credit card payments. And if asked, Caston helps homeowners with other problems such as tracing the source of an unusual odor or cleaning out a sink P-trap — at no extra charge. "The return comes back to us tenfold because they tell all of their friends," he says.

4. Invest in equipment that helps complete jobs more efficiently and profitably. For instance, if frequent trips to disposal facilities wastes time and racks up additional expense, consider buying a truck with a larger tank. Or install risers to make the next pumping job faster.

5. Take time off. Everyone needs a break, especially during peak season, to avoid burnout. "But you have to schedule it," he recommends. "If you want to go fishing next Wednesday, you have to schedule it." But what if customers call with emergencies on a day off? Caston suggests developing a good working relationship with a respected competitor who'd be willing to handle such jobs.



One of the bigger events the company handled last year was BikeMaine, a weeklong, nearly 400mile bicycle tour. In 2018, 450 cyclists participated. "We had 40 units on the ground and had to shuttle Caston and Erica Lovely, with daughters Alana and Evelyn

them around to different locations throughout the week," Lovely explains. "We collaborated on the event with another restroom provider."

To pick up and deliver restrooms, the company uses a Wesco flatbed trailer frame that was customized by Lane's Vacuum Tank; it carries 10 standard restrooms, and the truck can hold two.

BUILDING THE LEGACY

Lovely cares deeply about the company and its customers, many of whom he's known since he was as a youngster helping out his grandfather, who died in 2018. "I used to ride in the truck with him when I was around 6 years old," he says. "And I worked with him during summers when I was in school. I was

always very close to him because he practically raised me."

During his high school years, Lovely gained more valuable experience by working for his uncle, Chris Allen, the owner of Allen's Environmental Services.

After graduating from high school, Lovely operated heavy equipment for a logging company, then did the same for an earthmoving company. He quit that job about a decade ago to help out his grandfather, who'd been diagnosed with cancer. "Since I had experience working with him, he asked me to run his truck," he says. "It worked out well because I already knew a lot of the customers and where things were." The affirmation from our customers for taking care of them in a timely manner without breaking their bank accounts. That's what keeps the wind in my sails, for the most part. That and preserving my grandpa's legacy.

Since buying the company in 2010, Lovely has worked hard to maintain his grandfather's legacy of providing great customer service at a fair price. About two-thirds of the pumping is residential and the rest is servicing commercial accounts.

Given that he's a one-man operation when it comes to pumping tanks — he says he routinely puts in 70-hour workweeks during peak season further company growth isn't likely. He'd like to eventually hire an employee, but he says finding one with the right work ethic and the willingness to provide a high level of customer service is challenging.

So what keeps Lovely going? "The affirmation from our customers for taking care of them in a timely manner without breaking their bank accounts," he says. "That's what keeps the wind in my sails, for the most part. That and preserving my grandpa's legacy." ■

MORE INFO

Armal, Inc. 866-873-7796 www.armal.biz (See ad, page 56)

Keith Huber Corporation 800-334-8237 www.keithhuber.com (See ad, page 79)

Lane's Vacuum Tank, Inc. 800-592-3308 www.lanesmobilejohn.com (See ad, page 61)

Masport, Inc. 800-228-4510 www.masportpump.com (See ad, page 45)

Moro USA, Inc. 800-383-6304 www.morousa.com (See ad, page 35) PolyJohn Enterprises Corp. 800-292-1305 www.polyjohn.com (See ad, page 111)

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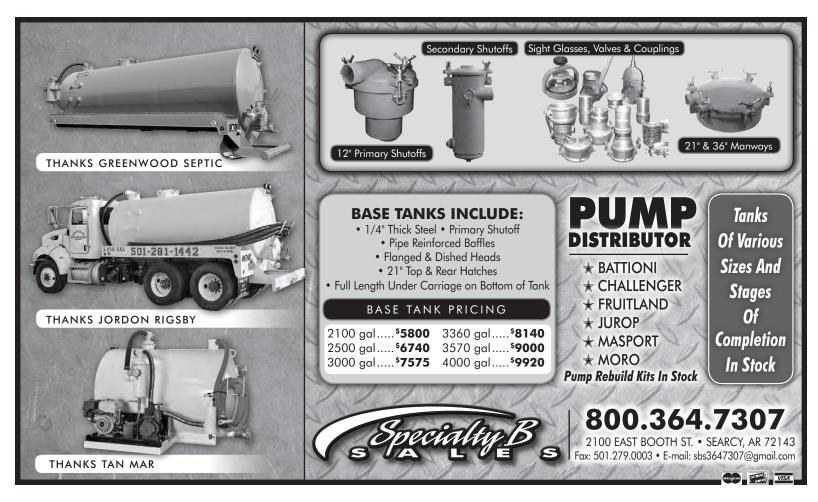
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Missouri Missouri Smallflows Organization www.mosmallflows.org; 417-631-4027

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New Hampshire

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

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Rich Anderson, of Jimmy's Johnnys, is shown maintaining an Ameri-Can Engineering restroom trailer at Super Bowl festivities in Minneapolis in 2018. (File photo)

Customer Expectations Skyrocket When Renting a Restroom Trailer

In exchange for a premium rental fee, your clients raise the bar on cleanliness and functionality of your equipment. Thorough routine maintenance is how you meet those demands. By Jared Raney

our customers rent restroom trailers for comfort and luxury, and they are willing to pay for it. In exchange, they expect a well-maintained trailer and quality service. To that end, a regular maintenance program is essential to maximize revenue on high-end rentals.

"It's protecting the capital expenditure in a trailer. You spend anywhere from \$20,000 to \$60,000 on a piece of equipment," says Ryan Anthony of Satellite | PolyPortables. "It's the initial first impression from your customer, and it's just maintaining the value of your investment, long term."

Anthony was among of a group of restroom trailer experts who gave a presentation on proper maintenance at the Portable Sanitation Association International conference earlier this year. He was joined by Steve Ghrist of Lang Specialty Trailers and Keegan Campbell of Ameri-Can Engineering.

VISUAL INSPECTION

Restroom trailers should be cleaned after every rental, both to promote longevity and as a matter of customer service, but it's also best to do your surface check during that cleaning.

"While you're cleaning, that's when you want to be performing a visual inspection on the trailer," Ghrist says. "So it's not just washing your trailer — it's taking the time to make sure everything's in good working order."

"Typically any sort of damage you see is caused when you're delivering these trailers in and out of sites. A lot of places people are delivering are event sites — somebody's backyard," Ghrist says. "You get there and you've got to pull the trailer through overhanging branches, and you get a branch that bounces off the air conditioner, vent fan or something like that and cracks the cover on it."

It can be tempting to assume that if something's wrong with your trailers, you'll notice it out of hand. But seemingly minor issues can lead to larger problems if not addressed quickly.

"If a branch was to crack a roof vent or something like that and you get water pouring in through the roof, that can cause a lot of problems," Ghrist says. "It could have been solved in 10 seconds by just identifying you have a problem."

Ghrist recommends starting a routine visual inspection with the roof, inspecting the seals around the edges, the air conditioner and the vents for cracks that would let water in. It's also a good idea to check gutter spouts, exterior lights, water inlets and plugs — anything that could get jostled or snagged while maneuvering into and out of a site.



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This principle also applies to interior checks. Better to do a quick check after each service than to have a customer complain over some small issue during a rental.

"The interior is similar to exterior: You're definitely cleaning the trailer between each rental. That's the time to perform your inspection and test everything," he says. "A lot of things happen during a rental, so you want to check everything out."

Ghrist recommends testing all the faucets, flush pedals, lights and fixtures, as well as checking the stairs.

"Another big thing between rentals is making sure you have everything needed for install. So if you have a checklist, make sure you have your hose, blocking, wheel chock, level, deodorizers, toilet paper, hand soap, paper towels and garbage bags," Ghrist advises. "That way you don't show up to the site to set this trailer and not have what you need to get the job done.

"You want to inspect all your leveling jacks: Make sure they're all in place and they're not damaged. That's a common one you see; you have a driver going to pick up the trailer, and they get it all ready, and they totally forget to lift the back jacks up, and they pull out and either bend or break off the back jacks on the trailer."

AIR CONDITIONING UNITS

Customers expect restroom trailers to be comfortable, and proper temperature is important for their satisfaction. As such, it's somewhat surprising that air conditioning maintenance is commonly overlooked, especially when the maintenance is relatively straightforward.

First, know the power requirements of your trailer to ensure your air conditioner will work with the available electrical outlets at the job site. It's

also important to know the unit's output capacity and set the thermostat accordingly.

"Having the thermostat set so it's at a temperature the unit can keep up with is pretty important," Campbell says. "If you have your thermostat set at 60 and it's 100 degrees F outside in the sun, it's just never going to catch up and take a break, so setting it at a temperature that is possible to keep up on is a good thing."

Similarly, make sure the unit itself is ready for use.

"Make sure all of the vents for the air conditioning are opened in the interior. If you close the vents, it doesn't allow the air to flow, causing the unit to start to freeze up or work harder," Campbell says. "That's kind of a simple one that gets overlooked." **C** Generally these are going to nice, high-end settings, and as you pull up on site, the guest, your customer, wants to run out, open the door and look at it. If you don't maintain that tank and take the precautions to control that odor, they're going to get a pretty unpleasant shot when they first open that door. **33**

Ryan Anthony

Beyond on-the-job considerations, regular cleaning of the air conditioner filters will increase the longevity of the units. Clogged filters lead to the unit overworking, which can cause short- and long-term failure.

"Keeping those filters clean — so when it is running, it's not running at max capacity — is a big thing," Campbell says. "When it's clogged, it's working harder, it's getting hotter and that'll usually cause failures more often."

Fortunately, cleaning the filters is fairly simple.

"Routine maintenance on the air conditioners is to clean the return air filter every two weeks or as needed. This time of year, the white cottontail or all the pollen that's in the air clogs them, so we recommend cleaning more often," Campbell says. "That return filter is a foam filter that just filters out dust and debris. But they can be taken out, cleaned with soap and water, dried, and put back in; or they can be purchased and replaced on an asneeded basis.

"The second step is to remove the exterior housing of the air conditioner and blow out and clean the compressor and the fins on the evaporator," he says. "That's recommended just once a year, or if you're in very, very dusty conditions, maybe once a month at most."

TANK HEALTH

Of course, one of the most important components of a restroom trailer is the waste tank. Keeping it clean and maintained can mean the difference between success and failure in the eyes of customers.

"Generally these are going to nice, high-end settings, and as you pull up on site, the guest, your customer, wants to run out, open the door and look at it," Anthony says. "If you don't maintain that tank and take the precautions to control that odor, they're going to get a pretty unpleasant shot when they first open that door."

So proper maintenance both on the site and on the yard is essential.

"Never pull trailers with waste in them. It's not recommended by any manufacturer to transport these trailers with waste in them," Anthony says. "Not only is it unsafe, with the sloshing of waste back and forth, but depending on how they're manufactured, you could get waste on top of tanks and you could get waste in places that you can't get it out. Long term that's going to lead to odors you can't control and potential places for things to start to deteriorate."

While the trailer should be pumped before transport, that doesn't mean the job is done once its back on at the shop.

"As the trailer gets back on the yard, evacuate all the waste you can from the tank," Anthony says. "Open up that clean-out port and use water to wash as well as you can, and just make sure you're flushing all that waste out and make it as clean as possible for when you're going to store it on your yard."

Because restroom trailers are not always used daily and tend to sit days at a time between jobs, it's extra important to plan for downtime.

"If it's going to be sitting on the yard for more than a week at a time, they should go through that thorough cleaning. Opening the port, flushing the tank, getting out any paper that's left behind," Anthony says. "It's just going to help control odors in the long run."

After thoroughly flushing, some freshwater should be added with chemical deodorizer. It's nearly impossible to get every bit of waste out, so prepping the tank for storage helps mitigate odors for the next rental. Anthony recommends 10% of the total tank volume added back in freshwater, and then the deodorizer manufacturer's recommended dosage.

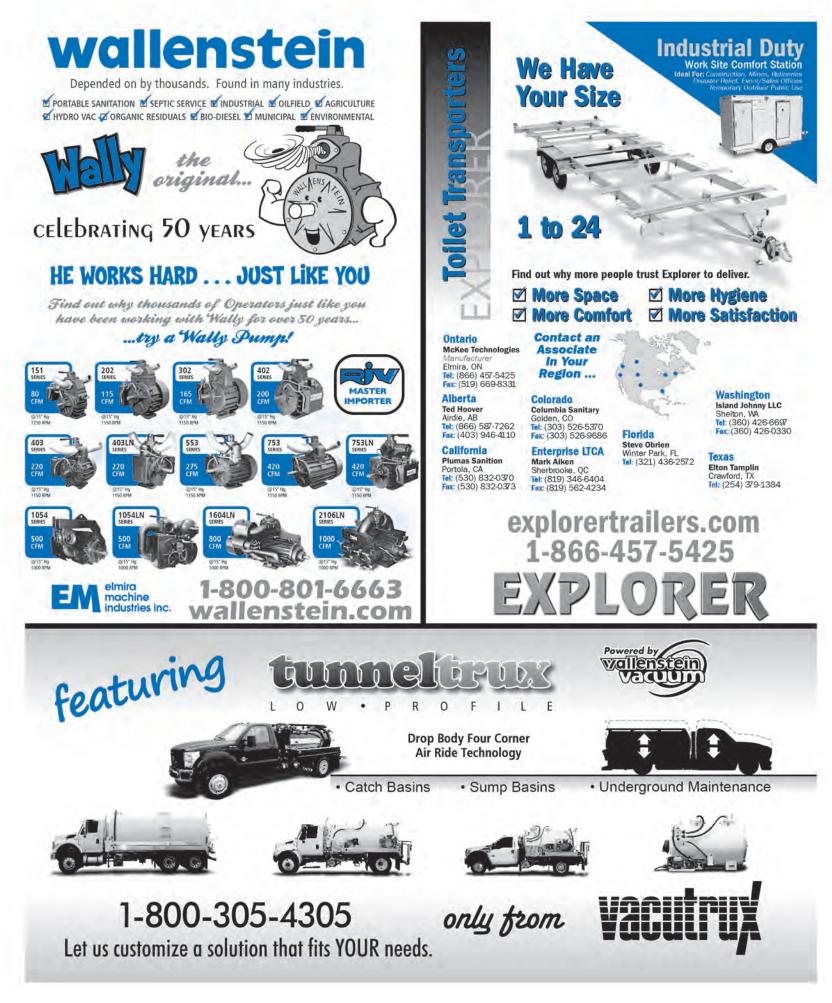
"Generally there is a layer on the bottom of the tank that just never comes out," he says. "When you transport the trailer to the job site, that gets reactivated, stirred up and produces some pretty unpleasant odor."

The exception to that is storage in freezing climates, where the deterioration of waste remnants is less of a concern due to the cold and you can't let liquid sit in the tank. Steel tanks require extra attention to prevent rust when trailers are idle during long stretches.

PROTECTING THE INVESTMENT

Restroom trailers have rapidly become a popular choice for customers looking for enhanced portable sanitation service. The stakes are high, both from the higher fees charged for the service and the investment in this specialized equipment. The decision to offer restroom trailers must be accompanied by a commitment to maintenance.

"You charge a lot of money to rent these trailers, so to me it's really important that you are washing them and waxing them and everything between rentals," Ghrist says. "It's what the customer expects."







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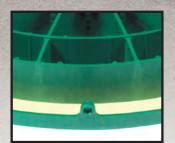
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Jim Anderson, Ph.D., is an emeritus professor at the University of Minnesota Department of Soil, Water and Climate and recipient of the pumping industry's Ralph Macchio Lifetime Achievement Award. Email Jim questions about septic system maintenance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

How Does Drip Irrigation Treat Septic Tank Effluent?

Pressure distribution is part of a quality treatment plan where more conventional septic systems won't be good enough By Jim Anderson, Ph.D.

Reader recently asked how drip irrigation systems operate to treat septic tank effluent. In general, a drip irrigation system is nothing more than a type of pressure distribution system where the goal is to spread the septic tank effluent out over both space and time. This means that effluent is applied across the entire soil treatment area (space) and at certain times of the day (time).

A drip irrigation system consists of some level of pretreatment, a dosing tank, pump controls, flowmetering device, filtration headworks and the dripfield for final dispersal and treatment. The dripfield has 1/2-inch-diameter tubing with a pressure compensating emitter to provide uniform flow.

Minimum pretreatment for drip irrigation is a septic tank; but many areas and some products used require aerobic treatment. As always, state and local requirements should be checked before servicing or installing a system.

The dosing tank stores the treated wastewater until it is dosed to the soil treatment area. Typically, a high-head multistage turbine effluent pump delivers effluent through the filtration headworks to the drip distribution field.

ON THE CONTOUR

A drip distribution field consists of the drip tubing placed along the contour to form a run of tubing. These can be connected directly to the supply and return manifold, which forms a ladder-shaped drip zone. Individual runs can be looped together to form a lateral. Supply and return manifolds run up and down the slope to allow installation of the driplines on the contour.

By distributing small doses of effluent to the soil spread over a day, the soil is able to accept the effluent, maintaining aerobic conditions and allowing treatment of the contaminants in the soil. Instantaneous loading to the soil causes moist conditions around the emitter, but time between doses allow aerobic conditions to be maintained. Aerobic soil conditions and unsaturated flow through soil are the conditions we want present for optimum soil treatment efficiency.

Conventional gravity-fed trenches rely on development of a biomat to control flow from the trench into the soil under unsaturated conditions in the presence of oxygen to provide aerobic conditions for treatment.

In drip irrigation or any other pressure system, flow is controlled in the soil by use of a pump and timing of applications to make sure flow is not saturated (or too rapid) and oxygen is available to aid aerobic organisms in soil to break down and treat the effluent added. Since drip irrigation systems are typically installed no deeper than 1 foot (and often less) in the soil, per-

Minimum pretreatment for drip irrigation is a septic tank; but many areas and some products used require aerobic treatment. As always, state and local requirements should be checked before servicing or installing a system.

meability is higher for both water movement and availability of oxygen.

Early in use of drip irrigation for wastewater treatment, the question was whether some type of equivalent biomat or clogging zone would occur around the emitters, thus reducing their effectiveness in distributing effluent. Research done on drip irrigation systems using "treated" effluent showed that while there were changes in moisture retention, pore size distribution and saturated conductivity in line with the emitters, a severely clogged layer or area did not develop. Any hydraulic effects of effluent application were reduced farther away from the emitter.

FILTERING IS KEY

This research was done on systems that had additional pretreatment of the effluent beyond a septic tank. Additional pretreatment can consist of aerobic treatment units, media filters (sand, fabric, etc.) or constructed wetlands after a septic tank. The main purpose of the additional pretreatment is to reduce the organic loading of the system as indicated by BOD and fewer suspended solids to reduce the potential to clog the tubing or emitters. Increased BOD to the soil will also cause further reduction in conductivity and pore size and increase moisture retention.

In addition to more pretreatment, the filtration headworks has a disc filter, screen filter or sand filter. The primary purpose of the filters is to remove larger particles from the wastewater so they do not plug the emitters. Concern about solids collecting in the tubing — as well as growth within the tubing — means that all drip irrigation fields are built to either manually, automatically or continuously flush the drip tubing. This regular maintenance activity must be performed. Flushed solids and effluent are delivered back to the septic tank or the dosing chamber to cycle to the dripfield.

Research has shown that treatment efficiency for a range of soil conditions is very good. A study was conducted in Wisconsin under cold weather conditions for drip systems using only septic tank effluent and effluent after more pretreatment. Soil textures in the areas of the driplines ranged from loamy sand to clay. The tubing was installed at depths of 4 to 20 inches. The

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presence of fecal and total coliforms was evaluated up to 2 feet below the tubing depth.

For the systems using septic tank effluent, fecal coliforms were below detection limits at a 2-foot depth and less than that for the systems with the greater pretreatment. Based on the study results, the researchers suggested separation distances for drip systems using septic tank effluent could be reduced from 3 to 1.5 feet and 1 foot for more highly pretreated effluent. The caveat being that using this reduction would be in areas where other high-risk factors were not involved.

Drip irrigation systems provide quality treatment. They are an excellent choice to use in very tough soil conditions, such as high water tables, shallow to bedrock and tight clay soils. There are additional maintenance and management requirements and in cold climates additional design requirements to avoid freezing; but they can perform very well.







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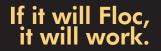
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Based in Racine, Wisconsin, Erik Gunn writes for magazines on business and other topics.

Are You Ready to Play Demons for Dollars?

For some scary Halloween fun, walk through this financial house of horrors and see if your pumping business is performing like a dream or causing a nightmare By Erik Gunn

t's October, the time of the year when we flock to haunted houses, tell scary stories and work up creepy costumes for trick-or-treating. So there's probably no better month to consider the ghouls, goblins and worse that threaten to suck the blood from many small businesses. These money management mistakes can keep you up at night in terror.

Read on to learn about the horrors that can haunt your operation if you're not careful. But fear not: Knowledge is freedom. And demons like these don't need an exorcist to banish them — just some care and common sense.

1. Keeping sloppy records. There's no end of mischief that can result if you don't have a clear, concise bookkeeping system that can show you in an instant what's going out, what's coming in, who has paid you and who hasn't, what bills you owe and what you've paid.

Ideally, you're keeping your books with appropriate computer software that fits your budget, can be used to track trends, alerts you to overdue bills (whether you owe them or they're owed to you), and integrates with your bank account so it's always up to date.

But even if you're still old school enough to trust the good old paper ledger for these records, at least make sure you're using one. Keep it well organized and up to date. And remember, the better you are at doing the second of those, the easier it is to do the first.

2. Mixing personal and business expenses. You'd think this would be a no-brainer. You'd be amazed how often it happens.

Maintain a checking and savings account, along with one or more credit cards, that are only for business income and expenses. The better you are at keeping those separate from your personal transactions, the less trouble you'll have documenting expenses and income at tax time and the lower your risk of having a legitimate expense questioned or disallowed in an audit.

3. Overspending because "Who cares? It's deductible!" It can be so tempting, especially to people just starting out in business, to spend more than you should. "I need that," you say. "And after all, I can take the price off my income and pay less in taxes."

All true. But remember this: When you reduce your taxable income, you're cutting your profits. Or to put it another way: For everything you buy that's deductible, you still had to do the work so you could pay for it. Business expenses should be for what you need and should be budgeted for as best you can. And on the flip side ...

4. Underspending because "Who needs it? I'll just do it the way I've always done it!" Some people learn the lesson about demon No. 3 just a

little too well — and skimp on necessary expenses because they're afraid to spend money. When new technologies come along or old tools wear out, be willing to spend appropriately to make sure you have the equipment that will do the job for you. And speaking of skimping ...

5. Skimping on advertising and marketing. Yes, the world has changed from the days of radio spots or phone book ads. But some form of advertising and marketing is still necessary to draw the attention of potential customers. Word-of-mouth is good, but it's not enough. Knowing which particular marketing channels work best in your community and for your kind of business can be a challenge. But that's no excuse for simply ignoring the importance of getting the word out about what you do.

6. Deferring maintenance on the tools of your trade. It doesn't matter why you're putting off routine care for your tools and vehicles. Maybe you think you don't have time or you figure you can save money on your bottom line. Wrong. There's no savings in a truck that wears out faster because you decided you didn't have to get the oil changed as often.

7. Failing to seek bids when choosing vendors and suppliers. Most of your customers (no, not all) probably have gotten estimates from one or more of your competitors, at least the first time they hired you. You need to do the same. Loyalty and relationships certainly have their place in business, but they also need to be earned with good service and fair pricing. Don't treat your own wallet any less carefully than your customers treat theirs.

8. Refusing to take credit cards. If you go out on a job, you want your customer to be able to pay you as conveniently and quickly as possible. And that means being willing to take plastic, not just paper. There are legitimate concerns over what policies to observe when accepting credit cards, given that you will have to pay a fee to the card processor. But to flat-out deny credit cards under any circumstances simply punishes you — and probably needlessly turns away business.

9. Hiring by the seat of your pants. We get that it's harder to find skilled tradespeople these days. But simply relying on "instinct" or taking any warm body that walks through the door sets you up for the inevitable cost of employee turnover.

Instead, consult with a human resources expert on how better to assess job applicants, not just for their skills, but for their attitude and how well they'll fit your particular shop. Consider whether you might want to improve the labor pool by working with your local technical school to sponsor ap-



And are employees free to contribute their ideas on how to better do the job?

If the answer to any of those is "no," you've got work to do. Get on it.

10. Underpricing your work. You've heard the old joke: "I lose a few dollars on every sale, but I make it up on volume!" It's fine to aim to be the least expensive alternative, but first make sure you're covering all your costs and earning an appropriate return. If you're getting consistently beat on prices, examine what you might be doing wrong, including making sure customers understand the underlying value of what you offer compared with your competitors.

11. Failing to hire a financial professional. Every business needs someone to do the bookkeeping, but that's not the point here. You also need someone who understands your business finances and can give you advice, both from a big-picture perspective and from a close-up point of view.

That someone is probably a certified public accountant. Ideally, he or she will know your industry, or at least be willing to learn about it in detail and with an open mind so as to give you the best guidance.

BWA-HA-HA-HA

So take a hard look at your business. Are any of these demons lurking in the corners? If so, shine a light on them; then set about ridding them from the premises. That way, Halloween will just be a fun time for kids and candy — and not a hint of haunts to come. ■



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1100	26.4	100	1500	103	1450	27.2	1.417	36	0.906	23

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RULES & **Regs**

Rules and Regs is a monthly feature in *Pumper*. We welcome information about state or local regulations of potential broad interest to onsite contractors. Send ideas to editor@pumper.com.

New Hampshire Septage Processor Caught in Budding PFAS Problem

By David Steinkraus

B iological Recycling Co., a New Hampshire company that processes septage and spreads sludge on fields, has been notified by the state that it is the likely source of per- and polyfluoroalkyl substance (PFAS) contamination of private drinking water wells. PFAS is an umbrella term for a category of chemicals used in a wide variety of products.

Because of the contamination, Biological Recycling Co. of East Kingston is supplying bottled water to six affected homes near its property, according to news reports. Because there is no public water source near the homes, the likely solution will be a water treatment system at each house, says Jim Martin, a spokesman for the state Department of Environmental Services.

A news report says tests of four drinking water wells found combined concentrations of perfluorooctanoic acid and perfluorooctane sulfonate (also called PFOA and PFOS) ranging from 83.5 to 174.8 ppt. The state standard for water is 70 ppt. Seven of 10 groundwater monitoring wells on or around the company's property exceeded standards.

The state accuses company owner Daniel Bodwell of spreading nonresidential sludge on land. Judy Houston, a DES enforcement engineer, was quoted as saying that Bodwell did not mention an intent to stockpile and compost dewatered septage, and this is not covered by his permit. The state also accuses him of building an unpermitted lagoon to store material, and the state says groundwater on that part of the property is too high for safe construction of a lagoon.

Only household sludge may be land-spread because septage from schools or commercial buildings may contain cleaning chemicals that contain PFAS, Houston says.

"Until (Bodwell) can verify with his septic haulers what kinds of sources the material comes from, we don't know if it came from just toilets. It could be janitors' sinks at a school or nursing home," Houston says, according to the news website www.seacoastonline.com. "There would be the potential for PFAS in wax strippers or degreasing products in kitchens."

New Hampshire is not the only place where PFAS is a budding issue for the wastewater industry. All sewage sludge tested by the Maine Department of Environmental Protection was contaminated with PFAS, according to news outlet *The Intercept*. The state tested 44 samples from farms and other facilities that spread compost made with sludge, and all samples showed at least one PFAS chemical. Only two of the samples had PFAS concentrations below the standard that Maine set in early 2018.

There are currently 37 bills in Congress that address PFAS chemicals. One would add PFAS to the federal government's Toxics Release Inventory. Another would require blood tests for Defense Department firefighters. One use of some PFAS chemicals is in firefighting foam, and there have been several reports of well water contamination near military airfields. A third bill would list PFAS under the U.S. Environmental Protection Agency's Superfund environmental cleanup program. A fourth would phase in a complete ban on the manufacture and distribution of the substances.

When the National Defense Authorization Act passed the Senate in June, it carried an amendment that requires manufacturers to report air and water discharges of PFAS chemicals, adds PFAS to the list of chemicals tracked by the U.S. Geological Survey, and requires public utilities to test tap water for PFAS chemicals. The House of Representatives is expected to consider the bill.

PFAS have been made since the 1940s and are used in a wide variety of products including carpet, fabric, paper packaging and some firefighting foams. Two members of the chemical family, PFOA and PFOS, were voluntarily phased out by manufacturers and replaced with a new class of PFAS compounds called GenX.

Although research on the effects of PFAS is not complete, results so far suggest that high concentrations in humans may increase cholesterol levels, decrease response to vaccines, increase risk of thyroid disease, decrease fertility in women and increase the risk of high blood pressure or preeclampsia in pregnant women.

New York

A bill in the New York Legislature would let Suffolk County voters decide whether to charge themselves for wastewater projects, but the measure is not gaining traction.

A fee on each gallon of water could raise up to \$70 million for water projects including nitrogen-removing onsite systems, municipal sewer expansions and wastewater plant upgrades. Advocates of the bill estimate an annual cost of \$60 to \$70 for the median user, but the Suffolk County Water Authority, which does not support the idea, estimates an annual cost of \$165 for the average household.

Suffolk County, which occupies the eastern tip of Long Island, is plagued with algae blooms tied to high concentrations of nitrogen, and in turn tied to the large number of cesspools used for home wastewater treatment. The county and some municipalities have passed laws requiring nitrogen-reducing onsite systems in all new construction and remodeling projects.

Also in New York, a town of Carmel board member faces fines of up to \$37,000 per day for not having a septic permit for his lakeside restaurant. Blu restaurant, owned by council member Mike Barile and a partner, has a drainfield under its parking lot, he told state inspectors, according to *The Journal News* of White Plains. The field is 50 to 80 feet from the shore of Mahopac Lake, which supplies water to 450 families. The onsite system was to have been repaired in 1991 when it served a smaller hamburger stand, but no documents exist to show the repair was completed, the newspaper says.

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According to an investigation by the Environmental Working Group and the Iowa Environmental Council, private wells in the state are contaminated with unsafe amounts of coliform bacteria and nitrate. Both contaminants enter groundwater from farms, and both are linked to human health problems.

Between 230,000 and 290,000 state residents depend on private wells for their drinking water, yet in 16 years of testing, only 55,000 wells were tested for nitrate or bacteria, or both. Of the wells tested, 22,000 were positive for coliform at least once. More than 4,300 wells tested positive for bacteria every time. The Onsite Observer, newsletter of the Iowa Onsite Waste Water Association, summarized the study.

Wyoming

The Laramie City Council received a report saying septic tanks near the city are leaching nitrate in an area where the Casper Aquifer is especially vulnerable to contamination. The aquifer supplies about 60% of the city's drinking water.

The study — funded primarily by Albany County and with some contributions from the city — found high levels of nitrogen and ammonia as deep as 35 feet. The sandstone of the aquifer starts at a depth of 25 feet.

Elected officials at the meeting questioned how much they could do since the septic systems in question are just outside the city limits.

Florida

Last summer, the city of Venice began sending letters offering septic tank inspections for people within the city limits. Inspections will be done by certified contractors at no cost to homeowners. This is part of the city's response to a 2018 algae bloom. Only 45 properties in the city limits have septic tanks, and the city did not require them to connect to municipal sewer because of the cost of \$8,000 to \$25,000 per property.

Washington state

More than 150 wineries will pay new permit fees as part of a rule revision by the state Department of Ecology.

Large and midsize wineries now must have a wastewater discharge permit like those required of manufacturers. The new rules limit irrigation with recycled water that was used to clean bottles, barrels, tanks and other equipment. The rules also govern storage ponds and use of water on dusty roads. Wastewater containing cleaning chemicals and organic matter could be a source of pollution, the department says, but it also has never documented such an incident.

Rules apply to wineries that make at least 17,835 gallons of wine or juice annually. Fees range from \$296 to \$33,196 annually depending on production.

Also in Washington state, the Clallam County Board of Health is proposing a \$13 annual fee on septic tanks to fund its onsite management program. Historically, the program has been funded with grants, but officials say funding has not been sustainable, according to the *Peninsula Daily News*. The county's Environmental Health division requires regular onsite inspections, ensures failing systems are repaired and maintains records.

A fee on each system would generate about \$260,000 annually and fund 2.5 staff jobs. The board is considering eliminating fees to review contracts and system status reports. That would cut revenue by about \$34,000.

There are about 20,000 onsite systems in the county, and since 2007, about 700 have failed. The county is northwest of Seattle along the top of the Olympic Peninsula.

If approved, the fee would take effect in 2021 when grant money runs out. ■



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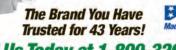
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Saskatchewan wastewater contractors push the government to require system design and installation by certified professionals

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 Saskatchewan Onsite Wastewater Management Association.

Name and title or job description: Jason Holtvogt, owner and operator Business name and location: Holtvogt Sand and Gravel, Humboldt, Saskatchewan

Age: 42

Years in the industry: The company is 45 years old, started by my father, Herb Holtvogt, so I grew up in the business. But the rule in our house was to go to postsecondary school. I have a degree in computer-aided design and drafting, or CADD, and worked as a drafting technologist for 11 years, first in manufacturing and then with the city of Saskatoon engineering department. There wasn't a lot of room for advancement, and after about five years there, my dad approached me about buying into the company and working with him. I've been working at Holtvogt Sand and Gravel for the last 12 years.

Association involvement: I've been a member of the Saskatchewan Onsite Wastewater Management Association since it was formed. I've been a director for three years.

Benefits of belonging to the association: When I run into a situation I'm unsure of, I can call the association and they'll give me some feedback or send me to an experienced installer who can help me. It's a good group you can call on. And they do a really good job of training. All the training you need you can get through the association. Also, they advocate for us when the government does reviews of their disposal guides. The association is in direct communication with the government and will provide suggestions when regulations start coming out or when modifications are made.

Biggest issue facing your association right now: The government does not require systems to be designed or installed by certified installers. Anyone can install a septic system. The systems have to meet minimum requirements, but as certified installers, there are often options you can provide homeowners that will work better for them. Often a "just pass" mentality equals a system that doesn't fit the homeowners' lifestyle and becomes ineffective. I don't believe the Saskatchewan Health Authority provides enough money to properly train its inspectors, so many of them struggle to do inspections. This happens in areas of the province where onsite wastewater hasn't been fully accepted. It's frustrating when you've spent so many years in the industry investing in improving your skills, making sure you're providing the



best systems, and then the inspectors are struggling to understand the requirements. Things are improving, but it's time to give mandatory training to all the inspectors and give the homeowners the best chance at having a successful system by making it mandatory to use a certified installer.

Our crew includes: My dad is 74 and still does stuff around here as much as he can. We talk every day and get things lined up. The crew fluctuates. There are usually three or four of us in any given year who do the septic work — but also other things. We're like a jack-of-all-trades. When you've got something to dig holes with, you end up digging holes for everything.

Typical day on the job: Typically I'm going out on sites or getting prepared for an installation, which starts with a lot of planning. The prep work involves design, consultation with the homeowners, site evaluation and making sure that what we're going to install meets the requirements of the province, site and homeowners. The day of installation is really just the culmination of all that prior work. So one day we'll be getting the tank in, maybe doing the trenching, and then having that inspected and prepping for installing the field. Depending on weather, everything should go smoothly, and within two or three days, you have everything completed for the homeowner and turned over.

The job I'll never forget: I was asked to come out and see if I could fix a septic tank beside the homeowner's house. I drove into the yard and it was atrocious. There was garbage everywhere. They were like, "Everything's still



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working. It's all fine." I found where the septic tank was and half of it was collapsed. They had a pump just sitting on the ground in the tank pumping out what they could, what was coming in there. But they wanted the tank fixed. They didn't want to replace it. I can understand their financial constraints, but there comes a point. I told them it couldn't be fixed and showed them their options but never heard back from them.

My favorite piece of equipment: My excavator — I use it for everything. It's a Case CX210. The industry has changed a lot, going from using backhoes to excavators, which have become the most versatile piece of equipment we now have. When dad started in 1974, he had one backhoe and would consistently put on 4,000 hours a year. Right now, it's maybe 250 hours a year. Excavators were very uncommon then. There are probably no contractors around here able to make a living on one backhoe today.

Most challenging site I've worked on: In 2010 we had an extremely wet year. In an average year, we get about 9 to 12 inches of rain. That year we had 4 feet. We had an installation site where there was a slough nearby. The water table was high, but we were able to find another location on the property to stay away from the water table. We got enough vertical separation to the water table that the mound went in without a hitch. It just took awareness of the site as to where to place everything.

The craziest question I've been asked by a customer: "To start this tank, my neighbor told me I should throw a dead chicken in it." I've heard it multiple times. It doesn't make any sense, but they're dead serious. They think they need to put a dead chicken in there to get the bacteria working.

If I could change one industry regulation, it would be: To have a requirement that only certified installers can install systems.

Best piece of small-business advice I've heard: Make sure you've got more money coming in than you've got going out.

If I wasn't working in the wastewater industry, I would: I'm sure I'd be doing something with construction equipment.

Crystal ball time – This is my outlook for the wastewater industry: I think we're very close to a change in the wastewater industry in Saskatchewan. The Health Authority made changes to the Saskatchewan Onsite Wastewater Disposal Guide in 2018 that significantly improved it. The guide was very basic before. But even though we made big strides in this edition, it may be another 10 years before we see further changes. The wastewater industry is the most down-to-earth environmental protection industry you could be in. We are the actual boots on the ground protecting groundwater in a significant way through the proper treatment of wastewater. When that is recognized, then maybe changes to our industry will happen much quicker than they are now.

- Compiled by Betty Dageforde



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Enjoy the Mega-Conference and Watch for New Certification Training

By Kim Seipp

he Onsite Wastewater Mega-Conference is in full swing! You may be reading this just before or during the event (Oct. 13-16), and we want to give a shoutout to all our members in attendance and vendors that come to the conference. This year the National Association of Wastewater Technicians focused on septage management, giving both private companies and municipalities options for dealing with the septage they pump. This is going to be valuable information moving forward as our previous disposal options are less available.



Don't forget NAWT scholarships

Applications for the William Hapchuk Memorial Scholarships are due by Jan. 15, 2020. Further information and necessary forms are on the NAWT website. We encourage all members or anyone who has college-age students who qualify to please have them apply for these prestigious scholarships. We offer two scholarships each year for students enrolled in an onsite-related field.

Also, if you or your company is interested in supporting the scholarship fund, please contact the office and they will help you out with your generous donation. The youth are our future, and we need to encourage them to take an interest in our industry. It is an exciting industry that continues to grow by leaps and bounds.

See us at the WWETT Show

As we gear up for the 2020 Water & Wastewater Equipment, Treatment & Transport (WWETT) Show, remember to look at the NAWT sessions. We are going to be rolling out new concepts, ideas and protocols for our installers. Dave Gustafson and Dan Wheeler will be taking us through what an installer needs to know about design, soils and the "art of installations." As the industry grows and our sites become smaller and more "interesting" to work with, it's important that installers are fully prepared for the challenges they will meet.

And of course, don't forget — especially if you have not been through the NAWT Inspector Training course recently — we will be bringing our recently updated course back to the WWETT Show in the one-day format that only Gustafson — with his experience and flair for presentation — can deliver. Register early to take advantage of the reduced rate for the course.

If you have questions or need to renew any NAWT certificates (installer, operation and maintenance, designer, and inspector), this will be an opportunity to do that and see changes made to the training. This course will be held on the Monday prior to the opening of the WWETT Show. Check the NAWT website or call the office for more information.

Upgraded website

The office has been working diligently for the membership. The database has been revamped, and the links to the website are complete. With the new database and website links, we will be notifying you as your renewal date for certifications approaches. You may also submit CEU work you have completed to the database when it occurs and pay online for your renewal when you are due. If you have any questions regarding this process, please contact the office. ■



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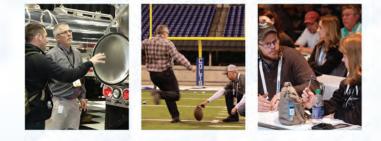
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Marshfield, WI Madison, WI 800-826-2308 866-846-0680 www.istatetruck.com ilton and Nancy Widner added a white 2019 Freightliner M2 106 carrying a 4,000-gallon waste and 200-gallon freshwater 5/16-inch aircraft aluminum tank and Fruitland pump from Amthor International. The truck is powered by a Cummins L9 350 hp engine tied to an Allison automatic transmission. Features include 20-inch top and rear manways, sight glasses and aluminum toolbox. The interior features a stereo radio and air conditioning. Water-themed graphics are from Extreme Graphics. Dwayne Trahan is the driver, and the truck is used for pumping septic tanks and grease traps.

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Got a truck with real WOW appeal? Show it off to *Pumper* readers!

Send photos of your truck after it has been lettered with your company name. Any industry-related truck is acceptable. Please limit your submission to one truck only.

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

We look forward to hearing from you!

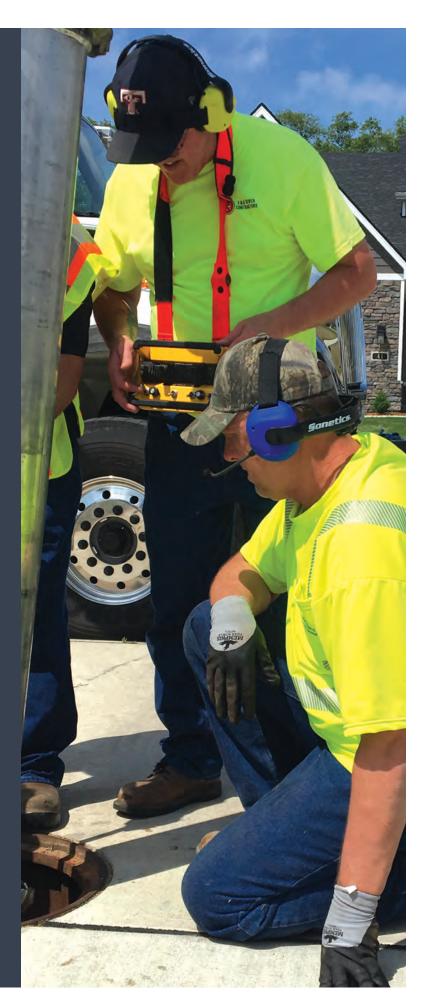
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Office Technology and Software

By Craig Mandli

BUSINESS SOFTWARE

Cro Software Solutions

Cro Software Solutions is a cloud-based software offering static and dynamic dispatching, route optimization, automated invoicing, event planning, QuickBooks integration,



GPS tracking and more. It offers a native iOS and Android mobile app for drivers. As a web-based software application using the most modern web design features, it allows users to quickly adapt to and learn the system. **844-276-2467; www.crosoftware.net.**

CASE STUDY

Operations software helps company run more efficiently

Problem: Clear River Cesspool is a septic, sewer and cesspool cleaning company serving the Long Island, New York, area. The success of its business over the years led to

increasingly difficult data entry challenges. On many days, the office staff's time was occupied by double data entry tasks in an old software system.

Solution: In a brief software demo with Ori Staub, **Servi-ceCore's** managing partner, the Clear River team saw how, with one quick import guided by an onboarding team, it would be able to sync existing data from



QuickBooks and its old software system into ServiceCore. They also got a clear demonstration of how automatic syncing of new incoming data would work in ServiceCore. ServiceCore's onboarding team worked with the company to import old data and set up automatic syncing.

Result: Managing its data and operations in ServiceCore helped Clear River's office staff save four work hours per week and make great strides on billing, routing and fleet management priorities over more than two years.

844-336-0611; www.servicecore.com.

FLEET MANAGEMENT

ClearPathGPS OwlCam

ClearPathGPS and **OwlCam** have partnered to provide the fleet-enabled dashcam features needed to protect both a business and team. Harsh braking,



acceleration, turning and crashes are automatically detected while GPS data records when ignition is on to provide location data, vehicle speed and accurate time/date. Smart response also protects the fleet while parked by detecting both impact and broken glass events. Tamper-free video footage can be securely downloaded for use in insurance claims, court cases and driver coaching. A fast LTE connection uploads recorded video instantly to the cloud. The cameras are installed in a few minutes. Sleek, low-profile units mount just above the dashboard. They feature HD 120-degree wide-angle lens (1,440 pixel road-facing and 720 pixel driver-facing) and 2x digital zoom with full resolution. **888-734-0384; www.clearpathgps.com.**

NexTraq software

NexTraq software provides driver assignments that keep track of who is driving a vehicle on any given day. It can help optimize daily planning, helping drivers accom-



plish more during the day, and provide fleet tracking to find the location of a single vehicle or the entire fleet, according to the company. Mapping and geofence service creates locations and zones with simplified 32-point geofencing. Sensors and asset tracking allow operators to know when a driver uses a lift or an asset has been moved. Behavior tracking can help correct poor driver habits with the tools needed to coach the team. It also helps automate maintenance schedules and gives alerts when repairs are due. Driver accountability can be increased with external- and internal-facing cameras. It can also help simplify electronic logging device compliance, operations and fuel management. **888-251-6401; www.nextraq.com.**

Ritam Technologies Summit Route Management Plus Mobility

Summit Route Management Plus Mobility from Ritam Technologies leverages basic customer and job information to optimize routes quickly. It includes one-click route optimizing, instant Google Map views, drag-and-drop service schedules, optimized route sheets, oneclick temporary stop service and sharing with mobile devices. Technicians are provided with



route schedules; map views; voice navigation; unit type, quantity, route comments and special instructions; and instant messaging to customers and supervisors (proof of service, notice of issues). Supervisors get route trail maps showing dynamic status updates of each job and technician, emergency dispatch, interaction with technicians, and a master map of color-coded routes. **800-662-8471; www.ritam.com.**



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CASE STUDY

Routing optimization saves headaches for company

Problem: Clay Crocker, the owner of Nix Tank Co. in Gainesville, Georgia needed an easy-to-use and efficient routing solution for his drivers. "Routing and route optimization is a big deal for me," Crocker says. "When Microsoft MapPoint went away, it caused a major issue for me personally and left software companies scrambling to come up with an alternative.'



Solution: After testing various prod-ucts, Crocker chose RouteOptix integrated with Bing Maps.

Result: Crocker has realized efficiency. "Finally, I have product that does in seconds what used to take me hours of staring at a computer screen.

866-926-7849; www.routeoptix.com.

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Portable Sanitation

By Craig Mandli

BARRICADES/FENCING

Oxford Plastics Systems OxBlock

OxBlock from **Oxford Plastics Systems** is a temporary fence weight and stand. Each unit weighs 53 pounds and has multiple holes for versatility in fence-line setup. High-visibility ends reduce trip risk, and units can be customized with a branded color and/or logo. They stack for easy transport and storage. 800-567-9182; www.oxfordplasticsusa.com.

DECALS/MAGNETS/LABELS/LIGHTING

Allied Graphics decals

Allied Graphics developed an adhesive engineered to adhere to textures found on portable restrooms. When combined with durable UV-cured ink, the adhesive ensures decals will hold up to harsh environ-

ments, according to the maker. 800-490-9931; www.allied-graphics.com.



ROEDA graphics

500

Graphics from ROEDA are printed on a high-tack, permanent, adhesive vinyl with UV fade-resistant ink to adhere to rough surfaces like portable restrooms, garbage toters and other plastic products. A wide variety of stock UV inks are available, along

with custom Pantone matching. Decals can be made in any size, shape and quantity. UV clear-coat or lamination can be added for extra protection from the elements. An existing logo can be used, or a new one can be designed. 800-829-3021: store.roeda.com.

GRAFFITI REMOVAL

Century Chemical Graffiti Wipes

Graffiti Wipes from Century Chemical are designed for fast, easy cleanup of paint from nonporous surfaces. The abrasive, yet nonscratching fabric aids in cleaning and can be used on portable restrooms, showers, partitions and hand-wash stations. They are premoistened with an environmentally safe and biodegradable cleaning formula that



removes paints (including enamel), ink and permanent marker. A single wipe dissolves unwanted paint and graffiti, according to the maker. Each case contains six canisters, with each canister holding 70 wipes measuring 9 1/2 by 12 inches. 800-348-3505; www.centurychemical.com.



Safe-T-Fresh Good as Gone graffiti remover

Good as Gone graffiti remover from Safe-T-Fresh is formulated to remove paints, inks, crayons, lipstick and other marks from portable restrooms and wherever graffiti is a problem. It can be used on most surfaces, including plastic, brick, glass, ceramic tile, porcelain, marble, ceramics, Formica, terrazzo, enamels, brass, aluminum, steel, chrome, vinyl and painted surfaces. 800-883-1123; www.safetfresh.com.

Surco Portable Sanitation Products Tag Off Graffiti Remover

Tag Off Graffiti Remover from Surco Portable Sanitation Products can be used to remove unsightly marks on portable restrooms and many other surfaces. The formulation will not harm aluminum, brass, brick, chrome, concrete, most enameled surfaces, glass, marble, porcelain and steel. It is sold in 1-gallon jugs (four per case), 5-gallon pails or 55-gallon drums. 800-556-0111; www.surco.com.



Walex Products Banish Graffiti Remover



Banish Graffiti Remover from Walex Products is a user-friendly formulation that removes graffiti and leaves surfaces protected from future graffiti. It removes most types of graffiti and many stains from smooth, nonporous surfaces such as plastics, glass and metals. It can be used to remove marker, paint, pen, pencil, grease, tar, crayon, dirt and calcium buildup. In most cases, it will remove the graffiti in less than a minute on unpainted surfaces, according to the maker. It is sold in 1-, 5- and 55-gallon containers. It should be sprayed onto the surface being cleaned and allowed a minute or two to work; and then use a Banish Pad or soft scrub brush to agitate the product on the surface to

help the removal process. 800-338-3155; www.walex.com.





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Foaming Hand Systems from CPACEX are designed to make hand washing and sanitizing easier and more effective. The foam dispenses from the top of the unit, eliminating leaks and waste, delivering an adequate amount of soap or sanitizer to kill 99.9% of common germs. The systems meet the U.S. Centers for Disease Control recom-

mendations for hand antisepsis. The push pad at the top of the dispenser eliminates overdispensing and is ADA compliant. The refill bag system contains less plastic than hard cartridges, reducing packaging waste by 50%. 800-974-7383; www.cpacex.com.

PORTABLE RESTROOMS

Five Peaks Summit

The Summit from Five Peaks is an alternative to larger ADA-compliant restrooms. It is smaller and easy to maneuver with one person while also being wheelchair accessible, or it can be used as an oversized restroom when extra space is needed. It is available in two tank configurations - 40 or 74 gal-



lons. It features ground-level floor access; powder-coated wraparound grab bars; large, open interior floor space; grab handles; dual coat hooks and mirrors; vent screens; and an automatic door closer, all accessible through the heavy-duty rotational molded door and jamb. The sidewalls are constructed of high-density polyethylene with steel-reinforced corner extrusions for added strength and integrity. 866-293-1502; www.fivepeaks.net.



J&J Portable Sanitation Products Echo

The Echo portable restroom from J&J Portable Sanitation Products is a durable unit designed to withstand constant use and abuse. It is easy to clean and maintain and includes a domed floor with drains in front of the tank top for easy cleaning and no puddling. It includes an easy-to-clean deep-sump holding tank and a hover handle. The sides and roof have

built-in handgrips for easy moving. 800-345-3303; www.jjportable.com.



P-POD

The stackable P-POD by Advantage Engineering is collapsible, standing one-third the height of a traditional unit when not in use. That means companies can transport three times as many units with the same delivery

> equipment. The design uses a single internal bar to hold it upright. Release the bar and the unit folds into its compact position. At 36 inches high in its folded position and 160 pounds, it can

fit in the box of a small pickup truck. The units have wide door openings and a spring-assisted door hinge designed for easy opening and closing. Interchangeable and sealable waste tanks are accessible through the back of the unit for no-mess transport and clean-out. Multiple colors are available to match existing restroom inventories. 877-737-7535; www.p-pod.ca.

PolyJohn Enterprises Comfort XLT

The Comfort XLT from PolyJohn Enterprises has a large static tank that holds 60 gallons or a flushing tank that holds 45 gallons of waste, making it suitable for any private and public event (wedding, concert, fair, festival or party), whether formal or informal, where guests seek just a little more room. The larger tank enables longer time between service, and an optional internal hand-wash sink is available. 800-292-1305; www.polyjohn.com.





Sansom Industries Zenith

The Zenith portable restroom from Sansom Industries has an 80-gallon holding tank with deep sump, blow-molded construction, a roomy interior with ample headroom, smooth interior surfaces for easy cleaning, stainless steel fasteners, a three-roll paper holder, and attractive aesthetics, according to the manufacturer. Many custom options are available. 844-972-6766; www.sansomindustries.com.

T blustar RapidLoo PRO

The RapidLoo PRO portable restroom from T blustar can be assembled and disassembled in two minutes and requires no tools. It measures 86.5 inches high by 43.5 inches wide by 47.25 inches deep, and it is available in multiple colors.



It has double door-springs, a tight door frame, high protruding skids, large vent panels and a spring-loaded toilet seat, and it can be customized with company logos. It arrives ready to go out on job sites. The ability to transport the unit disassembled allows the owner to carry more units, assisting in transport expenses. Parts can be mixed and matched to create a unit for every occasion. Recirculating and drop tanks are available. The unit's clip-in sink (the RP-clean) can be attached to itself to create a free-standing handwash station, called the RP-Twin. 404-719-0715; www.tblustar.com.



T.S.F. Tuff Jon III

The Tuff Jon III from T.S.F. has molded wall vents, a sky heater, lifting brackets and a 16-gallon hand-wash station with foot-pedal pump. Designed for easy cleaning, the one-piece polyethylene unit is available in nine colors and has a 70-gallon holding tank. Options include towel holder and soap dispenser. 800-843-9286; www.tuff-jon.com.



SEVER ROBOTICS

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Nozzle

A Nozzle Idea

The Sewer Robotics C70 video nozzle features 8 cleaning jets, battery pack, LED lighting, WiFi, and self-leveling HD camera for video recording and jetting 6" to 40" pipelines.

Video is recorded on an SD-card inside the nozzle and downloaded to the included tablet via integrated WiFi as soon as the nozzle has returned to the manhole.

Specifications

Scope of Use: Jet Angle: Hose Connection: Flow: Pressure: Battery Runtime: Video Memory:

Features

- Auto Upright HD Camera
- 7 Pressure Switched LEDs
- 8 Exchangeable Jet Inserts
- Double Sapphire Lenses

6" - 40" Diameter Pipelines 20 Degrees 1.25", 1", and .75" Fitting 40 - 170 GPM 2,000 - 4,000 PSI 8+ Hours 8+ Hours

- Wireless Video Downloading
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PORTABLE RESTROOM MOVERS

Deal Assoc. Super Mongo Mover

The **Super Mongo Mover** from **Deal Assoc.** is an industrial hand truck designed to move standard and handicapped portable restrooms. It has two axles, which allow the hand truck to



balance on its own when tipped back. Once tipped back, the restroom can be easily pushed or pulled, and it provides easy access to the roof for cleaning. It has a steel and aluminum frame, and only aluminum touches the body of the restroom to prevent rust-staining the restroom. The unit is available with air tires with inner tubes or never-go-flat solid foam tires. It is available with four, six or eight wheels. **866-599-3325; www.dealassoc.com.**

PORTABLE SINKS

Armal Aqua Stand

The **Aqua Stand** outdoor portable hand-wash sink from **Armal** is designed to withstand any weather and can be used for construction, special events and in municipal parks. Its 23-gallon water tank has a tamper-resistant lid. It is double-sided, lightweight and easy to maneuver and use. It fits inside the Armal Wave restroom and most other portable restrooms for easy transport. **770-491-6410; www.armal.biz.**



Satellite | PolyPortables Tag II

The **Tag II** portable hand-wash station from **Satellite** | **PolyPortables** has rugged construction with a lightweight footprint that makes it simple to transport. It is designed to fit inside most standard-size portable restrooms for delivery. It has a 24-gallon freshwater and 24-gallon graywater capacity, foot-pump operation, two spray soap dispensers, an improved suction port and easy-open fill port. The freshwater compartment is easily removed for filling or maintenance. **800-883-1123; www.satelliteindustries.com.**

RESTROOM/SHOWER TRAILERS

A Restroom Trailer Co. (ART Co.) 1203-W

The **1203-W** restroom trailer from **ART Co.** is designed for fast and easy setup with a streamlined appearance. The 12-by-8-foot three-station unit comes with foldout steps and stabilizer scissor jacks for easy leveling. They are available with several interior finishes, from luxurious to rug-



ged, for any event or environment. They come with a 460-gallon waste tank, 105-gallon freshwater tank, heavy-duty steel frame, integral trailer skirting, 2 5/16-inch hitch, heavy-duty tongue jack, and ducted heat and air conditioning. Options include hands-free faucets, push-button flush toilets, AM/ FM/MP3 stereo, heat/winterization package and pipe-mount leveling jacks. **269-435-4278; www.arestroomtrailer.com.**

Ameri-Can Engineering shower trailers

Shower trailers from **Ameri-Can Engineering** are available in 15 models, including handicapped accessible



and ADA compliant. Shower/restroom combination trailers and decontamination shower trailers are also available. Each trailer is designed for rugged long-term use and to easily accommodate large numbers of users with comfort and cleanliness. The trailers are easy to set up and service and are userfriendly. Shower trailers are available in many different sizes, colors and floor plans. All trailers have an extra-large, steel, epoxy-lined waste tank; TorFlex axles; a lockable equipment room; onboard poly freshwater tank; and ondemand propane hot-water heater. **574-892-5151; www.ameri-can.com.**



Black Tie Products restroom trailer

Restroom trailers from **Black Tie Products** include an arched roofline that drains water away from the unit as opposed to a flat roof that allows water to leak into the walls. Framing is built on a base shelf, re-

ducing flex during transport to increase the life of the unit. Flexing can create premature wear and tear on the unit and result in interior damage and repair costs. **877-253-3533; www.blacktieproducts.com.**

Comforts of Home Services ADA line

The ADA-accessible line of restroom, shower and combination trailers from **Comforts of Home Services** is in full compliance with federal guidelines for the interior of the trailer. Access options include a stand-alone, commer-



cial aluminum ramp system. Lowering the trailer is accomplished with electric one-button execution for 20-foot and smaller models. Trailers longer than 20 feet use an ADA lowering module in conjunction with an attached aluminum ramp. The hydraulic lowering system is designed for customers renting the trailer or moving the trailer numerous times at the same venue. **630-906-8002; www.cohsi.com.**

JAG Mobile Solutions Dignified Accessible Trailer Solutions

Dignified Accessible Trailer Solutions, or DATS, from JAG Mobile Solutions have Stop, Drop And Go! Technology and are available in a variety of sizes and configurations, from single-station to multiperson occupancy. With no hydraulics, no macerator toilets, no loose parts and approximately a 10-minute setup time,

the trailer is designed to save maintenance and maximize uptime. ADAcompliant units are available in any JAG signature interior packages or custom interiors. All units have Forever Floor wood-free subfloors, gel-coat exteriors, fiberglass roofs, dusk-to-dawn porch lights and stair illumination. **800-815-2557; www.jagmobilesolutions.com.**

(continued)

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RESTROOM/SHOWER TRAILERS

Lang Specialty Trailers Pro Series

The **Pro Series** line of restroom and shower trailers from **Lang Specialty Trailers** have gel-coated exterior/interior walls, ceiling and subfloor designed to be durable and easy to clean. They have slide-out

self-leveling stairs with foldout handrails that require no tools to install. The trailers also have an integrated spray bar washout that allows using the excess water in freshwater tanks to wash out the waste tank while the trailer is being pumped. **724-972-6590; www.langrestroomtrailers.com.**

McKee Technologies - Explorer Trailers Comfort Station

The **Comfort Station** restroom from **McKee Technologies - Explorer Trailers** has heavyduty carbon-steel construction and comfortable private facilities designed for use in remote locations and extreme conditions, according to the manufacturer. Loading and transport is simple using either the incorporated crane-lift

hooks or forklift skid. The washroom includes a stainless steel sink; easy-toclean, fiberglass-reinforced plastic interior wall panels; and metal floors. It has a 90-gallon freshwater tank and 130-gallon waste tank. The utility closet includes service access to the thermostat, water and electrical. It's wired for 110-volt electrical service. **866-457-5425; www.explorertrailers.com.**

Satellite Suites Millennium

The spacious **Millennium** four-station restroom trailer from **Satellite Suites** has an appealing interior and enough capacity to accommodate up to 350 guests per event, according to



the maker. Its rich wood and complementary textured walls and floor create an upscale appearance designed to be durable and easy to maintain. The trailer has a nonwood structure that is lightweight and moisture-proof, eliminating the threat of unwanted odors, mold and extensive rotting. **800-883-1123; www.satelliterestroomtrailers.com.**

SERVICE VEHICLES

Crescent Tank vacuum tank

The **Crescent Tank** vacuum tank is completely flat inside and out.



It can carry up to 10 portable restrooms, and the weight capacity is the same as a flatbed truck. It has no baffles, allowing it to be emptied completely to avoid internal corrosion. With the included pump at specified cubic feet per minute, unnecessary fatigue of the structure is eliminated and the life of the tank is prolonged. It is made from 1/4-inch-thick steel for structural strength. Multiple liftgate decks and rail options are available. Freshwater is held inside the external 1/2-inch-thick poly tank. It can be installed on any chassis within the specifications required for each model based on axle ratings and maximum load capacity. **585-657-4104; www.crescenttank.com.**

NUCONCEPTS Majestic

The **Majestic** restroom trailer from **NUCONCEPTS** is available in two- or four-unit configurations. Common sealed roto cast holding tanks help make



servicing easy. Using high-grade, computer numerical control-cut fiberglass panels and wood-free-floor construction, the luxury restroom trailer is built for ease of maintenance and durability, according to the maker. It is built with arched doorways, curved countertops, flushing porcelain toilets, brushed aluminum ceilings, recessed LED ceiling lighting, beveled glass mirror and plank flooring in each spacious individual and private restroom. The solar-powered, self-contained unit is designed for VIP service. **800-334-1065; www.nuconcepts.com.**



Rich Specialty Trailers StarTech shower trailers

StarTech shower trailers from **Rich Specialty Trailers** are built with heavy-duty steel I-beam uniframes and gel-coat fiberglass exteriors. The spacious units come with durable and easy-to-maintain pontoon boat wood-grain flooring. Optional stainless steel shower pans are easy to clean and maintain. Units are available with two to 16 stations. **260-593-2279;** www.richrestrooms.com.



KeeVac Industries KV999

The **KV999** from **KeeVac Industries** is a 999-gallon portable restroom truck for operators who want to stay under the U.S. Department of Transportation tanker endorsement re-

quirement. It is available in aluminum, stainless steel and carbon steel, with single- or dual-side service, holds 699 gallons of waste and 300 gallons of freshwater and includes a two-unit fold-down restroom carrier with trailer hitch. The tank can be mounted on a variety of chassis and with a variety of pump options. Each unit also comes with an upgraded DC-10 washdown pump and hose reel from Hannay Reels. An arctic package and safety lighting are available. **866-789-9440; www.keevac.com.**

Pik Rite Flatbed Restroom Hauler

The **Flatbed Restroom Hauler** from **Pik Rite** has a 650-gallon tank, flatbed and liftgate. The tank has a 400-gallon waste



compartment and internal 250-gallon freshwater compartment for even weight distribution. The truck includes a National Vacuum Equipment 304 vacuum pump, dual 2-inch fill hoses, 20 gpm washdown system, dual spring return freshwater hose reels and dual 2-inch bucket fills to make it userfriendly. A 20-inch top manway, 5-inch sight eyes and clear hose sight tube are included. The truck is also equipped with a 98-by-102-inch aluminum flatbed and Thieman TVL liftgate. Two diamond plate toolboxes are mounted on the passenger side. **800-326-9763; www.pikrite.com.** (continued)

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SERVICE VEHICLES

Robinson Vacuum Tanks Portalogix 1150

The Portalogix 1150, distributed by Robinson Vacuum Tanks, offers 800 gallons of waste capacity in the tank, with 350 gallons of freshwater contained in the

water bed. This model is able to haul up to four restrooms with the liftgate folded up. Two additional units may be strapped to the liftgate if desired. This unit is designed to fit a 120-inch cab-to-axle truck. Popular chassis choices include the Ford F-550 or Dodge 5500. Available vacuum pumps include the National Vacuum Equipment 304 (210 cfm), Fruitland 250 (165 cfm) and Masport HXL4V (165 cfm). Dual service is standard, and the Thieman liftgate includes aluminum posts and a steel grated platform. Accessories include two 2-inch-30-foot suction hoses with valve and wand, bucket fills, bucket holders, two 24-by-24-inch aluminum toolboxes with dry deck toolbox tiles, four Truck-Lite LED work lights, exterior control panel, and a 3-inch discharge with full port poly ball valve. 844-393-1871; www.robinsontanks.com.

SLIDE-IN UNITS

FMI Truck Sales & Service WorkMate

The WorkMate three-compartment slidein unit from FMI Truck Sales & Service fits easily into the back of a 1-ton pickup or across a flatbed. It has a 325-gallon waste compartment and twin 75-gallon poly water tanks. The water tanks can be isolated for a three-compartment system or flow together for a two-compartment system. It includes



a primary and secondary shut-off, 12-volt freshwater delivery, an oil-catch muffler and an easy-drain manifold system. It comes with hoses, wand, bucket and straps, and an ergonomic workstation. Options include a supply storage box on the passenger side and tool storage on the driver's side. 800-927-8750; www.fmitrucks.com.



Imperial Industries Self-Contained Slide-in Unit

The Self-Contained Slide-In Unit from Imperial Industries allows for equalized weight distribution of water and waste levels, offering versatility. It can be used for portable restroom maintenance, grease service, oil spill cleanup and many other applications

for specialized industries. Optional freshwater compartments or waste-only units are available with the choice of vacuum pump and engine package. It is available in steel, aluminum or stainless steel and in stock sizes of 300-, 450-, 550- and 650-gallon capacities. 800-558-2945; www.imperialind.com.

Satellite Vacuum Trucks SS Series

The SS Series slide-in from Satellite Vacuum Trucks is the most durable and longest lasting tank in the company's product line, according to the maker. The units come in four standard sizes - 300, 450, 500 and 650 gallons - with custom sizes available upon request. 800-883-1123; www.satellitetruckxpress.com.





TankTec slide-in tank

Slide-in tanks from TankTec range from 100 to 995 gallons. The tanks are available in single-compartment for grease and septic or two-compartment for portable restroom service. 888-428-6422; www.tanktec.biz.

TRANSPORT TRAILERS

Johnny Mover Trailer Sales trailer

The portable restroom transport trailer from Johnny Mover Trailer Sales has skid-locking using an iron bar with a chain-binding system to

secure multiple units. Models are available to handle six to 20 restrooms, and all feature brakes, paint options, lighting, leaf-spring suspension, front deflectors to protect units from road spray and debris, and optional powder coating and chrome wheels. 800-498-3000; www.cesspoolcleaners.com.

1285FA



Liquid Waste Industries trailer

Custom-built portable restroom delivery trailers from Liquid Waste Industries carry six to 24 restrooms and come with or

without sides. They are built with heavy-duty steel and come standard with torsion axles, electric brakes, flush-mounted lights, and 10- or 13-inch wheels and tires. Custom upgrades include gates, leaf-spring axles, fold-down ramps, LED lights and choice of hitch. 877-445-5511; www.lwiinc.com.



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PRODUCT NEWS

Bv Craig Mandli

AND LARGE

COMPANIES



Compact, lightweight slide-in vacuum tanks are often the choice for a first system for a small startup portable sanitation business. These vacuum systems also have a place in larger companies because they can be carried in the back of a pickup truck for maneuverability in tight spaces, ideal for some special event service.

Amthor International offers its Flat Vac Mini Slide-In unit for those applications — companies that need to empty out portable restrooms but don't need large vacuum trucks to do the job. According to Sierra Littrell, marketing manager for Amthor International, the unit provides a cost-efficient service option.

"Our Flat Vac Mini Slide-In unit is perfect for easy portable restroom servicing and is an entry-level unit," she says. "It's a lot smaller than our typical vacuum trucks and can be slid into a basic pickup truck. Besides being an economical option for smaller companies, the unit is a great option for larger businesses as well. It's a good complement to your normal fleet of vacuum trucks as its smaller size makes it great for hard-to-reach jobs."

The Flat Vac Mini Slide-In unit uses a rectangular design that helps to eliminate blind spots, allowing drivers to see out of the cab's rear window. The low profile of the tank also results in a lower center of gravity, making the unit more aerodynamic, which in turn helps to prevent sloshing while the pump is in use and the tank is being transported.

"Even though our Flat Vac Mini Slide-In unit is considered an entry-level unit, it still comes with the customizable options that customers are looking for," Littrell says. These options include steel, stainless steel and aluminum construction, multiple tank sizes starting at 300 gallons, multiple compartment options and several pump makes and models.

Features on all units include full-length baffles and bulkheads, an angled floor that allows for easy draining, raised rear pump platform and waste compartment discharge located beneath it, 2-inch inlet and 3-inch discharge, 12-volt water pump, and 2-inch suction hose with wand and valve.

800-328-6633; www.amthorinternational.com.

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CUMMINS X12 ENGINE FOR VACUUM TRUCKS

With up to 500 horsepower and 1,695 lb-ft torque, the Cummins X12 is ideal for septic and sewer vacuum trucks. It provides a high powerto-weight ratio and is also the lightest engine in its class, weighing 400 to 600 pounds less than other engines. The lightweight and durable X12 carries more liquid waste without sacrificing throt-



tle response for frequent stop-and-go duty cycles. A new Cummins engine brake also strengthens stopping power over the ISX12, lengthening service brake life. It is fully PTO capable and, through Connected Diagnostics, X12powered trucks can be wirelessly connected to Cummins product experts for immediate diagnosis of engine system faults. www.cummins.com.



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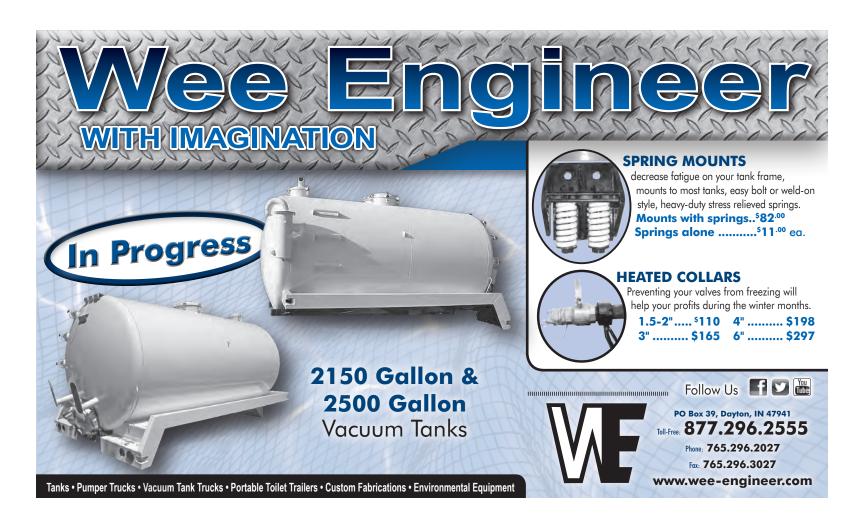
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can dig holes with water or air; vacuum, contain and dispose of drill mud; power pneumatic, hydraulic or electrical tools; and provide transport and storage of replacement parts, equipment and tools. The truck's Park-n-Dig design minimizes time between job site arrival and excavation, including the ability to dig up to 6 feet without additional pipe and hose. The air compressor powers utility tools such as jackhammers and tampers. The truck offers tool storage space, including a long-handle toolbox. The truck can tow up to 20,000 pounds. 800-627-3171; www.truvac.com.

RIDGID SEESNAKE COMPACT C40 AND M40 CAMERA REELS

The SeeSnake Compact C40 and M40 camera reels from RIDGID are powered by TruSense technology. Both camera reels feature a 0.98-inch self-leveling camera

head, 131 feet of push cable and are compatible with RIDGID CSx series Wi-Fi-enabled monitors. A quick-release docking system works with the new CS6x Versa digital reporting monitor, and a sturdy metal frame provides a solid base that makes it easy to push and retrieve the cable for fast, efficient use. The C40's flexible push cable works for small/restricted branch lines with tight turns and shorter runs in main laterals, while the M40's moderately stiff push cable suits longer runs in mainlines and branch lines. 800-769-7743; www.ridgid.com.



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INDUSTRY **NEWS**



Continental's Nebraska hose plant celebrates 40th anniversary

Continental's Norfolk, Nebraska, hose plant is celebrating its 40th anniversary. The plant began business operations in 1979. The facility produces more than 70 million feet of hose annually and has produced more than 2.5 billion feet of hose in 40 years. The Norfolk plant manufactures hydraulic and industrial hose for a variety of industrial applications.

Matthew Wasson appointed president of Masport

Matthew Wasson was appointed president of Masport Vacuum Pump Systems after spending 20 years at Cummins with roles in finance, distribution, strategic development and operations. His role at Masport will focus on corporate vision, strategy and continuing improvement.



Matthew Wasson

AIMS Cos. acquires Southern Hydro Vac

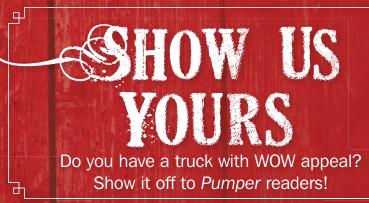
AIMS Cos. acquired Southern Hydro Vac, a soft-dig hydroexcavation company in Georgia. The company will do business as Southern Hydro Vac under the AIMS umbrella. All 50 Southern Hydro Vac employees will work with the combined organization. AIMS employs over 500 professionals nationwide and averages two new regional locations per year with additional growth plans.

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BUSINESS FOR SALE – Miami, FL. Five (5) pump trucks from 2017 to 2019, Two (2) PND trucks 2017 & 2019, Nine (9) restroom trailers from 2-stall to 8-stall, and about 1,000 portable restroom units. Any questions please email info@expressportable.com or call 786-488-4276. (P10)

Own the Alaskan Dream near New Ski area! Two septic trucks, tractor with tanker, phone numbers, name, and customer list -\$295,000. Add shop, new home, and two rentals for a total of \$895,000. 907-841-8632 or akpacer@yahoo.com. (P03)

Portable restroom company for sale in Houston, TX. Well-established and family-owned. Looking to retire. Generates \$500,000 plus. Please email oncallseptic@gmail.com if interested. (P12)

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FOR SALE: Septic Pumping Company - San Diego, CA. Two trucks – 2017 & 2015 Internationals, 3,400 gallons each. New vacuum pumps. One 4,500-gallon semi trailer. Misc. shop equipment. Customers list, 32 years same phone number. Call 760-747-5997 for more information. (P10)

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If you're interested in selling your grease trap service, used cooking oil or other nonhaz wastewater disposal business, we'd like to hear from you! Liquid Environmental Solutions is the nation's largest liquid waste management company - providing service across the USA. Sell your business and enjoy retirement or join us - we can always use great team members. Contact Brian Bidelspach: brian.bidelspach@liquidenviro.com or call 602-206-3636. (PBM)

Well-established Southern California pumping business for sale - owner retiring. Over 34 years in business. Includes two (2) nice, low-mileage Peterbilt 3,600-gallon trucks. Turnkey operation w/loyal customer base. Huge potential. Take all for \$585,000. Contact owner at 951-734-8816. (P10)

Start your own septic service business in Florida! For more information call 931-248-1284. (PBM)

COMPUTER SOFTWARE

FreeServiceReminderSoftware.com, FreeServiceDispatchSoftware.com, FreeRouteManagementSoftware.com. (P10)

CONSULTING/ENGINEERING

CUSTOM VACUUM TANKS. Hampton R&D, Inc. will custom-design your tank in 3D model and provide you a complete set of detailed drawings, sub-assemblies, and BOM ready for fabrication. info@hamptonRd.net; 434-845-7613 or 434-993-5993 (PBM)

DEWATERING

2007 Flo Trend Sludge Mate 30-yard dewatering box is designed to dewater: grease trap waste, septic tank waste, digester sludge, alum sludge. Also includes Poly-Mate Polymer Mixing and Injection Systems. Serious inquiries only, please. Asking \$24,900 OBO. Call Rite-Way Services 606-877-2670 (P12)

Portable septic and grease receiving stations, dual-screen design. Screens that really work - simple, non-mechanical. Set it up anywhere. 208-790-8770 screencosystems.com sales@screencosystems.com (PBM)



1.7-meter double-belt filter press, 300gpm through put. Complete system with operator room, filtrate pump, polymer system conveyor — all mounted on unit. Touchscreen operation. Three units available. Always stored inside when not in use. Discount on multi-unit purchase. Units are in excellent condition and are ready to work.

513-241-1600, OH

P10

P10

P10

DRAIN/SEWER CLEANING EQUIPMENT



2007 Ford F650SD, Cat C7 6-cyl., 210hp, 6-speed, 26k GVW. Vacmaster VND-S4000 Vac-N-Dig. #9045. Opdyke Inc., Hatfield, PA 19440.

> 800-520-4704, PA www.0pdykes.com



2007 International **4400**, DT466, 6-cyl., 260hp; 10-speed. 52k GVW. Vacmaster VND-6000 Vac-N-Dig. #9084. Opdyke Inc., Hatfield, PA 19440.

> 800-520-4704, PA www.0pdykes.com

DRAINFIELD RESTORATION

Terralifts - New and Used. Financing available for qualified buyers. For more information call Dick Crane 800-223-2256 or aalco@tds.net for electronic brochure. www. youtube.com/watch?v=t8ApRU0asnY (PBM)

New and used terralifts for sale starting at \$20,000 used and \$38,000 new. Financing available. Call John at AerraTech 413-298-4272. (PBM)

Used 1997 Terralift for sale. Comes with extra probes and beads. Ready to work. \$15,000 OBO. Contact Jay 508-326-8312 or jay@allclearseptic.com (P10)

HAZARDOUS WASTE UNITS

2020 Peterbilt w/Presvac Powervac, stainless steel, DOT-certified. 5,500cfm Hibon 27" wet/dry blower, dump/door vacuum truck with boom and Presvac PV750 offloading pump. Cummins ISX 500hp with Fuller transmission. 46k air rears with 13k pusher and 20k front. KLM Companies 617-909-9044 (PBM)

Stainless steel DOT Code hazardous waste or septic. Polar 3,600-gallon tank ready to mount on your chassis or sell outright. 20" rear manway, two 4" inch rear valves with full stainless hose trays. KLM Companies 617-909-9044 (PBM)

2000 Kenworth T800 with Cusco 3,000-gallon DOT certified MC412 high-dump wet/dry vacuum truck with Hibon 27" blower and Jurop 400cfm vacuum pressure offloading pump. Cat 425hp engine with recent rebuilds on both blower and engine of truck. Very good condition. KLM Companies 617-909-9044 (PBM)

2020 Peterbilt 348 cab & chassis with PX9, automactic transmission, 350hp. Presvac 3,200 U.S. gallon, carbon steel, full-open rear door, dump-type unit with Presvac PV750 vacuum pump. (Stock# 13842) www.VacuumSalesInc.com (888) VAC-UNIT (822-8648) (PBM)

1984 Mack R686ST with a 1999 Keith Huber Dominator 3,000-gallon carbon-steel, dump type, DOT, vacuum tank unit. (Stock# 1165C) www.VacuumSalesInc.com (888) VAC-UNIT (822-8648) (PBM)

1997 Ford cab and chassis with a 3,500 U.S. gallon, carbon steel, DOT-certified vacuum tank. Dump type with full-open rear door and a Masport HXL400WV vacuum-pressure pump. (Stock# 1829V) **www.Vacuum SalesInc.com (888) VAC-UNIT (822-8648)** (PBM)

JETTERS-TRAILER

Pre-owned Harben P-type pump, 4,000psi @ 16gpm and gearbox with Lister diesel-drive engine. \$1,500. www.VacuumSalesInc.com (888) VAC-UNIT (822-8648) (PBM)

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The HotJetli® is a best-selling hot- and cold-water drainline cleaner featuring a 35hp Vanguard engine by Toyota and delivering 10gpm @ 4,000psi that cleans drains up to 300' and 12" in diameter. Priced at \$32,995 including freight to the lower 48 states, the HotJet II® is American made using nonpropriety parts for affordability and ease in serviceability making its return on investment truly impressive. Financing available.

> 800-624-8186 sales@hotjetusa.com www.hotjetusa.com

PRM

JETTERS-TRUCK



2015 Ford F450 Super-Duty jet truck, 6.7L diesel-automatic, 116,097 miles, American Jetter-skid 1740, 600-gallon water capacity, 4,000psi, 65hp, 17gpm, twin engines. \$34,500 Frank 978-758-6265. MA PBM



1999 International 4700 rodder truck, Vactor ram jet, T444E engine, automatic, 35,000 GVW. 1,000-gallon, 155,000 miles, 20,300 hours. \$11,500. More pics @ https://tinyurl.com/y3n74c2u.

970-309-3277. CO P10 info@rangelandresources.com

LEASE/FINANCING

Help your company grow! - Call BSG Services today and let's get STARTED. It's guick and easy! Call toll-free 866-259-5370 or 352-516-7808. (PBM)

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PORTABLE RESTROOMS

Used restrooms for sale. Updating and unifying our fleet. We have many different makes and models. Varying quality but all can go into the field on jobsites. Prices will vary based on quantity. \$125 or less. Pictures available upon request. Contact Jackie Carter at 615-829-2468 or jackiec@fusionsite services.com (P11)

Crosier's Sanitary Service is selling 35 likenew handicap-accessible portable restrooms (Satellite). These were only used for one special event. Contact Chip Herrald at 304-658-4419. (P10)

4,000 used portable restrooms for sale. Updating our fleet to the new Zenith portable restrooms from Sansom Industries. Prices range from \$125 - \$325. Call Jim Reisinger @ 314-776-4000. (PBM)

PORTABLE RESTROOM TRAILERS



2012 and 2013 Jag restroom trailers. Both Cottage Series and have the following: winter package, onboard water, heat, A/C, radio and more. \$25,000 for both, or \$15,000 each if purchased separately. Located in Long Island, New York, Call with questions or for more information.

Bruce 631-767-9404

P10

2018 JAG 3-Station Porta Lisa Plus Urban series, 200-gallon freshwater tank, 400-gallon waste tank. Dakota winterization package, Sony AM/FM/CD player, Corian countertops, Dometic 510-foot flush toilets, aluminum sinks with metered faucets. Aluminum rims, spare tire, door signs, waterless urinal in mens stall along with a foot flush toilet. Grev pebble walls with a dark, smooth accent wall. wood-grain vinvl flooring, A MUST SEE! Trailer has been rented less than 10 times and is like NEW !!! Email Brad at johndeereman240@ yahoo.com or call 260-348-1038. (P10)

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

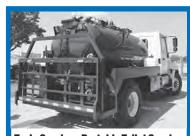
PORTABLE RESTROOM TRUCKS



2015 Ford F550 crew cab, diesel, 4x4. Strong-running work truck, 107,361 miles. NEW 980-gallon steel tank with Masport HXL4 vacuum pump & accessories. Completely detailed and ready to go to work!\$56,292

> **Call Tim or Tyler** 800-558-2945

P10



Texla Services Portable Toilet Service Truck Bodies - Standard turnkey package mounted on your chassis includes: painted body, lighting, right angle Jurop, DC10, water hose, valves & plumbing and PTO. 1,100/400 - \$22,500; 700/300 \$19,500; 1,700/600 - \$24,500.

> 936-641-3938 Check us out on Facebook! PBM



NEW 2019 Hino 268A (non CDL) 260hp. automatic transmission. 1,500-gallon (1,100 waste/400 fresh) stainless-steel septic tank with portable toilet carrier. Masport pump, pressure washer, 2 s/s tool boxes, dual side vacuum inlets. Heated power mirrors, power windows and door locks. 5-year/250,000 mile engine warranty! \$108,900 918-607-1006 P10

2016 Ford F550 with 1,000-gallon septic and 250-gallon fresh Crescent tank, 8-unit hauler. Good condition. Approx. 80k miles. Truck still in service with routine fleet maintenance. \$70,000. 740-349-2783 (P10)



NEW 2020 Hino 268A (non CDL), 260hp, automatic transmission. 1,500-gallon (1,100 waste/400 fresh) stainless-steel tank with portable toilet carrier. Masport pump, pressure washer. 2 s/s toolboxes, s/s bucket holder, dual side vacuum inlets, drop tray. Aluminum wheels, chrome bumper. 5-year/250,000 mile engine warranty! Candy apple red factory paint. \$113,900 P10

918-607-1006



NEW 2019 Hino 195, 215hp, automatic transmission, 19,500 GVWR. 1,100-gallon (800 waste/300 fresh) stainless-steel tank with portable toilet carrier. Masport pump, pressure washer. 2 s/s tool boxes, Hannay hose reel w/50ft. of hose. Power windows/locks, backup alarm, heated mirrors & more! Toyota-made work truck with power and 5-year/200,000 mile warranty. \$85,995

918-607-1006

P10



2009 Chevy 3500HD, Duramax, Allison auto., 4WD. NEW aluminum 300 waste/150 fresh vacuum tank, HXL2 Masport pump, washdown system.

Call JR @ 720-253-8014, CO PBM

2002 Ford F650 for sale. This truck is a toilet hauler/pump truck. It has a 5.9 24-valve Cummins, and an Allison transmisson. Just over 200.000 miles. It is equipped with a Moro pump. The truck needs a drivers mirror and window which I will have replaced. The truck runs great and the pump/pump vacuum works as it should. I believe the tank is most likely 350 waste and 150 fresh. It has a 14' bed with a liftgate capable of hauling 8 restrooms with the gate down. I can send photos or more info if needed! Asking \$18,000 OBO. Call Will for more information 336-259-4049 (P10)

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PORTABLE RESTROOM TRUCKS



573-864-5597, MO

P10

P10



NEW 2019 Isuzu NRR, 215hp, automatic transmission, 19,500 GVWR. 1,100-gallon (800 waste/300 fresh) stainless-steel tank with portable toilet carrier. Masport pump, pressure washer. 2 s/s toolboxes, Hannay hose reel w/50ft. of hose. Power windows/locks, backup alarm, heated mirrors & more. 5-year/200,000 mile warranty included!\$89,780

918-607-1006



2003 International, Progress VTA72, 1,850-gallon. 466/automatic, 250k miles. \$25,000 0B0 660-341-3814. M0 P10



2000 International 4700i, 7.3-liter diesel, 51,340 miles. 3-compartment stainless steel tank 100/300/500. NVE pump, hydraulic liftgate. \$35,000 Brad 724-222-6080. PA P10

2016 International 4300 portable toilet truck. Holds two units on the back, Lely tank. 1,100/450. Please email for pictures. \$91,000. Admin@centexww.com. (P10)

2000 International 4700 cab & chassis with a 500 waste/300 freshwater compartment with a Masport HXL4V vacuum pump. (Stock# 0767C) www.VacuumSalesinc.com (888) VAC-UNIT (822-8648) (PBM)

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

POSITIONS AVAILABLE

Would you like to work in the sunshine state? S.O.S. Septic, Inc. in Englewood, Florida is hiring seasonal and year-round CDL class A or B drivers/pumpers and equipment operators to install septic systems. Pay based on experience. Please send resume or inquire to terry@sosseptic.comcastbiz.net. (P10)

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

PUMPS

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

RENTAL EQUIPMENT

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

2019 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



Lina 631-903-9292, NY P10



One-owner 2003 Keith Huber Dominator vacuum equipment mounted on a 2003 Sterling LT8500 chassis. Preemission 300hp Cat 3126 reman engine and reman Fuller 10-speed, both with only 88,000 miles. Chassis has 390,000 miles. 64k gross with 46k tandem rears, 18k front. 70 bbl, 3,000/300 Huber tank with LC 44 hydraulic vac pump, 440 cfm. Hvdraulic tank hoist, hvdraulic rear-opening door, hydraulic vibrator. 3,000psi jetter with electric hose reel. ASME DOT 412. Fleet maintained w/ everything operational. Unit still in use daily. Located in Texas. \$75,000 903-784-6821 P11

2012 International WorkStar, 161,000 miles, 10-speed, 350hp. NVE Challenger 866 air-cooled pump, 3,500-gallon alu-

minum tank. Work ready, runs great.



2003 Mack, 460hp, 8LL, 244k miles, 3,000-gallon tank and Masport pump. Double frame, heavy axles & camelback suspension. \$29,000. Visit our Facebook page at http://www.facebook. com/hullstruckbodies.

Hull's Truck Bodies 740-820-5338, OH

P10

P10



> Call Scott Salonen 763-213-8235, MN





1987 Mack, 220hp, 5+2 transmission. 2,100-gallon tank, Moro vac pump. 205k miles, good tires and new brakes, clean. No CDL required. \$13,000 Pat 719-569-6297. C0 P10

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A real pump truck! 2011 International Workforce, Allison auto. transmission, 3,800-gallon stainless-steel tank, only 116k miles. Heated valves. NVE pump 506cfm. Full-lock diff., See-Level, Maxx-Force 350hp, engine brake, air-ride, lifttag axle. No leaks, no squeaks - Verv clean truck. No FET. Not enough work for 2 trucks, 1 must go. \$79,900

989-835-5313

P10

P12



1998 Mack CH613, 330-350 horsepower, 10-speed, tandem axle. Includes Shaddix 16' set-bed system, used for septic tank installation with 12,000 pound winch. Only asking \$27,400. Please call or text for more information if interested.

> 850-712-3830 or 251-747-1956, AL



with 4,400-gallon stainless steel tank with hoist and rear door. 400 HXL pump. \$35,000

Call 612-816-8013, MN P10



2005 International 4000 chassis, International DT466 engine, Allison 5-speed automatic transmission. Empty weight is 14,000 lbs, gross weight 25,500 lbs. 322k miles. 1,800-gallon tank. Has new injectors, just had complete service. No hoses included. \$29,000

360-319-2432. WA illdotinga@comcast.net P10



2012 International WorkStar, MF13 430hp, 8LL, engine brake, air-ride, full 2007 International 8600, ISM Cumlockers. 3,500-gallon stainless-steel mins, 370hp, 10-speed transmission, tank (3.300 waste/200 freshwater) jake brake, A/C, cruise. 3,000-gallon with washdown pump and see-level tank. Masport vacuum pump. New tires gauge. We also have a spare air-cooled & aluminum wheels. Very nice truck. NVE866 Challenger pump to go with it. \$42,000. Check us out on Facebook at This truck is a turnkey unit ready to go www.facebook.com/hullstruckbodies to work. \$85,500 OBO **Hull's Truck Bodies** Call 740-391-5514, OH P10 740-820-5338, OH P10 2003 International 5600i 4x4 with 2005 International 7500 HT570 pre-Cummins ISO 320hp motor and Allison automatic transmission. Only 45,000 emissions Transway pump truck for sale. Allison automatic transmission. miles. 5,200-gallon aluminum Heil 3,600-gallon Progress aluminum tank, tank, Jurop 420cfm pump. New tires. 866 Challenger NVE vacuum pump. 300 Whole truck is in excellent condition. ft. of hose included, heated valves & \$55,000 OBO see-level indicator. Tires good. 292,551 Daniel 610-282-3780, PA P11 miles. Original owner. \$55,900 OBO Call Jim 847-343-5068. IL P10 2013 International 4300, under CDL DT466 diesel, auto., 130k miles. NEW 2010 Freightliner M2 tandem. New 1,800-gallon steel vacuum tank with 3,200-gallon tank, new pump, new PTO. Allison automatic transmission. Call JR @ 720-253-8014, CO PBM Only 154.000 miles on a Cummins. 72-point inspection. We deliver all over the country! Call Caleb @ 281-914-1192 or Logan @ 832-928-0985 P10 2001 International 4700 cab & chassis with a Transway 2.400 U.S. gallon, carbon steel. NEW 2020 Kenworth T270, non CDL, dump-type vacuum tank with a Fruitland 300hp, Allison automatic transmission. RDF500 vacuum pump. (Stock# 7295C) 1,900-gallon 1/4" steel vacuum tank, 2 www.VacuumSalesInc.com (888) VACbaffles, pump, HotShift PTO. 1/4" hose UNIT (822-8648) (PBM) trays, 12-gallon cyclone sec. 6" disc. (2) 4" suction ports, powder-coated tank. New 4,000 U.S. gallon, aluminum, vacuum-36" toolbox, heavy-duty bumper, trailer

pressure tank mounted on a 2020 Peterbilt 348 cab & chassis with NVE Challenger 866 fan-cooled vacuum pump. (Stock# 13822) www.VacuumSalesInc.com (888) VAC-UNIT (822-8648) (PBM)

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P10

SEPTIC TRUCKS



2011 Western Star septic truck with Elliott septic tank. 275k miles. Location: Delanco, NJ. Truck: Detroit DD15 14.8L 475hp, Eaton manual RTO-16908LL 8LL-speed; Rear 4.30 tri-axles; GVWR (lbs) 86.000: steel frame: wheelbase: 260". Elliott 4,620-gallon tank with rotarv-vane pump. National Vacuum Equipment (NVE). Asking \$95,000

> Peter 516-297-3691, NJ P10



1996 International diesel. 530hp w/10-speed. Motor replaced 2018. Masport needs vanes. 2,100-gallon tank needs work. Tires 90%. No exhaust filter for California work. \$16,000 firm

Contact Nick/Matt 310-832-4800, CA P10 peninsulaseptic@sbcglobal.net



1999 Mack RD688S. 5.200-gallon Transway unit, pump TS-800. E7-350 350hp engine with jake brake. Fuller RTOF-14908LL 10-speed/deep reduction transmission. 18k front axle, 20k pusher axle, 44k drive axles with Camelback springs. Truck is working everyday. \$39,000 Mark 603-493-1519. NH P11

2005 Mack Granite tri-axle septic truck for sale. 5,000-gallon tank. Challenger 607 pump is only 1-year old. Mack A1-400 Aset engine with new turbo. Mack 13-speed — rebuilt 2 years ago. 20k front axle, 46k rears. Trunion and ALL springs replaced 3 years ago. Tires 75-85%. Steerable tag axle. 3" heated inlet, 4" heated air dump valve. Truck is in good condition for the year. Pictures available by request, \$45,000. Please call 715-282-3553 and ask for Tom or Greg. (P10)



2011 Freightliner M2-106, 160.000 miles, 9-speed. Cummins engine, automatic PTO. New 48" aluminum toolbox, brand-new tires and aluminum rims all around. New 3,600-gallon carbon-steel tank, new Masport Hydra plug & play pump. \$79,000

Call Alan 786-908-5436

P10



2010 International 8600 with 146,000 miles on a Cummins ISM. Automatic transmission. New 3,600-gallon aluminum tank, new pump, and new PTO. One owner, fleet maintained, Fully serviced, 72-point inspection. Financing and delivery available.

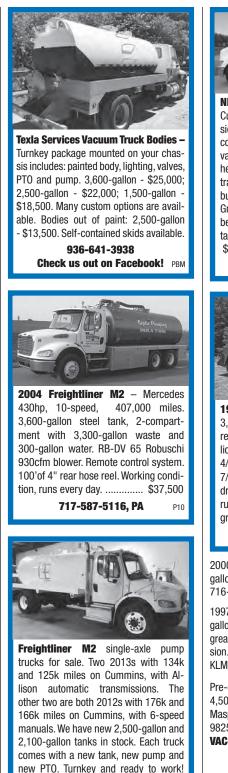
> Call Caleb @ 281-914-1192 or Logan @ 832-928-0985 P10



mins 450hp, automatic transmission. 3,600-gallon stainless-steel vacuum tank (3,400 waste/200 water), Masport pump. Heated Udor jetter system, remote keypad, heated collars, s/s tool boxes, light bars, camera, Chrome heated power mirrors, backup alarm. Charcoal grey. Price includes FET! \$210,000 P10

918-607-1006

1999 Sterling L9000 tri-axle cab & chassis with a 4,000 U.S. gallon Keith Huber Dominator, two compartment (500 water - 3.500 waste) C/S. Full-opening rear door. dump-type unit with a Becker 440 vacuum pump and jetting system. (Stock# 3408C) www.VacuumSalesinc.com (888) VAC-UNIT (822-8648) (PBM)



Call Caleb @ 281-914-1192 or Logan @ 832-928-0985 P10

Central Arkansas. We also have several

tandem pump trucks in stock!

1983 Mack R686ST cab & chassis with a Presvac 3,200 U.S.gallon, carbon steel, vacuum tank with Masport H15WV vacuum pump. (Stock# 8463C) www.VacuumSalesInc. com (888) VAC-UNIT (822-8648) (PBM)



NEW 2020 Kenworth T370, 350hp Cummins, Allison automatic transmission. 2,500-gallon 1/4" steel powdercoated steel vacuum tank, Jurop 260 vac pump. Hose trays, 36" rear hatch, heavy-duty bumper. (2) 4" suction ports, trailer hookups, 36" toolbox. Chrome bumper, s/s sun visor, aluminum wheels. Great for multiple applications! September special! Price includes \$500 assistance toward freight to final destination! \$117,500

918-607-1006

P10



1994 International 8100 pump truck, 3,200-gallon aluminum tank, engine rebuilt 2/28/17. New Battioni Pagani liquid-cooled vacuum pump installed 4/2/18, auto. transmission replaced 7/12/19. New a/c compressor. clutch. dryer, condenser installed 7/12/19. Tire rubber front new, rear 75%. Truck runs great and ready to work! \$39,950

Scott 706-832-5224, GA P10

2000 International 250hp, with 2010 2,650gallon tank. Mechanically sound. \$9,500 OBO. 716-942-3292 (P10)

1997 Ford LN9000 with Presvac 2,300gallon, either DOT Code or septic use. Tank in great shape. Cummins with Fuller transmission. Just inspected, runs excellent. \$25,500. KLM Companies 617-909-9044 (PBM)

Pre-owned 2003 Western Star with a 4,500-gallon, carbon-steel vacuum tank and Masport HXL400W pump package, (Stock# 9825V) www.VacuumSalesInc.com (888) VAC-UNIT (822-8648) (PBM)

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Dynamic Repairs - Inspection Camera Repairs: 48 hour turn-around time. General Wire, Ratech, Ridgid, Electric Eel, Gator Cams, Insight Vision, Vision Intruders. Quality service on all brands. Rental equipment available. For more info call Jack at 973-478-0893. Lodi, NJ. www.dynamicrepairs.biz (PBM)

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SLIDE-IN UNITS



NEW aluminum slide-in tanks. 2 available. 450-gallon (300 waste/150 fresh), Honda motors, Masport pumps.

> Call JR @ 720-253-8014. CO or Mike @ 303-478-4796 PBM



2011 TSI aluminum tank with 150 gallons freshwater and 300 gallons wastewater. Tank comes with a METICULOUS-LY maintained Honda GSX 270 engine and a Masport HXL3 pump. \$3,000 OBO

Call Vin 203-421-4080, CT P10



2015 300/150 slide-in unit built by Quality Tank Truck in Indianapolis. Used daily, taking out of service August 1. Upgraded tank. Morgantown, IN. \$4,000. Email Chad for more information.

chad@hhrp.org

P09

PBM

TANKS



Call 330-494-3000



New 2.000- to 2.500-gallon aluminum tanks with lights: New 1.800- to 2.500gallon steel tanks with lights. New 450-gallon (300-gallon waste/150-gallon fresh) aluminum slide-ins. In stock, ready to ship. New and used CDL and non-CDL trucks available.

Call JR @ 720-253-8014, CO or Mike @ 303-478-4796 PBM

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and treatment; Hydroexcavation; Storm-

water runoff. Geneva Equipment has

1.000+ frac tanks available, epoxy lined

Call 855-202-7872

or sales@genevaequipment.com

2018 4,700-gallon steel-lined vacuum tanks: 2018 Morocco 4,700-gallon vacuum steel tank. Lined inside. Heated

valves, Masport pump. Stainless hose

trays. Toolboxes. Bumper. Inside and

outside see-level indicator. 2018 Pik

Rite 4,700-gallon vacuum steel tank.

Lined inside. Heated valves, Masport

pump. Aluminum hose trays. Toolbox-

es. Bumper. Inside see-level indicator.

\$35,000 each. Excellent condition - only

hauled freshwater. Everything included

and ready to mount on truck (wiring

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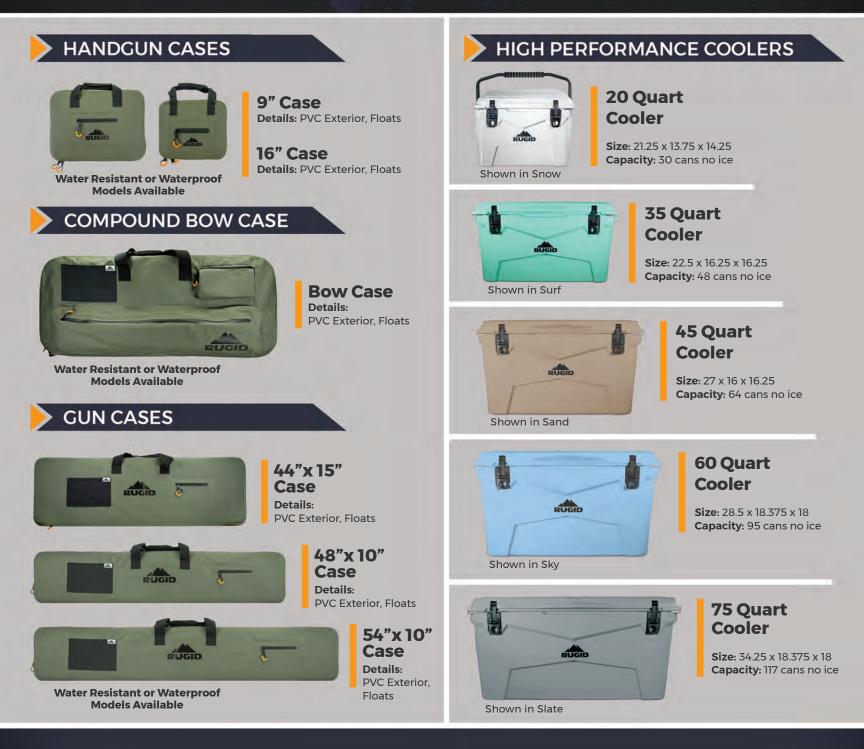
WANTED TO BUY: Late model tri-axle vacuum truck. Steel, aluminum or SS tank accepted. Must be in good condition. Contact James at 608-289-7876. (P11)

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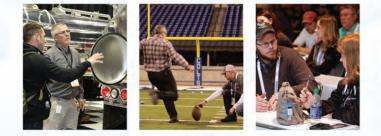
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