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

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

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CONTROLLED CIRCULATION: 20,500 per month. This figure includes all circulation regions (nationwide) and international distribution.

REPRINTS AND BACK ISSUES: Wisit www.pumper.com for digital reprint options and pricing. To order back issues, call Holly at 800-257-7222 or email holly.gensler@colepublishing.com.

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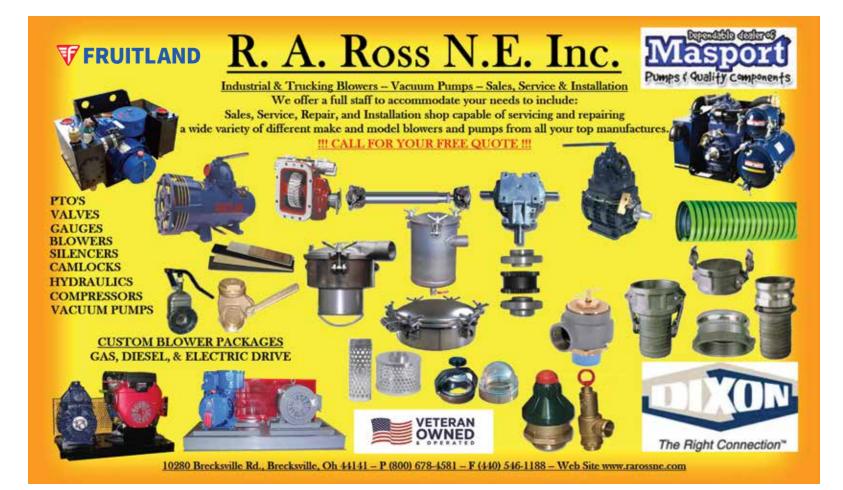
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BETWEEN THE LINES





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

Jim Kneiszel Editor

Promoting Trucking Safety For the Small Fleet Operator

Even the smallest mom-and-pop pumping company can build an effective driver safety program

By Jim Kneiszel

or many pumpers, August is the apex of the busy season; you're emptying more tanks per day, logging more miles per week in your trucks and — for those who also provide portable sanitation — serving numerous special events.

When you're busiest, a heightened awareness of following the best safety practices is necessary. Many a septic service driver has told me about these hectic times and the near misses they've had in traffic or when maneuvering their rigs on frantic job sites. It's so critical that your crews remain diligent to avoid a catastrophe that could hurt a worker, imperil a pedestrian, take a piece of valued equipment off the road — and even threaten the future of your company.

I recall a horrifying story told to me by a pumper in the desert Southwest many years ago. He pulled away from a stop sign at an intersection at the same time someone darted across the crosswalk out of his field of vision. His truck struck and killed the pedestrian, obviously causing heartache for the victim's family and wreaking emotional havoc on the pumper. Ultimately, the pumper was not blamed for the death. But the story drives home the point that truck driver safety always has to be top of mind.

This prompts me to ask members of our *Pumper* community, have you established a formal fleet safety program? Do you provide regular driver safety training for your staff that includes best practices for operating vacuum trucks? Do you promote seat belt usage to protect your drivers from crash-related injuries? Have you looked into new technologies such as telematics including cameras and intelligent speed assist control to monitor and correct drivers? How about exploring new truck designs that reduce blind spots during operation?

And have you appointed someone on your staff to make sure all of these initiatives are pursued to improve your safety record?

HELP IS ON THE WAY

I can hear your response to these ideas ringing in my years. You'll ask how mom-and-pop pumping companies, operators of small- to mediumsized trucking fleets can afford all of these new safety initiatives? When every worker is on the truck 10 hours a day this time of year to serve customers, how can you justify dedicating on staffer's time to perform the duties of a safety coordinator? As much as you recognize the need to promote safety in these ways, it's just not feasible.

That's where groups like the nonprofit Together for Safer Roads

Unfortunately, as a recent TSR study showed that while seat belts saved more than 400,000 lives between 1975 and 2017, an estimated 14% of commercial drivers still don't wear them.

might be able to help. Working with government safety agencies, owners of some of the largest trucking fleets and technology companies, TSR is promoting a host of training materials available for use free of charge by small and medium-sized fleet operators. I recently had the opportunity to talk to the group's executive director, Peter Goldwasser, about the importance of improving trucking safety and the Focus On Fleet Safety Training program.

"Small carriers represent a large share of the fleets out there. Some estimates are 80 to 88%, but they don't necessarily have the time, resources or personnel to analyze, design and implement safety improvement systems or build a robust safety culture," Goldwasser says. "We started doing market research on small and midsized fleets to get a sense of what was out there. From a resource perspective, what we found wasn't particularly accessible or scalable to what fleets wanted. So our solution was to work with our members to create a program that's not only comprehensive, but also easy to implement for fleets."

TSR and its partners launched Focus On Fleet Safety curriculum that is presented through an online learning portal over six to eight weeks and then also offers further coaching sessions over Zoom or via telephone. The training focuses on three key areas: technology, training and development, and safety leadership.

ONE STEP AT A TIME

The message to small fleet operators is that changes can be adopted incrementally — that the mission for companies with only a handful of drivers may be to always look for constant safety improvement. Keep making an effort and overall safety will improve no matter how much time and financial resources you can throw into the effort.



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For instance, if you can't afford to retrofit all of your trucks with the latest cameras and driver monitoring gear, you can at least create a book of safety policies and begin to more formally train up drivers.

"You don't necessarily need the most expensive or the most advanced telematics or technology systems, but what's a critical place to start is around the overall safety leadership, training and development," Goldwasser says. "What types of programs and policies do you have in place? How is safety being discussed and introduced? What's the overall safety culture? These are things that certainly take time, planning and attention, but they don't necessarily take heavy capital investment."

To learn more about TSR and emerging safety program offerings, check out the website togetherforsaferroads.org In the meantime, I'll elaborate on a few of the safety and technology tips I discussed with Goldwasser.

Wearing seat belts

It may seem obvious, but simply increasing the use of seatbelts by your drivers can make a positive difference in overall safety for your team. Unfortunately, as a recent TSR study showed that while seat belts saved more than 400,000 lives between 1975 and 2017, an estimated 14% of commercial drivers still don't wear them. Seat belts reduce the risk of death by 45% and the risk of serious injury by 50% for drivers and front-seat passengers, according to the report. And over three-fourths of those ejected during a fatal crash die from their injuries.

"One of the oldest safety technologies is seat belts, but it's sometimes forgotten and overlooked on how dramatic that can be in saving lives," Goldwasser says. So what should fleet owners do to work toward 100% compliance with seat belt usage?

First, write a strong seat belt policy for your company and enforce it — monitoring devices today can track whether drivers are wearing seat belts. And part of that policy should require seat belts no matter how short the drive or how slow the vehicle is operating. Also, make sure the seat belts on all of your trucks are comfortable to wear for your drivers, with plenty of adjustability. Buy vehicles in the future that have advanced pretensioners and load limiters, locking retractors and energy absorbing technology.

Blind zone reduction

TSR worked with the U.S. Department of Transportation and other partners to release a report on blind zone reduction for truck drivers. Goldwasser explains that there is a trend in some parts of the world to move to more cabover truck designs to improve visibility.

"The conventional truck is designed in such a way with the hood and engine out front that it creates very significant blind zones around the vehicle," he says. "Whereas more modern cabover design trucks where the driver is sitting on top of the engine block and lower to the ground provides much superior vision to the front and sides. These trucks are readily available in many markets; not so much in North America, but increasingly so."

Goldwasser envisions a slow transition of fleets to optimize the view from the cab. Other options, he says, are making aftermarket modifications of existing trucks, adding cameras that improve visibility all around vehicles.

"It's not an either-or proposition, but they should run in tandem because you've got millions of trucks on the road that could benefit from cameras," he says.

Regarding the cabover trucks, Goldwasser says drivers have noted "they universally have a superior, positive experience. They're easier to get into, lower to the ground and have more [interior] space."

Adding telematics technology

Tracking driver performance through technology devices like cameras and speed tracking can have a positive impact on driver safety and may provide other benefits, such as lowering insurance premiums for fleet owners. Cameras can reveal inattentive or impaired driving and ISA allows fleet managers to govern maximum speeds of trucks and shift those limits on the fly.

The key to successfully adapting to these new technologies is gaining buyin from drivers who might feel threatened by constant performance monitoring, Goldwasser says.

"How it's presented is critical. If drivers view cameras as being invasive and they're being implemented for reasons that are not beneficial to them, then it's logical that they will be apprehensive toward them," he says. "But if it's presented to them as a way to exculpate in situations where someone accuses you of being at fault, or if there are ways for you and your managers to support training, the reception is dramatically better."

ADDITIONAL RESOURCES

As you continue your fleet safety journey, consider looking into these sources of information suggested by TSR:

- The Federal Motor Carrier Safety Administration provides information on regulations, programs and commercial vehicle research designed to improve road safety for commercial carriers.
- The National Highway Traffic Safety Administration shares data and research on topics like seat belt usage, crash statistics and safety campaigns for fleet managers.
- The Commercial Vehicle Safety Alliance is an international group that provides updates on safety initiative, inspection standards and commercial vehicle regulations changes.
- Transportation Topics is a news source that provides updates on safety legislation, regulations and industry trends.
- *Safety+Health Magazine* is published by the National Safety Council and addresses topics and best practices relevant to fleet safety management.
- The Insurance Institute for Highway Safety offers research and statistics about vehicle safety, crash testing results and safety ratings fleet managers can utilize when buying new trucks.
- The American Transportation Research Institute focuses research on trucking industry safety, security and sustainability.
- The Smith System Driver Improvement Institute emphasizes defensive driving techniques through its "5 Keys to Safe Driving."
- The National Safety Council offers a variety of courses for commercial truck drivers aimed at reducing crashes and creating a culture of safety.

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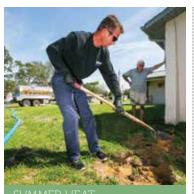
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ASK US ABOUT RENTALS!



roviding efficient septic, portable sanitation and sewer cleaning service poses many challenges for Ray and Stephanie Purcell, owners of Dumas Pumping Service in Dumas, Texas, a small town of about 14,300 residents located in the sparsely populated Texas Panhandle.

Due to the town's remote location — about 50 miles north of Amarillo — technicians often have no internet or cellphone service while running routes. Finding employees is difficult given the limited labor pool. And if a truck breaks down in the field, it's tough to find places nearby that have parts.

Nonetheless, the Purcells wouldn't have it any other way.

While they face business hurdles on a daily basis, the couple is rewarded beyond measure by the customer relationships built during the 25 years they've owned the company. They and their business have become indelibly woven into the fabric of the community they call home. "This is much more than just a business for us — it's very personal," says Stephanie Purcell, 56. "It's all about building relationships and taking care of our people, who are much more than just our customers. We find it very gratifying to provide essential services. We take a lot of pride in that."

Stephanie also is an outlier in the industry, a woman who loves to ride along on septic pumping routes with Ray — and pull hoses and get her boots dirty.

"Ray and I love to work," she says. "I love working outside."

CAREER CHANGES

The Purcells never planned on running a septic and portable sanitation business. But in 1998, they heard that the company — established in 1979 — was for sale. Stephanie says Ray, who was working at a refinery at the time, convinced her that buying it would be a good move.

Ray and Stephanie Purcell, owners of Dumas Pumping Service, travel the desolate territory of the Texas Panhandle to serve their loyal customers. The couple is shown with their Western Star 4900 vacuum truck built out by Lely Tank & Waste Solutions (now owned by American Tank) and carrying a Fruitland pump. (Photos by Tara Dawn)

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RAY PURCELL



Clemens Septic Service Dumas, Texas

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FOUNDED:	1979
EMPLOYEES:	7
SERVICES:	Septic service, portable sanitation, sewer cleaning
SERVICE AREA:	Upper northern Texas Panhandle
WEBSITE:	dumaspumping.com

Working over a vast, sparsely populated region of Texas provides many challenges for the hardy crew at Dumas Pumping Service

HEARD-IGH

By Ken Wysocky

"Ray didn't want to work at the refinery for the rest of his life," says Stephanie, who was an elementary school teacher when they purchased the company. "And his grandfather installed septic systems, so Ray knew a little bit about the business.

"When he said we should buy this company, I said, 'You've got to be kidding!' We've done a lot of different jobs, but I never in a million years we'd be dealing with peoples' waste. But here we are."

About five years later, Ray quit his job at the refinery and started running Dumas Pumping full-time. A year or so later, they bought a portable restroom business, a perfect "bolt-on" complementary service.

A couple of years later, Stephanie quit her job to handle phones and office duties and run a pump truck route. At about the same time, their son, Jason, who was taking some college classes while working at a refinery, quit to work with his father. And the business became a complete family affair when Jason's wife, Natalie, came on board.

Today, Jason is a shop foreman and also runs a vacuum truck and jetter truck,





WHEN HE SAID WE SHOULD BUY THIS COMPANY, I SAID, 'YOU'VE GOT TO BE KIDDING!' WE'VE DONE A LOT OF DIFFERENT JOBS, BUT I NEVER IN A MILLION YEARS THOUGHT WE'D BE DEALING WITH PEOPLES' WASTE. BUT HERE WE ARE. **J**

STEPHANIE PURCELL

Ray runs a septic truck and Stephanie rides along as his helper, and Natalie manages the office.

"She's the best office manager in the world and also my best friend," Stephanie says.

The company also relies heavily on Jeff Gadbois, lead portable restroom technician; Cody Watson, a portable restroom technician; and Ralph Centrician Kico Gonzalez pulls a water hose during a septic service call.

S Jason Purcell prepares to disconnect the suction hose after pumping is complete at a customer's home.

Gutierrez, who handles truck maintenance and also assists wherever he's needed, she says.

"Everybody works really well together and does whatever is required to help each other out," Stephanie says. "We're like family — they're more than just employees to us. We wouldn't be able to do all this without them."

DIVERSIFY AND GROW

Business started out slow. There were times when the Purcells wondered if they'd make enough money to make the monthly payment on the bank loan they took out to buy the business.

Adding the restroom business made a difference.

"Diversification was always in the back of my mind when we first started out," says Ray, 58. "To make something really work, you have to diversify. The portable restroom business brought in more income, and then when we saw needs in different areas, we decided to go for them — get into as many things as a small company could handle."

One of those services was mainline municipal sewer cleaning, which eventually turned into a service for a wide range of customers including dairy production facilities, refineries, hospitals, hotels, prisons and truck stops, Ray says.

Septic pumping currently generates about 60% of the company's gross revenue, followed by portable restrooms and waterjetting services at 20% each. Within the restroom business, monthly rentals contribute about 70% of the revenue while special events chip in the balance, he says.

The company also uses septic vacuum trucks to provide municipal wastewater services, such as pumping out sludge from digesters, lift stations, separators and so forth.



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Pumper PROFILE



Ray Purcell has a mind for machines

As a self-professed "gearhead," Ray Purcell — the co-owner of Dumas Pumping Service — is the kind of guy that loves to build things. And after taking architectural drafting classes in high school, studying mechanical technology in college and stints as a mechanical draftsman and a refinery worker, he's got the chops to do so.

"You name it, I can build it," says Purcell. "I just sit down and draw things up. My dad was a master mechanic for an oil company and my grand-dad was a farmer, so mechanical things come naturally to me."

One of Purcell's most impressive custom-built projects is a water jetter mounted on a 2008 Sterling chassis. The company uses it to clean municipal sewers and pipelines at a wide variety of businesses.

"It's one of the largest jetters in the Texas Panhandle," Purcell says, noting it took about nine months to build. "I'm extremely obsessive-compulsive, so if I build something like this, I'm going to go big or go home."

The machine cost about \$850,000 to build, including more than \$400,000 for the water pump and ancillary components from NLB. While the cost was steep, it provides a high barrier to competition, he says.

The unit features a powerful water pump from NLB Corp. (4,000 psi at up to 95 gpm) powered by a 280 hp Cummins diesel engine; two reels made by NLB that carry 700 feet of 1/2-inch jetter hose and 1,000 feet of 1-inch hose; and a 3,300-gallon water tank made by Norwesco. Purcell prefers to use Warthog jetter nozzles from StoneAge.

"With a tank that big, we can stay on a job twice as long as a combo sewer vacuum truck because we don't constantly have to stop and go get water," Purcell says.

Purcell got into jetting drainlines courtesy of an older competitor; they occasionally worked together on projects as subcontractors, with the competitor providing jetter service, Purcell says. One day the competitor told Purcell he should get a water jetter so Dumas could do the work, Purcell says.

"I knew there was a good market for jetting, so Jason and I built our own jetter," Purcell says. "That man was very good to me."

Kico Gonzalez works the water hose while Jeff Gadbois and Jason Purcell lend a hand during a pumping service.

A GROWING FLEET

As the company grew, so did its fleet of equipment. To pump septic tanks, the company owns two trucks: a 2006 Mack Granite and a 2008 Western Star 4900. Each one is equipped with a 4,200-gallon steel tank (4,000-gallons waste/200-gallons freshwater for washdown use) built by Lely Tank & Waste Solutions (now owned by American Tank) and a Fruitland pump.

The big tanks are a necessity for route drivers who might drive 1 1/2 hours, for example, to clean three septic tanks at three different homes located on a large ranch, Stephanie explains. "We want to be as efficient and cost-effective as possible," she says.

In addition, the company owns about 600 restrooms and 60 hand-wash stations, mostly from Satellite Industries. To service restrooms, Dumas relies on a 2019 Ford F-550 with an 800-gallon waste/400-gallon freshwater steel tank from Lely and a 2022 Ford F-600 with an 800-gallon waste/400-gallon freshwater aluminum tank from Keevac Industries. Both trucks feature Masport pumps.

Most of the company's trucks are equipped with a washdown system powered by Burks DC10 pumps (Armstrong Equipment, Inc.), and hose reels from Reelcraft Industries.

The company also owns five aluminum trailers from Satellite that hold two restrooms and one hand-wash unit each; they're used mostly by road crews to efficiently move restrooms to where they're needed. Dumas also owns two delivery trailers from Liquid Waste Industries that hold 10 restrooms each.

To clean sewer lines, the company relies on a custom-made water jetter, fabricated in-house and mounted on a 2008 Sterling chassis. It features a



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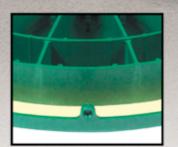
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water pump from NLB Corp. (up to 4,000 psi at 95 gpm); 700 feet of 1/2-inchdiameter jetter hose and 1,000 feet of 1-inch hose; and a 3,300-gallon water tank from Norwesco.

To examine drainlines, the company invested in a pipeline-inspection camera from RST (now Subsite Electronics). The business also owns roughly 40 210-gallon holding tanks from Kentucky Tank used for temporary trailer offices at construction sites.

KEYS TO SUCCESS

Stephanie cites honesty and compassion for customers as keys to the company's growth and longevity.

"It all goes back to taking care of our people and solving their problems," she says. "Sometimes we help people even if we're not going to work for them."

As an example, she mentions a widow who called because she thought her septic tank needed pumping. But instead, the problem turned out to be a clogged line, which a technician cleared for free.

Stephanie concedes that it's not a good business model to provide services for free.

"But it all goes back to having integrity and just being good human beings," she says.

The company also strives to be as efficient and proactive about challenges as possible. For example, due to supply-chain disruptions, the company stocks more spare parts and other items.

"When you have a breakdown in rural communities, chances are you won't find parts where you're at," Stephanie says. "Now there are things we have to keep more of on hand than ever before to stay on top of things items like tires, parts, motor oil and portable restroom supplies."

SLOW, STEADY

Looking ahead, Ray expects limited growth. It's not that the business environment is bad, it's just that good workers are hard to find, which hampers expansion. "We could seriously grow more if we could find diligent people," he notes.

While reflecting on the company's success, Ray says he's a little bit surprised at how much the company has grown during the last 25 years.

"But it just goes to show if you put forth a lot of effort and buy good, productive equipment that will help you expand, you'll actually grow," he says. "More equipment helps you do more and eventually the word gets out."

When the Purcells retire, they expect Jason and Natalie to take the reins.

"They're both great," he says. "They've been with us since the get-go, so they know the business inside and out. The company will be in very good hands."



Preparing for a pumpout, Jeff Gadbois, left, and Jason Purcell attach the hose to the vacuum truck. at a customer's home.



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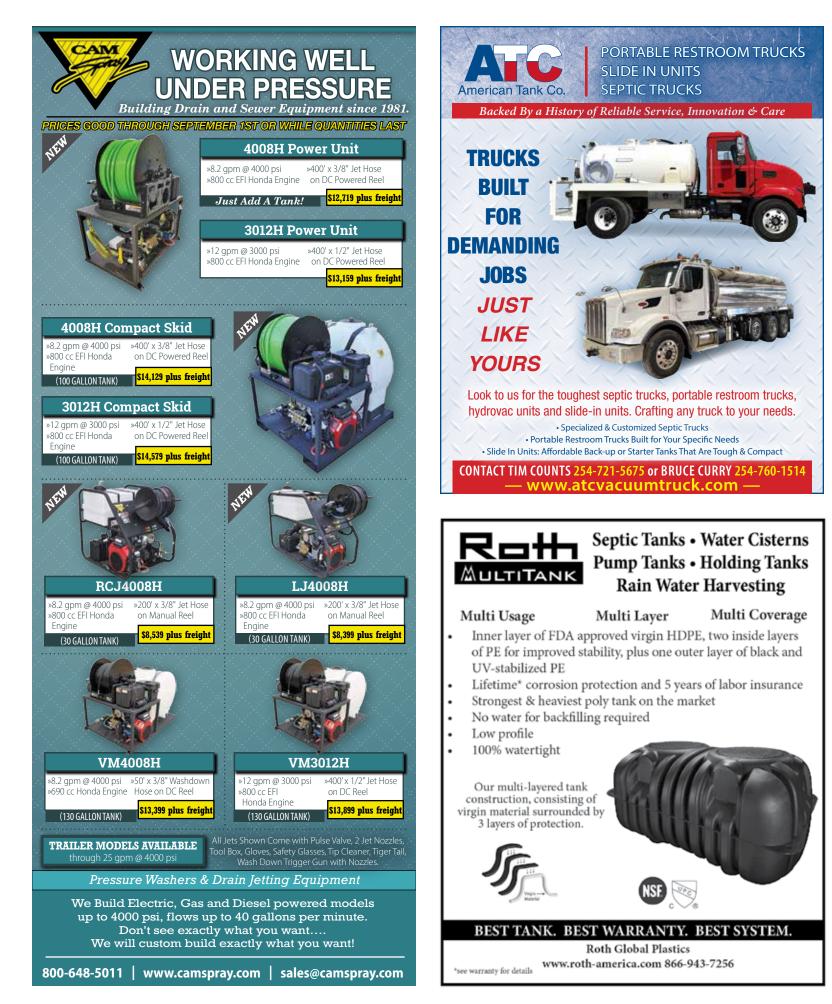
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Among its 600 portable restrooms are five trailers that carry two restrooms and a hand-wash station. The units from Satellite Industries are used mostly by highway crews in the Texas Panhandle.

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How Effective Are Do-It-Yourself Homeowner Septic Inspections?

A health department official explains the history and reporting requirements for self-inspections allowed in a number of Washington State counties

By Ted J. Rulseh

s an alternative to septic inspections by onsite wastewater professionals, do-it-yourself inspections have been allowed in various counties in the state of Washington for more than a decade. Several thousand homeowners have taken certification classes that allow them to report on the performance of their onsite systems. Jane Mountjoy-Venning, senior environmental health specialist in Thurston County — which borders Puget Sound — explains to *Pumper* how the self-inspection program came about and how the reporting has worked out.

Pumper: What was the impetus for do-it-yourself inspections?

Mountjoy-Venning: One of our marine inlets experienced a shellfish harvesting downgrade, and in 2001 a Shellfish Protection District was formed. By state law, the county was then required to make a plan to improve the water quality. Testing determined that septic systems were a major contributor to the pollution. That in turn required us to develop a septic system management plan, which included regular inspections. The original notion is that septic professionals would do the inspections, but members of the public wanted a less expensive alternative. So in 2007, we created a certification program to enable homeowners to inspect their own systems.



Various septic system components are on display as a teaching tool at the septic park.

To be a self-inspector, they have to agree that we have the right to follow up and do a visit. We try to do that at maybe 10% of properties per year.

Pumper: What kind of systems qualify for inspection by the homeowner?

Mountjoy-Venning: Homeowners can inspect conventional gravity systems, basic mounds, Glendon Biofilters and pressure distribution systems. Most of the more complex systems must be inspected by professionals.

Pumper: How often are system inspections required?

Mountjoy-Venning: We recommend inspecting annually. Homeowners are required to submit an inspection report to the health department every three years for most systems. Advanced systems, community systems and those serving food establishments must submit inspection reports annually.

Pumper: Is periodic pumping required in conjunction with the selfinspections?

Mountjoy-Venning: Pumping is only required when the solids are greater than one-third the tank volume (generally about 16 inches deep), or when the inspection is overdue and pumping is required to remove a violation status. The time between pumpings can vary for households based on use of system, how many people live in the home and if a garbage disposal is used.

Pumper: When pumping is needed, are homeowners notified and given a deadline?

Mountjoy-Venning: We usually give a three-month extension to have the pumping completed by a certified pumper, who then reports the work to an online public database. That database interacts with our internal database and notifies us when the pumping report is submitted.

Pumper: How well was the homeowner inspection program received?

Mountjoy-Venning: In the early years we were surprised. We thought only a few homeowners would be interested. But we ended up needing four classes a month for a couple of years to accommodate the many people who wanted to be certified. We recently expanded the program from only the areas where marine water quality was a problem to making it available county-wide.





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We now offer two classes per month. Some people take the class, but then decide not to do the inspections. Others do the inspections for a while but later choose to hire someone.

Pumper: What does the certification class consist of? Mountjoy-Venning: There are some very good videos about septic inspections on our state health department website at doh.wa.gov/community-and-environment/ wastewater-management/septic-system/do-it-yourselfinspection-video. We send a link to those ahead of time and ask the people to watch them. The class itself is four to five hours. We go over the components of a system, what they look like, what they are supposed to do and what to look for during inspections. We have a lot of show-and-tell items, and we also have a slideshow.

Pumper: Is there a hands-on component to the class?

Mountjoy-Venning: Yes. We worked with septic professionals to install an area we call the septic park behind our health department building. There are two septic tanks, one older and one newer model, installed half in and half above the ground. We also have sample gravity and pressure drainfields bedded in gravel so participants can see the pipes. We have sample pumps, timers and other components. We've tried to include the gamut of what homeowners might encounter in their own yards. They have a chance to practice using the scum and sludge measuring tool, although we don't have any sewage in the tanks.

Pumper: How much does it cost a homeowner to take the class?

Mountjoy-Venning: We don't charge the individual for taking the class. The cost is covered under other charges related to their septic system, and by some grant funds from the state Department of Health.

Pumper: Have you encountered any issues with homeowners' inspections and reports?

Mountjoy-Venning: People fill out their inspection

forms and turn them in to us. We have a staff person who reviews them. If there are discrepancies, or something is answered in a way that makes us think the tank is leaking or something else is wrong, we'll follow up with the owner. To be a self-inspector, they have to agree that we have the right to follow up and do a visit. We try to do that at maybe 10% of properties per year.

Pumper: To what extent do you regard professional inspections as necessary? **Mountjoy-Venning:** While we believe homeowners can be certified

to conduct inspections competently, we also think it's important to have professional inspections. As of last year, as part of the sanitary code, we require people who do self-inspections to have a professional inspection at least once in a nine-year period. That can be timed with a regular pumping, so that the pumper can also do the inspection. Another change taking effect statewide next year is that when a home with a septic system is sold, an inspection must be done by a septic professional.

Pumper: In what circumstances can an owner's certification be revoked? **Mountjoy-Venning:** If their system goes into what we call nonconforming status, then their certification is revoked. That could happen because they didn't turn in their inspection report by the required date. It could be that there is a problem, we inform them and they don't take care of it. Or if someone is trying to give us disinformation, that would be a reason to revoke. Only once or twice have we had to revoke because somebody was cheating.

Pumper: Do you see any conflict of interest in owners reporting on their own systems?

Mountjoy-Venning: No. Homeowners are ultimately responsible for the system and making sure it works right. Our class covers not only how to inspect but also why it's important to inspect and how to live with a septic system. One thing we emphasize is that the septic tank is there to separate out the solids and to send clear effluent to the drainfield. So don't use a garbage disposal. Don't flush those wipes. If your system isn't working right and solids go out to the drainfield, now instead of a pumping fee you have a \$20,000 to \$30,000 drainfield replacement.

Pumper: In general, how well have the do-it-yourself inspections worked out? **Mountjoy-Venning:** I think they have worked out well. It's a good opportunity to educate the homeowners, who have to live with the systems and ultimately have the most impact on them. The program gives people information to help them make good choices.



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BUILDING THE BUSINESS



Ken Wysocky Contributor

Seasoned writer/editor with 30 years of experience, including writing articles for national consumer and trade magazines and custom publications; providing branded editorial content for websites; newspaper reporting; and project management.

How to Identify the Leader Among Your Pumping Crew

Follow the "status awareness" approach to learn the leadership abilities of everyone in your company

By Ken Wysocky

ew things will doom a project faster than poor leadership. Without a respected captain at the helm, teams can easily be riven by friction over decision-making authority, assignment of tasks and responsibilities, perceptions of who is or isn't pulling their weight and who gets credit for success — or blamed for failure.

But picking great team leaders can be a somewhat arbitrary and nebulous process — more art than science. Sure, managers can use metrics like seniority, experience and levels of technical expertise as criteria, but none of those guarantee how effectively people work together as a team.

Worse yet, there's no litmus test or key personality traits that can help managers predict how people will collaborate and work together.

So how are managers supposed to divine who's a great leader and who's not? New research shows there actually is a key trait managers can hone in on — something researchers call status intelligence.

"Status intelligence is the ability to look at social interactions and perceive them accurately," says Gavin Kilduff, an associate professor of management and organizations at New York University's Leonard N. Stern School of Business. He participated in a study led by Siyu Yu, an assistant professor of management and organizational behavior at the Jones Graduate School of Business at Rice University.

"More specifically, it focuses on the extent to which people can detect status hierarchy in groups — how much influence, esteem and respect each individual on a team commands," he explains.

This includes observing positives, such as which employees team members look to for approval or listen to the most, and negatives, like which employees suggest ideas that are consistently passed over or who constantly interrupt colleagues, Kilduff says.

MEASURING STATUS

To determine status intelligence, Kilduff and his colleagues developed a 10-minute test. The first step involved bringing in groups of four people at a time to a lab and directing them to work on a business project. The groups were filmed while they worked and were not told how to act, so their behaviors were natural and organic, replete with interruptions and ego clashes.

At the end of each session, the team members were asked to grade their colleagues on things like how much respect and admiration they garnered from other team members and who exerted the most influence on processes.

It can be very beneficial to have an open conversation about a task at hand and discuss what each team member brings to the table in terms of task-relevant expertise.

- Gavin Kilduff

Researchers then edited down the 45-minute videos into nine 1- to 2-minute long clips and showed them to a new set of workers. They each were asked to rate the meeting participants in the same way the actual participants graded each other, with an eye toward who they thought had the most status and influence, Kilduff says.

Researchers then compared the test-takers' answers to the actual test participants' answers. Those whose ratings best matched the participants' ratings probably will work well with others, Kilduff says.

"People who can accurately determine the status hierarchy of those teams are more likely to be good team players," he explains. "The better they can interpret what's going on in those groups in terms of status hierarchies, the better they'll be at working in groups."

FINDING GREAT TEAM PLAYERS

The test is not commercially available, but it might be in the future.

"We'd like to help make the workplace function a little more smoothly as a result of our research," Kilduff says.

But absent such a test, there still are ways for managers to determine which employees will play well with each other. For example, they could perform a survey to determine which employees are most respected and admired by their co-workers, then distribute that information as a guide for colleagues. This information could even be provided to new employees so they know which coworkers might be the best ones to network or mentor with, ask for advice or help them get good proposals green-lighted, Kilduff says.

"If you want to implement an idea, you want to pitch it to the people with enough say and influence to get it done," Kilduff says.

WHO'S IN CHARGE?

It also helps to have open and explicit conversations that point out everyone's relative strengths and areas of expertise, as well as acknowledge that some individuals will exert more influence over certain decisions than others. This can help teams reduce potential for status conflict because everyone knows where they stand.

"It can be very beneficial to have an open conversation about a task at hand and discuss what each team member brings to the table in terms of task-relevant expertise," he says. "This can clarify which employees could be influential in what domains and reduce disagreements about decision-making.

"If you don't provide this kind of context, it's easier for someone who speaks loudly and with great authority — but really isn't a good team player — to become a leader."

Kilduff concedes this can be a tough conversation to have with employees. But if it's handled carefully, with a focus on backgrounds and work experience, it can be successful.

Wouldn't it just be better and easier to let status hierarchies emerge organically? Not necessarily, he says, pointing out that the absence of any knowledge about status just creates more potential for status conflict.

RAISE STATUS AWARENESS

Of course, this approach runs counter to many current workplace dynamics where status is downplayed, if not outright eliminated through elimination of titles, for example. Kilduff points out that this is a recipe for poor team performance because it decreases everyone's status intelligence.

"If organizations try to ignore status and say it's bad and that no one should have it, it creates more confusion than good," he explains, noting that it's difficult for employees to pretend that an employee with decades of experience is on the same plane as a new employee.

Looking ahead, Kilduff is excited about the prospects of bringing the status intelligence test to market.

"Our research has identified a whole new human ability," he says. "Before this, there really wasn't any examination of how well people work in groups or how facile they are in group interactions.

"Once we get this test out there and coach people about how to use it, we think it could be a powerful tool for improving workplace interactions and productivity." \mathbf{P}



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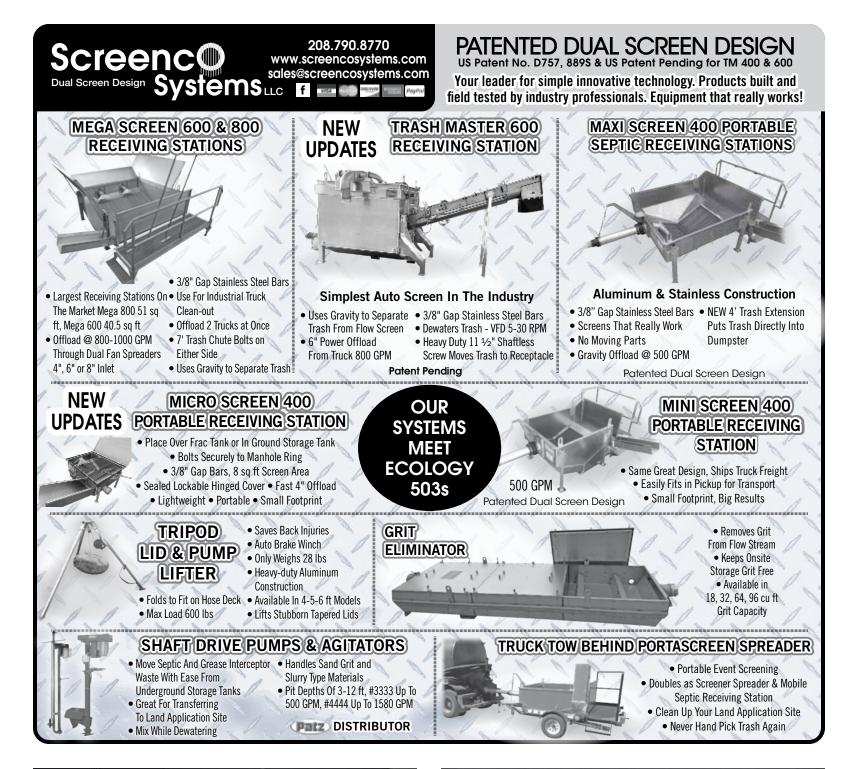
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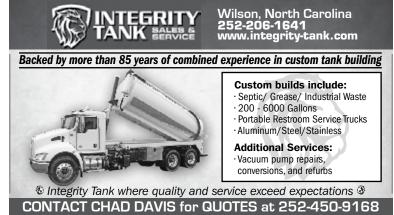
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Exploring Research on New Options for Septage Treatment

Biochar, anaerobic digestion and composting may help take pressure off municipal treatment plants and further reduce land application

By Sara Heger, Ph.D. | Photos courtesy of Sara Heger

lobally, 2.7 billion people rely upon septic systems to treat their wastewater, and septage handling and treatment is an important growing issue. Improperly treated septage can contaminate ground or surface water, and therefore the septage has historically been taken to a wastewater treatment plant or land-applied to fields to provide nutrients for crop production.

Some WWTPs do not accept septage due to a lack of capacity, unknown characteristics and load variability. The typical data referenced in the Domestic Septage Regulatory Guidance regarding septage characteristics is from the 1980s and 1990s. Since this time, septage characteristics have changed due to increased maintenance frequencies, increased tank capacity and household practices. More current data is needed about levels of varying contaminants and nutrients.

In a 2022 study from North Carolina, heavy metal concentrations were substantially lower than the concentrations referenced by the U.S. Environmental Protection Agency. The North Carolina study also found that the layers in a septic tank can contain varying amounts of contaminants and should be mixed prior to determining appropriate application rates, which



Technicians collect septic samples for analysis.

The amount of septage produced each year is increasing, and the number of options for proper treatment is decreasing. As an industry we need to be aware of new methods to treat septage in a safe and effective manner to limit environmental impact.

is not commonly discussed in current guidance documents.

In some parts of the U.S., governments and private businesses are considering building septage treatment facilities. For instance, in the Flathead Valley of Montana, a facility is being constructed to serve the 40,000 and growing number of septic systems needing routine cleaning.

Nationally, land application of septage faces increasing scrutiny due to many factors including public perception. The amount of septage produced each year is increasing, and the number of options for proper



Typical land application of septage where the practice is still allowed.

treatment is decreasing. As an industry, we need to be aware of new methods to treat septage in a safe and effective manner to limit environmental impact and recover nutrients and even energy.

Treatment with Biochar

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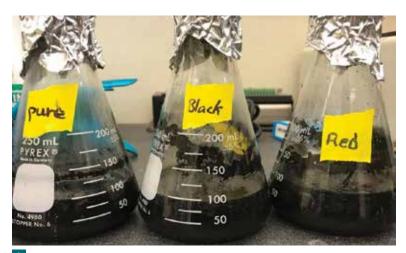
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that is highly porous and has a high surface area. Biochar has been identified as a media amendment to improve nutrient removal from wastewater.

Constructed wetlands can be an effective wastewater treatment system with the advantages of low cost, simple operation and maintenance, although long-term nutrient removal can be challenging. A recent research project



Biochar research evaluates treatment of various samples.

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evaluated treatment of septage in a CW with pure sand media and sand amended with biochar focusing on nutrient removal and plant growth.

The nitrogen removal efficiencies ranged from 63% to 87%. The sand amended with biochar had significantly lower concentration as the physical chemical properties of the biochar facilitated microbial processes and adsorption. Strong positive correlations were observed between biochar content in the media and nitrogen removal rates. The phosphorus removal was not found to be enhanced by the addition of biochar.

Treatment via Anaerobic Digestion

In typical treatment of septage with anaerobic digestion, it is retained for 15 to 30 days in an enclosed vessel to achieve biological reduction of organic solids. Historically, AD has not been used except for co-treatment with sewage sludge. However, one advantage is that anaerobic digestion generates methane gas, which can be used for digester heating or other purposes. AD is widely recognized as an environmentally friendly option to treat highly organic and biodegradable industrial wastes like dairy effluents.

One recent study evaluated the treatment of mixed cheese whey and septage. The mixing of these two sources has the benefits of buffering capacity, balanced carbon to nitrogen ratio and supplying other essential nutrients. The application of anaerobic methods for treating wastewater effluents is not only energy conserving, but also helps in the generation of energy in the form of biogas. The research found that keeping the whey fraction less than half of the total substrate mixture optimal for improving methane yield and biodegradability.

Composting

Composting is a biological process which converts organic wastes into stable end products like humus (can be used as soil conditioner or fertilizer) and carbon dioxide. Since septage has a low carbon to nitrogen ratio, it needs to be co-composted with complementary wastes. Liquid septage or septage solids are mixed with a bulking agent (e.g., wood chips, sawdust) and aerated mechanically or by turning. Biological activity gen-

erates temperatures that are

A technician pumps a septic tank.

sufficiently high to destroy pathogens. The composting process converts septage into a stable, humus material that can be used as a soil amendment. This process tends to create odors that can be a problem if not handled properly and active aeration has been found to be helpful.

CONCLUSION

Septage, unless land-applied, has typically been treated through traditional WWTP. Other options can be used to close the loop on decentralized wastewater treatment. Biochar can potentially be used to reduce the load into the WWTP, anaerobic digestion — when mixed with other sources — can produce energy, and composting of septage can produce a valuable soil amendment. Work needs to be done to further develop these and other options to treat septage.



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SNAPSHOT

Dwindling Disposal Options, Forever Chemicals Hot Topics in New Hampshire

Wastewater pro Raymond Bellemore reflects on a great crew, challenging projects and a future with more onsite systems to maintain

Compiled by Betty Dageforde | Photos courtesy of Raymond Bellemore

In Snapshot, we talk to a member of a state, provincial or national trade association in the decentralized wastewater industry. This time we visit a member of the New Hampshire Association of Septic Haulers.



Raymond Bellemore with a 2021 Western Star 4900 built out by Imperial Industries with a 4,250-gallon aluminum tank and National Vacuum Equipment 4310 blower. Name and title or job description: Raymond Bellemore II, owner

Business name and location: Souhegan Septic Tank Service, Amherst, New Hampshire

Services we offer: We perform septic and grease trap pumping, septic repairs, camera inspections, riser installations and filter cleaning and replacement for both residential and commercial customers.

Years in the industry: Souhegan has been in business since 1978 when it was established by Carole and Jack Fedas Sr. It was later passed on to Lynn and Jack Fedas Jr. I have been in business since 2001 providing a multitude of services including catch basin cleaning, storm drain and sewer

cleaning and jetting, mainline camera inspection, pipe relining and septic services. We combined forces in 2021.

Association involvement: I have been a member of the New Hampshire Association of Septic Haulers for 20 years and currently serve on the board of directors.

Benefits of belonging to the association: It provides a chance to network with other companies in the industry as well as have influence and a voice at the state level as new regulations are studied and opened up for commentary.

Biggest issue facing your association right now: Disposal is currently a big issue for us. I find that over the years land application

is being used less often. At the same time, wastewater treatment plant rates have continued to rise. So there are fewer reasonable disposal options available to pumpers. Another issue is PFOS and PFOA chemicals (used in products to make them resistant to grease, oil, stains and water), which are a big environmental concern, impacting both land application sites and wastewater treatment plants.

Our crew includes: We have an incredible crew. Phil Pellerin has over 30 years' experience. Will Robbins, Colton Gregg, Derin Thomas provide exemplary service. The office team consists of Pauline Renaud, Lynn Fedas, Nicole Carson and Sue Sylvestre who do an outstanding job.

Typical day on the job: I begin the day by communicating with the office team about scheduling and special projects. Then I spend time on the road meeting with commercial customers. I also follow up with my team members each day.

The job I'll never forget: One mission I still laugh about happened at a college in New Hampshire. They were experiencing a sewer backup in one of the dormitories. After running hundreds of feet of hose into the building and hiring a rigging company to lift a large pump station from its structure, we pumped and determined that a student somehow managed to flush a full-sized football into the system, obstructing the pump and backing up into the building. To this day we still have a hard time understanding how a football could have gotten in there.

Most challenging site I've worked on: Every site presents some kind of challenge when we're trying to solve issues with septic or wastewater systems. There are security issues with government projects, prisons and nuclear power plants; system design and age issues with hospitals and repurposed industrial and commercial sites; and scheduling issues with schools, hospitals and 24-hour operations.

The craziest question or comment from a customer: Once, when emptying an older gentleman's tank, he asked if we could retrieve his dentures so he could clean and reuse them. He said he didn't want to spend money on new ones.

If I could change one industry regulation, it would be: Mandating treatment plant hours to match our customer service hours.

Best piece of small business advice I've heard: My dad used to tell me, "You're only as strong in the field as you are in the front office." I still live by this today.



Souhegan Septic Tank Service's 2023 Mack built out by Imperial Industries with a 4,250-gallon aluminum tank and National Vacuum Equipment 4310 blower.

Crystal ball time – This is my outlook for the wastewater industry: With a growing population, we will start to see an increase in housing. This will require more usage of wastewater treatment facilities through septic systems or town sewers. This means more trained staff and equipment will be needed in the industry.



VIP Interior 800-334-1065 909-930-6244 45652 Division St., Lancaster, CA 93535 www.nuconcepts.com info@nuconcepts.com



PRODUCT FOCUS

Sewer System Cleaning and Inspection

By Craig Mandli

CABLE DRAIN CLEANING MACHINES



Cherne Jet-Ball Cleaning Balls

Cherne Jet-Ball Cleaning Balls are an inexpensive tool for cleaning new lines prior to line acceptance testing and for cleaning grease out of existing lines. Be-

cause of their larger sizes and the pressure they can withstand, they are suitable for municipal use. Made of natural rubber, they have eye bolts at each end for tethering and spiral grooves to create high-power spraying action for cleaning pipelines. They are available in three variations of sizes: 6 to 10 inch, 10 to 14 inch, and 15 to 18 inch. **800-843-7584; www.cherneind.com**

Duracable DM55

The **DM55** machine from **Duracable** can be used for a septic or sewer line blocked with buildup or infiltrated by tree roots. With the versatility to clear obstructions from 2- to 10-inch lines, it is suitable for municipal, commercial and residential work. The 3/4 hp motor and direct-drive 10-1 gearbox ra-



tio provides torque necessary for most blockages, according to the maker. A power cable feed and return improves ease of use. It comes standard with 100 to 150 feet of 11/16-inch hollow-core cable in a 26-inch reel, with the ability to switch to 3/4-inch cable when needed. **800-247-4081; www.duracable.com**



Milwaukee Tool MX FUEL Sewer Drum Machine with POWERTREDZ

The **MX FUEL Sewer Drum Machine with POWERTREDZ** from **Milwaukee Tool** provides Lift Assist technology and necessary power to clear roots while containing the mess with a fully closed drum. Lift Assist al-

lows single technicians to transport the machine up and down stairs and into and out of a service van. The POWERSTATE Brushless Motor clears roots in 3to 8-inch sewer lateral lines. The drum holds 100 feet of 5/8- or 3/4-inch inner core cable and is fully enclosed to limit messes. The sewer machine features CABLE DRIVE Automatic Feed & Retract, which reduces worker fatigue. The RAPID STOP button quickly releases the CABLE DRIVE bearings to prevent the cable from binding. REDLINK PLUS intelligence improves control with an integrated drum brake. **800-729-3878; www.milwaukeetool.com**

MyTana M224 High-Speed Flexible Shaft Cleaner

MyTana's M224 High-Speed Flexible Shaft Cleaner provides two-hand control of the flex shaft cable to pulverize debris or reduce scale in 2- to 4-inch lines. The SmartDrive electronic controller auto-adjusts the speed and torque limit to obstructions to protect the cable and eliminate the need for manual adjustment. The sturdy, flexible shaft cable is 75 feet long and is



encased in a poly jacket that can be wiped down as it is retracted from the pipe. Maintenance is minimal, and should a problem be encountered, the shaft can be re-terminated in the field. It has a luggage-style handle that telescopes to 43 inches and has smooth tilt and wide stance wheels. The package weighs just 52 pounds. **800-735-7684; www.mytana.com**

DRAINLINE INSPECTION CAMERAS



Ratech Electronics Plumber's Helper Jr.

The **Plumber's Helper Jr.** pipe inspection system from **Ratech Electronics** is based on a small-scale reel and comes with 100 feet of mini Gel Rod cable, a removable compact command module with 7.1inch LCD, a built-in battery, and an SD recorder for digital images and video. The mini pipe inspection system is available with a full-spectrum, 1.375-inch, self-leveling color camera; a standard color camera;

or any of the company's three micro camera heads — 5/8-, 3/4- or 1-inch diameter. **905-660-7072; www.ratech-electronics.com**

RIDGID SeeSnake Mini Pro

The **RIDGID SeeSnake Mini Pro** inspection camera with TruSense Technology provides digital self-leveling without mechanical rotation, inspecting up to 200 feet of 1 1/2- to 8-inch pipe with its mid-flex push cable that can navigate hard 90-degree bends. Its 25 mm digital self-leveling camera keeps the in-pipe



image upright and, when paired with a TruSense enabled monitor, delivers an in-pipe image with clarity, detail and fewer blown-out areas and sections of the pipe that are too dark to see. Digital zoom/pan provides the ability to focus on a single point of interest, while the TiltSense Inclinometer measures the camera's angle and displays the degree of tilt on the monitor — for a useful indicator of the pitch of the camera in-pipe. It pairs with the RIDGIDConnect Online Business Tool for seamless customer reporting. **800-474-3443;** www.ridgid.com

Subsite Electronics Push Camera

When a transporter isn't an option because of pipe size or limited access, the **Subsite Electronics Push Camera** allows operators to complete inspections in challenging conditions. Ideal for pipes from 1.5 to 12 inches, it features single conductor technology with a rigid 1/4-inch fiber pushrod covered with a durable Hytrel jacketing that allows operators to inspect up to 500 feet down



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PRODUCT FOCUS



the line. Additionally, the 1/4-inch-diameter single conductor cable provides added strength without weight concerns, allowing operators to complete significantly longer inspections without the cable getting twisted or warped. The 1545 camera with an in-line 512 Hz beacon allows the operator to easily locate damage and blockage in the pipe. The camera is controlled by a

1575 controller with a rugged, durable and reliable enclosure. **800-846-2713;** www.subsite.com

Vivax-Metrotech vCamDrain

The vCamDrain from Vivax-Metrotech can inspect drainlines from 1 1/2 to 3 inches up to 100 feet long. Its Wi-Fi reel, designed to work with a smartphone or tablet, eliminates the need for a viewer. The free vCam Mobile Controller app, an intuitive interface, receives the video stream from the reel and allows the user to adjust the camera



lights, sonde functions, distance counter and record to a tablet or smartphone. The drag-resistant nylon pushrod allows it to navigate bends, tight turns, ptraps, and most toilet traps. Both camera head and spring assembly with builtin 512 Hz frequency sonde are field serviceable. It comes with a 0.7-inch nonleveling HD camera head. **800-446-3392; www.vxmt.com**

GROUTING

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CUES Easy Grout

The **Easy Grout** graphical user interface from **CUES** leads the user intuitively through the grouting process. The computerized grout control system is designed to consolidate all the valves and electrical controls into an instrumentation cabinet that can be mounted in any location. The

system and user interface includes help files and tool tip descriptions to assist new users and refresh users who have been away from operating for some time. Automated entry logic provides recommended settings for the grouting process automatically based on the basic inputs of pipe size and depth. Because the grout panel is now a computer user interface, it is no longer physically tied to the process equipment and can be located virtually anywhere a computer connection, wired or wireless, can be made. **800-327-7791;** www.cuesinc.com

HIGH-PRESSURE HOSE

Kuriyama of America Piranha

Piranha sewer and jetting/lateral line hoses from **Kuriyama of America** are constructed with a yellow polyolefin tube, high-tensile synthetic braid reinforcement to reach the desired pressure rating, and then covered with a high abrasion-resistant polyether-



urethane cover. The hoses are constructed to provide rugged and reliable service under severe and demanding conditions, according to the maker. Applications include commercial, industrial and residential high-pressure cleaning. The yellow tube assures the use of a WASTEC designated hose product. The Polyolefin or seamless thermoplastic tube provides maximum resistance to hydrolysis. The high tensile, one or two synthetic fiber braid reinforcement contributes to low volumetric expansion and eliminates loss of strength from moisture absorption. A Polyether polyurethane cover provides cut, abrasion and fungus resistance. The optional Slither cover is slippery, allowing hose to maneuver around and through difficult sewer pipe bends. **847-755-0360; www.kuriyama.com**

HIGH-PRESSURE NOZZLES

Arthur Products Cnt-r-KUT ELITE max

The **Cnt-r-KUT ELITE max** kit from **Arthur Products** is a complete rotating nozzle pipe cleaning system. Manufactured from high-grade stainless steel and an aerospace elastomer, it is designed to clean pipe using a rotating head, which can be equipped with linked chain, roller



chain, cable or just water jets. Three flexible lightweight centering guides of 3-, 4- and 6-inch diameters can be quickly changed in the field to stabilize and center the rotating head, yielding 360-degree internal cleaning. An optional de-icing/degreasing head further enhances its capabilities. **800-322-0510;** www.arthurproducts.com



Hydra-Flex 1-inch Reaper

The **1-inch Reaper** sewer jetting nozzle from **Hydra-Flex** has front cutting power that outputs a rotating 30-degree cone that matches the width of the pipe to take on blockages from all angles. It is built for 6- to 18-inch pipes to cut through roots and clears blockages like grease, wax, fats and oil. Its eight, 20-degree back jets propel the nozzle

easily through the pipe and add a clearing feature to flush out blockages and grime from pipe walls. The nozzles are constructed from premium tungsten carbide and stainless steel for durability and an extended life cycle. It is easily repairable in less than 10 minutes to extend its life further. **952-808-3640;** www.hydraflexinc.com

HOSE REELS

COXREELS 1195 Series

The **1195** Series electric motorized hose reel from COXREELS has gear-reducing idler sprockets that reduce the rewind speed, increasing motor torque, and fitting an optional three-way pin lock. The all steel, idler sprockets are chain sprocket assemblies with a corrosion-protective coating that changes the drive ratio of



the motor-to-drum drive system. They are available in three ratios (1-2, 1-3 and 1-4) and each ratio will effectively slow down the rewind speed of the drum by a multiple of the ratio factor and will increase the effective motor torque by the same factor, providing the necessary safety and control during rewind of 2-inch-diameter hose. They are mounted on zinc-plated steel axles and rotate on two self-lubricated bronze bearings. **800-269-7335; www.coxreels.com**



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minder letters to the service provider's customers to contact them for another treatment. **800-844-4974; www.rootx.com**

Hannay Reels 6200 Power Rewind Reel

The **6200 Power Rewind Reel** from **Hannay Reels** is designed for rigorous waterjetting and blasting applications. With heavy-duty steel construction, strong spool, sturdy frame and hydraulic motor, it offers hose expansion control for I.D. hose widths between 3/4- and 1-inch. Up to 500 feet of hose is supported at 3,000 psi, making it suitable for large jobs.

The "A" assembly roller on the front of the frame allows for proper storage and easy dispensing on truck or trailer mounts. Optional upgrades include 5,000 psi working pressure, roller assembly, direct drive hydraulic motor rewind and a hose package, allowing for a wide range of customization. **518-797-3791;** www.hannay.com

PORTABLE JETTER

General Pipe Cleaners JM-3055

The **JM-3055** from **General Pipe Cleaners** has the power to clear stubborn stoppages, including grease, sand and ice. Its 3,000 psi, 5.5 gpm triplex pump has the thrust to pull the hose down long runs, the pressure to cut through



tough stoppages, and the flow to flush them away, according to the maker. It's driven by a 480 cc engine with electric start. The pump has Vibra-pulse on demand to help the hose slide around tight bends and down long runs. It is balanced so it can be tipped back on its rear wheels to more easily maneuver it into position. A removable 300-foot-capacity hose reel with drag brake, reel lock and swivel is mounted on a heavy-duty frame with four 13-inch "Flat-Free" foam core tires. Standard safety features include a thermal relief valve to protect the pump from heat damage, along with a backflow check valve and inlet filter. **800-245-6200; www.drainbrain.com**

ROOT CONTROL CHEMICALS



Oatey Hercules R-D Root Destroyer

Hercules R-D Root Destroyer from **Oatey** is a slow-dissolving, nonacidic, noncaustic herbicide formulated to eliminate and prevent root growth in sewer-type lines. By preventing sump and ejector pump root damage, it eliminates overflow damage, sewage flow restriction and backup odors. It

is safe to use in lines leading to septic tanks, cesspools and dry wells and is harmless to the environment. **800-321-9532; www.oatey.com**

RootX

The **RootX** formula foams on contact with water, which places the active root killing ingredient on the top of the pipe where 90% of root growth occurs. Once on the roots and pipe walls, it eliminates blockages caused by live roots for up to 12 months requiring annual treatments. The company supports annual treatments by sending re-



SMOKE LOCATOR



Superior Signal 5E FLEX

Superior Signal's 5E FLEX battery-powered smoke blower is designed for smoke-testing building plumbing and sewer laterals. It is compatible with leading 18- to 20-volt tool batteries and, utilizing a high-quality power adapter, the blower integrates with an existing electric tool set. Additionally, it can run off

any 12- to 24-volt power source — such as a car or truck battery — using the DC clips power adapter. It gently pushes smoke through the plumbing system in a few minutes and takes seconds to see results. It may also be used for testing sewer laterals, and can illustrate where a fault or leak may occur on private property. It comes with an 8-foot industrial-grade hose. Used with 1A or 2B smoke candles, it creates 4,000 or 8,000 cubic feet of smoke, respectively. The smoke candles are also sold in SealPac cans, which extend shelf life. **732-251-0800; www.superiorsignal.com**

TRUCK/TRAILER JETTERS

American Jetter 58 Series Inferno Burner Hot Jetter

The **58 Series Inferno Burner Hot Jetter** from **American Jetter** provides power for



grease cutting and deicing, utilizing a 38 hp EFI Kohler gasoline engine with flows up to 20 gpm and pressure to 5,000 psi. The rear speed control reel provides precise cleaning speeds and easy access to the jet hose with the included hose guide. Low-water shut-off stops the engine if the 220-gallon tank runs low. The optional 1-mile open range wireless remote option features water on/off, engine shutdown and hose reel control. The heavy-duty square tubing trailer has a 2-inch ball coupler and standard electric brakes. **866-944-3569; www.americanjetter.com**



Cam Spray RCJ Series

RCJ Series skid-mounted jetters from **Cam Spray** are offered in flows and pressures of 8 gpm at 3,500 psi and 7 gpm at 4,000 psi. A three-plunger industrial pump with pulse is powered by a 688 cc Honda engine. Its 200 feet of jetter hose can be used to supply an optional 200DS4 portable reel cart with 200 feet of 3/8-inch jet hose. It comes

with a 35-gallon buffer water tank with float control, powder-coated heavy tube frame, washdown gun and a four-nozzle set. It easily mounts in the side door of a cargo van, on a truck bed or inside a service truck. **800-648-5011;** www.camspray.com

Easy-Kleen Vanpack Jetter

Easy-Kleen's Vanpack Jetter is a fully customizable drain and pipe cleaning solution. With increased water pressure, it easily tackles stubborn blockages, according to the maker. The units are equipped with a 35 hp Vanguard gasoline engine





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GapVax G7 Jetter

The **G7 Jetter** from **GapVax** is built on a heavy-duty, contractor-grade NATM-certified trailer. Several engine choices, including Cummins diesel, are certified and sized appropriately for the water pump combinations. The unit's hose reel is hydraulically

powered with a direct-drive gearbox and variable-speed control. The hose reel offers a 3-foot (curbside) articulation from center of bearing, 180-degree rotation and a capacity of 800 feet of 3/4-inch jetter hose. The polyethylene plastic water tank is available in 300, 500, 600 or 700 gallons. The water pump is center-fed for optimum performance. The controller is interlocked with safety features that will show low fuel levels and low water, and is capable of a complete engine shutdown in an emergency. **888-442-7829; www.gapvax.com**

HotJet USA turbo diesel trailer jetter

HotJet USA offers a turbo diesel-powered trailer jetter. It features 59 hp of power with 20 gpm at 4,000 psi output in a compact package. Yanmar-powered units are Tier 4 compliant, are fuel effi-



cient, and use an extra-large radiator. The engines are water cooled for maximum efficiency and are easily maintained by service centers nationwide. The jetters may be mounted on 5-by-12 to 5-by-16-foot decks with a choice of single or tandem axle. They are available in cold or hot/cold operation and will clean drainlines up to 24 inches. **800-624-8186; www.hotjetusa.com**



Jetters Northwest Eagle-200/4010-DWR

The **Eagle-200/4010-DWR** midsize trailer jetter from **Jetters Northwest** produces 10 gpm, 4,000 psi with full wireless remote control or jetting on/off, engine on/throttle/off, and reel-windup functionality. It is an upgraded version of

the previous 4009 model and comes with an enclosed Kawasaki 31 hp fuelinjected/liquid-cooled engine on an industrial-duty trailer with brakes and an A-frame tongue that allows it to be towed when full of water. It has flattop fenders and standard aluminum wheels. It features a super-duty triplex UDOR USA pump, 12-volt powered hose reel with adjustable windup speed, 200-gallon water tank, 60-inch lockable tool storage bin, 400 feet of jetting hose on the main 12-volt power reel, 100 feet of 3/4-inch water-supply hose on a second reel, adjustable pulsation-control and four jetting nozzles. Specialty root/grease nozzles and other options are available. **877-901-1936; www.jettersnorthwest.com**

Spartan Tool Warrior

With fiberglass casing to protect and silence the entire machine, **Spartan Tool's Warrior** trailer jetter provides 4,000 psi at 18 gpm. The 180-degree pivoting hose reel and optional four-function remote



control allow technicians to handle tight spots. With pulsation and a full antifreeze system, it is designed to remove tough clogs in any weather. Its design includes room for customization with a company logo and colors, and it provides a 300-gallon towing capacity. **800-435-3866; www.spartantool.com**



Super Products SuperJet

The **SuperJet** truck-mounted jetter from **Super Products** is used to blast debris to clear blockages and maintain sewer lines when vacuuming extraction is not required. It uses

a strong and smooth single-piston water pump to create consistently high water pressure. Units come standard with rotationally molded polyethylene water tanks in a modular design to accommodate water capacities ranging from 1,080 to 3,240 gallons. They offer standard curbside and street-side fill. The hose reel has 1,000 feet of 1-inch-diameter sewer hose, 200-degree rotation and a digital monitor. This allows operators to work efficiently while positioned out of traffic and away from other hazards. The monitor displays a hose footage count, offers 20 saved settings for hose reel payout, and is designed with LED panel lights for readability in a variety of environments. **800-837-9711; www.superproducts.com**

Transway High-Pressure Jetter

High-pressure jetter systems from **Transway** enable operators to switch from pumping to flushing quickly. They use robust, industry-certified water pumps, thermoplastic hoses, nozzles, and hose reels designed to take the wear and tear



of regular use, and can be used with chain cutter nozzles designed to chop through roots, leaving flushable debris behind that is easily pushed out with water. A front-jetted breaker nozzle uses a fine stream of high-pressure water to erode blockages quickly. Rotator nozzles use controlled rotation combined with high-pressure water to clean 360 degrees inside pipes to return normal flow. The jetter system can also be used to wash the vehicle, clean off debris or waste that might've stuck to the unit, or simply clean out the inside of the tank. **800-263-4508; www.transwaysystems.com**





Vac-Con VJ Series

The **VJ Series** of jetters from **Vac-Con** is designed to provide operators with an economical, portable and powerful system in two configurations. The VJ375 has a 375-gallon water capacity on a single-axle cleaning to jetting modes. The pump can be belt-driven with a 12.4-inch pitch diameter dual-groove B-belt clutch, providing the on-demand ability to engage or disengage the pump, reducing runtime, saving energy and increasing pump life. Or, with a bell housing, an SAE hydraulic motor can be conveniently mounted to drive the pump. **763-780-5440;** www.catpumps.com **P**



trailer. The VJ750 has a 750-gallon water capacity on a tandem-axle trailer. Standard features include Tier 4 diesel engine, cold-weather recirculation and air purge system, hydraulically driven hose reel and a reel-mounted, weatherproof electronic control panel. Units are available in multiple water pump pressure and flow configurations. Optional features include gas engine, wireless remote and an anti-freeze tank system for cold-weather use. **904-284-4200; www.vac-con.com**



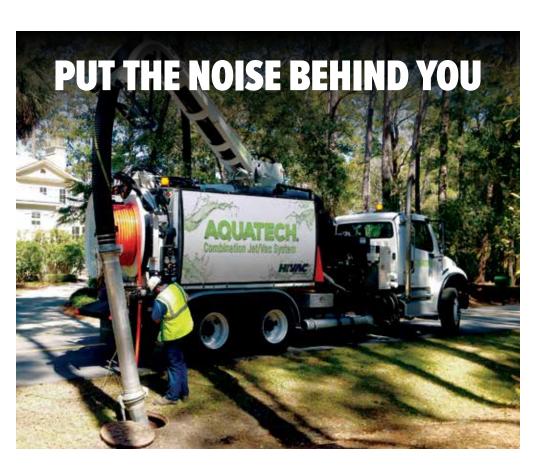
Vactor Ramjet Trailer Jetter

As a cost-effective sewer maintenance tool, the **Vactor Ramjet Trailer Jetter** provides enhanced performance and convenience to effectively clean sewers, drains, pipelines and culverts. It features multiple configurations, so customers are able to choose engines, pumps and water tanks up to 1,000 gallons. This helps customers enhance the performance of the jetter for specific needs and applications. It also helps boost productivity. It includes a pivot hose reel for greater operating ease and precision. A self-contained anti-freeze system helps in cold weather operation while advanced hydraulic controls assist in speed control. **815-672-3171;** www.vactor.com

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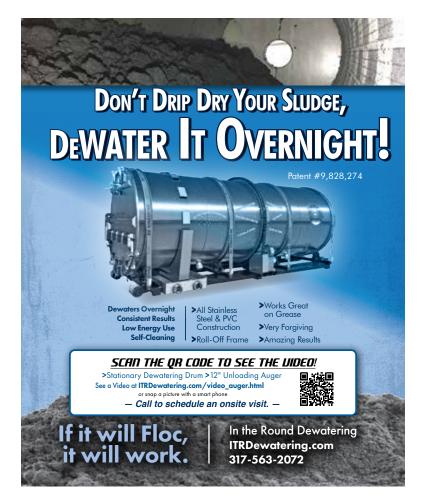
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Raleigh, North Carolina



reasecycle added a Jade Mist green 2024 Freightliner 114SD carrying a 5,425-gallon multi-compartment aluminum tank and National Vacuum Equipment 4310 blower built out by Advance Pump & Equipment. The truck features 1,775-gallon front and 3,300-gallon rear compartments with dished heads, separated by an integrated 350-gallon freshwater compartment. The truck is powered by a Detroit DD13 Generation 5 470 hp engine tied to an Allison 4500 RDS automatic transmission. Exterior features include 20-inch manways with cast aluminum lids and full-length polished aluminum hose trays. Interior features include stereo and AC. Graphics were provided by King Tutt Graphics. The driver is Justin Grich and the truck is used for grease trap service. **P**

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PRODUCT NEWS





VACUUM EXCAVATOR GOES LIGHT FOR HEAVIER LOADS

Higher tank capacity means better efficiency — and a higher profit margin. That's the idea Vermeer had in mind when the company redesigned the VXT600 vacuum excavator. Not only has the load capacity been increased for road use, the component and technology reliability and serviceability have been optimized.

With a 12-cubic-yard elongated spoil tank design and 1,200-gallon freshwater tank capacity, the VXT600 weighs 40,000 pounds, making it extremely lightweight for its size class. This design allows for even weight distribution when traveling, while maximizing the volume of material hauled. It also has a low profile with a height (with boom) of 12.25 feet so that it can maneuver under trees, power lines and bridges.

"We have incorporated many features that contractors appreciate about the popular Vermeer VXT300 vacuum excavator to create the larger and more powerful VXT600," says T.J. Steele, product manager for Vermeer MV Solutions. "We believe this second-generation VXT600 is exactly what the industry is looking for in a high-production vacuum excavator."

The powerful digging machine operates quietly while on the job, Steele says. It features a vacuum system powered by a 6,400 cfm helical tri-lobe Jurop blower. With a 23-foot boom, an 8-inch-diameter dig hose, a vacuum level of 27 inches Hg, and a water pump that produces 10 gpm of flow at 3,000 psi, it can dig quickly and deeply. Additionally, the boom dig hose can be stowed with the dig tube attached to minimize setup time between tasks.

When it's time to empty the spoil tank, crews don't need to unstow the boom before dumping, and the tank's cam-over door is easy to operate. The spoil tank can be lifted to a 50-degree angle for quick offloading. For even more efficient cleanouts, an optional tank vibrator is available. It includes a handwashing station for operator convenience, a 7-inch LCD electronic display and a full-function wireless remote with the option of a belly pack or handheld unit. There are two chassis options available: a Kenworth T880 truck with a 510 hp Paccar MX-13 engine and a six-speed Allison 4500RDS transmission; and a Mack Granite truck with a 505 hp MP8 engine with the six-speed Allison 4500RDS.

"It is an excellent choice for utility contractors who want to increase their productivity," says Steele. "We designed the new VXT600 from the ground up with the goal of making the lightest 12-yard truck on the market." **866-814-1466;** www.vermeer.com **P**

Isuzu to launch zero emission medium-duty trucks

Isuzu North America developed zeroemission Class 6 and 7 trucks utilizing an Accelera by Cummins powertrain for



both the U.S. and Canada. Powered by Accelera's next generation lithium iron phosphate battery technology, the medium-duty trucks will support customers in achieving zero emissions while providing the benefits associated with a low cab-forward chassis. **866-441-9638; www.isuzucv.com**



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Kafko International's Oil Eater overnight rust remover is a biodegradable, water-based soak with no harsh ingredients. It's safe on tools and parts, and uses include restoring automotive and marine parts, industrial tools, outdoor equipment and more. It can also be used as a prep for coating and painting. Oil Eater effectively penetrates every crevice for 360-degree restoration, and no harsh chemicals make it safe to handle. The concentrated formula dilutes

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

Vermont Lakes Group Wants Regulations Allowing Innovative Onsite Treatment

By Joan Koehne

n a letter published in *The Barre Montpelier Times Argus*, the Federation of Vermont Lakes and Ponds is asking the Vermont House or Representatives to act on a water quality bill and an outdated septic system capacity statute. According to Pat Suozzi, author of the letter and president of the lakes protection group, Vermont's antiquated limitations on septic system design capacity don't reflect today's new, innovative, alternative systems.

Here's some background: In 2023, the Vermont Senate passed Senate Bill 146 related to the permitting of indirect discharges. However the House Committee on Environment and Energy has not acted on it. The bill clarifies how indirect discharges of wastewater are permitted, including compliance with the state's water quality standards.

Several lakes that exceed the Vermont Water Quality Standards are eligible for reclassification from B2 to A1 watersheds, according to the Department of Environmental Conservation. Reclassification would allow earlier intervention if phosphorus levels rise and would prioritize the lakes for restoration funding. However, reclassification is on hold because of state limits to septic system capacity.

The current statute reads, in part: "No person shall cause a discharge of wastes into Class A waters, except for on-site disposal of sewage from systems with a capacity of 1,000 gpd or less that are either exempt from or comply with the environmental protection rules, or existing systems, which shall require a permit."

Suozzi urged the House Committee to take up the water quality bill, review septic system capacity standards and broaden discharge rules.

Kansas

Two rural communities in Riley County, Kansas, were awarded a combined \$3 million to improve their wastewater systems. The Kansas Department of Health and Environment Bureau of Water announced the State Water Plan grant awards in the spring.

One grant of \$460,000 will be used for construction of a nondischarging wastewater treatment lagoon facility at University Park. The facility will replace a mechanical wastewater treatment facility. The \$1.96 million project is primarily funded by a \$1.5 million Small Town Water and Sewer Infrastructure Assistance Grant.

The second project, at Keats, Kansas, will replace aging onsite treatment systems with a new wastewater lagoon facility and collection system. The Kansas Department of Health and Environment's Bureau of Water is investing \$2.5 million in the project.

Ohio

The Ohio Environmental Protection Agency awarded \$4,600 to the Ashland Soil and Water Conservation District to hold an educational outreach event in Loudonville, Ohio. The event will help to educate residents in Knox, Ashland and Holmes counties about water quality. Participants will receive information about septic system installation and maintenance, drinking water and wells. The state's large river study determined that failing septic systems played a significant role in the water quality of the Mohican River watershed.

Rhode Island

Residents in Cranston, Rhode Island, can apply for interest-free loans to repair or replace failing septic systems and cesspools, reported Providence Now ABC 6. Rhode Island Housing and the Rhode Island Infrastructure Bank developed Cranston's Community Septic System Loan Program and will administer the loans. Residents can apply for loans of \$1,000 to \$30,000, with loan terms of up to 10 years. Septic systems in the program must include risers to grade and an effluent filter.

In a statement, Cranston Mayor Ken Hopkins said, "This initiative not only ensures compliance with regulations but also promotes the well-being of the entire community. By ensuring that septic systems are properly maintained, residents can help protect the environment and prevent potential health hazards."

Loan applications and more information are available at cranstonri.gov/csslp/.

Colorado

Denver Water's Administration Building is the first in the state of Colorado to operate an onsite water recycling and reuse system, the *Denver Post* reported. The system is called RUFUS, short for ReUse For US. RUFUS collects and cleans water from the administration building's sinks, toilets and urinals, and the cafeteria. The water is then reused in the six-story building's urinals and toilets.

RUFUS is part of Denver Water's water management initiative that began in 2012 when the water utility started to redevelop its 35-acre Operations Complex near downtown Denver.

Before RUFUS became a reality, several laws and regulations needed to be set. For example, state legislation in 2018 made it legal to use recycled water to flush toilets. After this law passed, the Colorado Department of Public Health and Environment created regulations related to the use of recycled water in toilets.

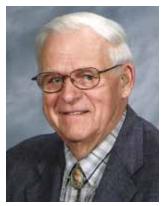


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INDUSTRY NEWS



Roger Machmeier

Remembering the Original Septic System Answer Man, Roger Machmeier

Roger E. Machmeier, Ph.D., known to a generation of *Pumper* readers as the Septic System Answer Man, passed away July 6 at his home in Lindstrom, Minnesota. He was 96.

For 15 years, starting in 1991, Machmeier shared his expertise about design, construction and maintenance of septic systems with *Pumper* readers through a popular monthly column. As

a longtime professor for the University of Minnesota and an Agricultural Extension engineer, Machmeier was influential in the development of standards for decentralized wastewater treatment. He chaired a 90-member committee appointed by the Minnesota Pollution Control Agency to write state code for septic systems.

Machmeier is credited with developing the design of the Minnesota mound sewage treatment system for individual septic tanks. He led a program to update onsite systems on lakeshore properties in Minnesota and he educated thousands of pumpers and installers throughout his career. He authored more than 30 technical papers in the onsite area during his career.

Companies For Sale FMC Advisors is currently representing and offering the following businesses for sale: West Coast portable sanitation & VIP trailers, \$30mm revenue - under LOI Midwest portable sanitation & liquid waste hauling, \$16mm revenue Southcentral portable sanitation & rolloff, \$15mm revenue – **under LOI** East Coast restroom & shower trailer rental, \$11mm revenue West Coast Emergency Services, \$8mm revenue Southcentral portable sanitation & rolloff, \$7mm revenue Northeast septic pumping, installation & repair, \$5mm revenue Plains solid waste hauler & rolloff, \$5mm revenue West coast portable sanitation, \$4mm revenue Southeast portable sanitation & rolloff, \$4mm revenue Southeast solid waste & rolloff, \$3.5mm revenue Southeast portable sanitation, \$2.5mm revenue - under LOI Northeast septic pumping & installation, \$2.5mm revenue Northeast portable sanitation, \$2mm revenue Southeast portable sanitation, \$1.5mm revenue – under LOI Northeast portable sanitation & rolloff, \$1.5mm revenue Southeast portable sanitation, \$1mm revenue - under LOI More coming soon! – FREE CONSULTATIONS – WE WORK FOR YOU, THE OWNER, TO MAXIMIZE THE VALUE OF YOUR BUSINESS



DAMON POWELL 407-765-9440 FMC Advisors www.fmcadvisors.com Jim Anderson, Ph.D., who took over the Answer Man column in *Pumper* when Machmeier retired, remembered his colleague and mentor at the University of Minnesota as a "giant" of the onsite industry.

"Roger was the best engineer I have ever known," Anderson said. "His knowledge and skill and approach to problem solving was without equal." Anderson said Machmeier was an excellent teacher who listened and responded thoughtfully to questions asked by pumpers and installers.

"The thing that set him apart was his ability to use those engineering skills and apply them to problems or issues in the onsite industry to come up with very practical and implementable solutions," Anderson said. "He was such a good communicator with the pumpers, installers and designers, and could teach them how to apply those solutions in their business."

In the infancy of septic system use, Machmeier was a valuable advocate for the contractors who did this important work, Anderson said.

"There was no one I have seen who was a better promoter and supporter of the industry," he said. "He backed pumpers and installers up when the EPA and state regulators looked down on their work, and he raised up all of the good the industry has done."

Machmeier was preceded in death by his wife of 60 years, Joretta, and sons Todd and Philip. He is survived by his son, Bruce and daughter Ann Machmeier, grandchildren, and his second wife, Marlys Danielson. He was buried in his hometown of Mondovi, Wisconsin.

Vacuum Truck Rental announces new managers

Brian Lowry was promoted to regional operations manager of Richland, Mississippi-based Vacuum Truck Rentals. Lowry has been employed with the company since 2012. In his new role, he will be responsible for offices in the Southern U.S. Keith Veros was promoted to general manager of the company's Livonia, Michigan location, and Alex Phelps joined Vacuum Truck Rentals as service manager at the Livonia location. Vacuum Truck Rentals also announced the promotion of Mike Suiter to vice president of strategic accounts. He has been employed with the company since 2017. And Robert Knotts joins Vacuum Truck Rentals as general manager of the Washington, West Virginia location. Additionally, the company promoted Ty Rose to regional operations manager. In this role, he will be responsible for offices in the Northern U.S. Sterling Machell joined Vacuum Truck Rentals as general manager of Vacuum Truck Rentals' Oakland, New Jersey, North East, Maryland and Northborough, Massachusetts locations. Sterling brings 44 years' experience in operations and sales.



Robert Knotts



Brian Lowry



Sterling Machell









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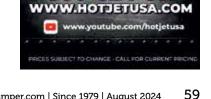
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for sale. Located in Branson. MO. Covers 75 mile radius of south-central Missouri. Very reliable and long term commercial, residential and municipal customers. Great relationships with local plumbers and installers. Still room to grow. Owner is willing to stay and train new owner. Contact us for more information at sspumpinginc@ gmail.com or call or text 417-546-2390. 3 pump trucks: 2014 Freightliner, 10-speed w/ 3,600-gallon tank w/ Masport pump and 150 ft hose. 2010 Freightliner, 10-speed automatic w/ 3.200-gallon tank w/ Jurop pump and 150 ft hose. 2010 Freightliner, 5-speed automatic w/ 2,500-gallon tank w/ Masport pump and 150 ft hose. (P08)

Established Southern Tier NY Septic Service Business serving Chemung, Schuyler, and Steuben counties. Family Owned and Operated business for over 70 years. Strong residential and commercial septage and grease trap pumping revenue streams with many long term clients, as well as real estate relationships driving revenue streams for Sanitary Surveys and pumping services for home closing. Includes 3 well maintained septic pumper trucks. If interested please contact us at gardnerwwafb@gmail.com or call (607) 481-2283. (P08)

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FOR SALE: Wallys Septic Tank Pumping INC. LOCATION: FLORENCE OREGON 97439 CONTACT: mail@wallysseptic.com **For Sale: Established Septic Tank Pumping Business Location: Florence Oregon, 97439 **Price:** \$425.000 --- **Business Overview:** Wallv's Septic Tank Pumping, Inc. is a reputable company in the septic tank pumping industry, with a 42 year history of operational success and customer satisfaction. This business offers an excellent opportunity for a new owner to step into a thriving and essential service sector. **Company Highlights:** - **Experienced Personnel:** Skilled and knowledgeable staff who know how to manage the administrative and labor aspects of the business. - **Strong Customer Base:** Established and loyal clientele. Wally's is the primary service provider in Florence and the surrounding area. - **Competitive Edge:** Excellent reputation and solid customer relationships established over the last 40 years of operation. - **Stable Financials:** Comprehensive financial analysis (by an external appraiser) supports a healthy financial position. Annual revenues average around \$500,000. **Don't miss out on this incredible opportunity to own a successful and established septic tank pumping business on the beautiful Oregon Coast! For more information and inquiries, please contact us at: mail@ wallysseptic.com. (P08)

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GREASE UNITS

2018 Chevrolet 4500 cab & chassis with a 600 U.S. Gallon, aluminum tank with Masport pump and a Rear flatbed with lift gate. Stock# 8446V www.vacuumsalesinc. com (888)VAC-UNIT (822-8648) (PBM)

HAZARDOUS WASTE UNITS

1998 International. 1,000-gallon Presvac tank, DOT412 engine, Presvac vacuum pump, runs very good, all in working order. \$19,500. KLM Companies 617-909-9044 (PBM)

2011 Presvac 3,200 U.S. gallon, carbon steel, D.O.T. 412, Vacuum tank only (no truck) stock# 8293C www.vacuumsalesinc.com (888)VAC-UNIT (822-8648) (PBM)

2008 Cusco 3,150 U.S. gallon, carbon steel, D.O.T. 407/412, Full open rear door dump type tank with a Moro PM200 Vacuum pump package (no truck). Stock# 8092C www.VacuumSalesInc.com, (888) VAC-UNIT (822-8648). (PBM)

2001 Presvac 3,000 U.S. gallon, C/S DOT 412, two compartment (1,000 front-2,000 rear) Vacuum tank (tank only) Stock# 6196C www.VacuumSalesinc.com, (888) VAC-UNIT (822-8648). (PBM)

2007 Volvo VHD Triaxle with Pressvac Powervac 5300 Stainless Steel DOT 412 Haz Waste Wet Dry Dump Door Tank, Hibon 27" blower also with Presvac PV750 vacuum pump. Full 360 Boom with upgraded RPM wireless remote. Pre emission 450hp 13L Engine low miles and hours. KLM Companies 617-909-9044 (PBM)

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HYDROEXCAVATING EQUIPMENT



2003 FREIGHTLINER VACTOR TRUCK. Cummins Engine ISM, Transmission Fuller 10 Speed. Secondary Engine John Deere 6.8L. Two Stage Fan Unit, New Clutch and Reman Transmission. Miles 102721 sale price \$50,000 0.B.0 contact Oguer L. 503-9891-2929 (P08)



2004 STERLING VACTOR TRUCK Engine CAT C12 Allison Transmission HD-4560, Secondary Engine John Deere 4.5L Single Fan Unit, Low Miles 30079 Miles, contact Oguer L. 503-891-2929 asking for \$50,000 0.B.0 (P08)

2002 Gap Vax HG56 Stainless Steel Tank body in exceptional condition. Low miles and hours with 450 HP Cummins power and wireless remote for Boom and Hose reel with Jet rodder 80 GPM pump Hibon 8702 27" 5300 CFM Blower. Integral remote boom with hose reel. Ready to work. One a kind machine. KLM Companies 617-909-9044 (PBM)

JETTERS – TRAILER

2023 US Jetting 4018-300 jet trailer. Stock# 14107 www.VacuumSalesInc.com, (888) VAC-UNIT (822-8648). (PBM)

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www.hotjetusa.com (PBM)

JETTERS - TRUCK



2015 Ford F550 Jetter Truck with 52,473 miles. Ready for work immediately. Ford 6.7L diesel engine. Jetter: Pentair Myers DP40-38L pump with Caterpillar C4.4L. Diesel power unit pump: Triplex Plunger Pump w/ internal gear reducer 1200 psi/120 gpm – 3800 psi/40 gpm. Comes with misc. jetter heads. \$60,000. Please email cole.kaspar@SJLouis.com or call 320-253-9291 if interested and for more information! MN (P08)

JET VACS



2013 Super Products Camel with ejector plate. Myers 80-20 water pump, roots 824 pd blower, hydro excavator attachment. On a 2013 International Workstar Max Force 10 with 118,271 miles and 9,955 hours. Email tsmvac@yahoo.com. \$85,000 0B0. Aliquippa, PA (P10)

2024 Freightliner 114SD cab & amp; chassis with a Vacall AJV1215 Description Combination et/Vac – 12 cubic yard debris & amp; 1,500 gallon water – Roots 824 blower with General 87 GPM @ 2,000 PSI water pump (coming in September) Stock# 14098 www.VacuumSalesInc.com, (888) VAC-UNIT (822-8648). (PBM)

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PORTABLE RESTROOM TRAILERS

2019 Rich Restroom Trailer. Men's side: 1 toilet and 1 urinal. Women's side: 1 toilet, includes heat, air conditioning and stereo. 4 seasons, has only been used for weddings. \$35,000. John Argese - 315-382-1431 or la.mathco@gmail.com. NY (P08)

2014 Comforts of Home. Men's side: 1 stall and 2 urinals. Women's side: 2 stalls, heat and A/C. 4-season unit, only used for weddings. \$35,000. John Argese - 315-382-1431 or la.mathco@gmail.com. NY (P08) 2014 Rich Restroom Trailer. Men's side: 1 stall and 2 urinals. Women's side: 2 stalls and includes heat, air conditioning, stereo and hot water. Rented only for weddings. \$35,000. John Argese 315-720-2157. (P08)

PORTABLE RESTROOM TRUCKS



2020 Ford F250 built by Erickson tank and pump (120 waste, 40 water). Has E-trac, can hold 2 regular units with liftgate down. About 101,000 miles. Asking \$34,000. Have all maintenance records. Contact Ricky for details, 208-949-0117 or email Ricky@portapros.com. ID (P08)



2020 Ford F250 built by Erickson tank and pump (120 waste, 40 water). Has E-trac, can hold 2 regular units with liftgate down. 98,220 miles. Asking \$34,000. Have all maintenance records. Contact Ricky for details, 208-949-0117 or email Ricky@ portapros.com. ID (P08)



2016 Workmate Isuzu NRR, 227k miles, 300/600, dual side service and can carry 8 standard portable toilets. New transmission, new PTO and new turbo. Always dealer maintained. We have no use for it anymore, we no longer rent porta potties. \$35,000. Call 877-770-1840. PA (P08)

New Imperial 1300 U.S. gallon, portable toilet service unit mounted on a 2024 Ford F550 cab and chassis with a Masport HXL4 pump package. (5 coming in July) Stock# 14185 – 14189 www.vacuumsalesinc. com (888)VAC-UNIT (822-8648) (PBM)



2024 Ram 5500, 4x4 and 4x2 available and ready to go. Also 2024 Ford F-550, 4x2, gas burner available and ready to go. Please call Rodney Lane 270-832-3793 for more information. (PBM)



2017 Hino, J08E-VC, diesel, 208k, auto trans, under cdl, AC, cruise, Amthor flat tank and lift gate , 800/400, 10 pot capacity, Masport HXL75 vac pump, DC10 water pump and hose reel, very clean great running truck. Finance and delivery available, \$42,000.00 Hulls Truck Bodies LLC 740-820-5338 (PBM)

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SEPTIC TRUCKS



2019 Peterbilt 337 septic truck, capacity: 2,500-gallons, automatic, 131,333 mi, warranty included. 407-605-5511 or Orangetrucksales.com. FL (P08)



2011 Freightliner M2. Cummins 8.3L. Manual 10-speed. GVW 64,180. Mileage 299,929. 4,600-gallons. Call 407-605-5511, orangetrucksales.com (P08)



2011 Peterbilt 389, 13-speed, 211k original miles, Pacar, deleted (still have on the components to go with the truck) pushing 650 hp, 4,400-gallon aluminum tanker w/ Sea Level gauge and 4310 NVE blower vacuum pump. Excellent truck, very clean, one owner truck before me. Ready to go. \$160,000 OB0. 713-992-0916 (best text) (P09)



2014 Freightliner Cascadia 125 pumper truck with NEW 3,400-gallon tank, new PN84 Jurop pump, new PT0, 12-speed Allison transmission, DD13 motor, power windows, jake brake, cold air, radio, air-ride, 90% rubber on tires, 450,000 miles. \$60,000 FIRM. Delivery available. 800-721-2774. (PBM)

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Provide the second state of the second stat



FOR SALE: 2005 Sterling Acterra with Mercedies Benz engine. 2,000-gallon tank. MORO AC4 vacuum pump. 182k miles. \$42.999. 806-762-1066. (P08)



Very clean well maintained 1994 Mack RD688s, full double frame, 350 h.p. Mack E7 diesel, aluminum 4,590-gallon vac tank, Masport pump, pusher axel, Mack 12-speed Eaton Fuller, has quick connect spray gun setup, spring ride, 329,000 miles, excellent running truck, great brakes. \$34,900, located in Juda, WI. Deposit required to hold. Can deliver anywhere for the fee, serious buyers only. Please call 608-558-0870. WI (P08)



2006 Peterbilt, 430 hp Cat, 270k, auto shift trans, AC, cruise, jake brake, 18k front, 46k rears, steerable lift axle, double frame, air-ride, 5,000-gallon aluminum tank, needs a pump, runs and drives great. \$49,000. Hulls Truck Bodies LLC - 740-820-5338. 0H (P08)



2015 Peterbilt model 348, 3,600gallon tank, automatic transmission. 210,955 miles. \$105,000. Thomas Burrets - 830-964-2365, burrets@ aerobicservices.com (P10)



2025 HV607 International, 4,000-gallon aluminum tank, 4310 NVE Open Package (650CFM), smooth aluminum tool box, L9 Cummins engine (370 HP), 3500 RDS Allison transmission, lock differentials, 66K GVWR, Bluetooth audio. For more information on price and availability call or email- Phone: 501-388-0052, Email: Ironvac. zach@septictrucks.com. (P08)



1997 Ford L9000, 979,516 miles, Wittig pump package, 4,000-gallon steel tank. \$35,000 OB0. 866-720-4999, jerry@tankservicesinc.com (PBM)



Selling this 2010 Freightliner vacuum truck, M2- 112 with Allison automatic transmission, approx 325k miles, 350 MB diesel, 20k fronts, 46k rears, 4,200-gallon carbon steel vac tank, runs excellent, comes with vac pump but you need to install. \$49,900. Can deliver anywhere for the fee, serious buyers only, please call 608-558-0870. WI (P08)

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2006 Kenworth T-300. Custom built in March of 2022 [129,460 original miles.] Have only used 4 times since built- I have no help. Truck has the following: 2,000-gallon tank, which 1,800 is septic and 200 is fresh water. Also has a Jetter electric reel. And has a new 607 pro challenger vacuum pump and has heated valves. Truck was custom built by House of Imports. Paid \$83,000 for truck. I have no one to run it. That's why I'm selling it for \$57,000. Call for more info. 978- 423- 1116. Ask for Paul. Thank you. MA (P08)

2006 Peterbilt 335 vacuum septic tank truck. 60k miles, Cummins engine with Allison automatic transmission, 2,500-gallon tank, Titan Masport commercial vacuum pump. If interested call 770-466-7253. To see the truck with appointment only. (P08)



2001 Kenworth T300, CAT 3126 engine, 6-speed manual, 240k miles, 2,500-gallon steel tank, Wittig vacuum pump, new brakes, new tires, runs well. \$35,000 OB0 866-720-4999, jerry@tankservicesinc.com. (PBM)

Coming in September! 2024 Peterbilt 548 cab & chassis with 4,000 gallon, Aluminum tank & NVE 887 pump package Stock #14181. www.VacuumSalesInc.com, (888) VAC-UNIT (822-8648). (PBM)



2002 Mack, 4,000-gallon steel tank, 700k miles, 10-speed manual, good running condition. \$50,000 0B0. 866-720-4999, jerry@tankservicesinc. com (PBM)

1997 Ford with Cusco 3,200-gallon DOT certified dump and door liquid vacuum truck. Cummins engine with Moro M9 vacuum pump. Runs and pumps excellent. \$21,500. KLM Companies 617-909-9044 (PBM)



2007 Peterbilt, 485,000 miles, 4,500-gallon steel tank, NVE pump package, **\$60,000.00 0B0.** 866-720-4999 (PBM)



2001 Mack CL700, 8ll transmission, 338,419 miles Transway pump, front lift tank, runs great **asking \$59,900.00** 0B0 (866) 720-4999. (PBM)



2023 Mack, 425HP, Allison auto, 20/20/46, NVE 887 pump package, 5,500-gallon steel tank, many extras truck is new not used. \$350,000.00 0B0. 866-720-4999. (PBM)



2008 International DT4300 for sale. 2,500 Gallon steel tank. 304K miles. Engine rebuilt in 2021. Truck runs great. Asking \$40,000. Please call Tony at (203)648-1301 for inquiries. (P08)

2005 Keith Huber Dominator, 4,000 U.S. gallon, dump type unit, with a Wittig RFL100 hydraulic driven vacuum pump. Stock# 004SV. www.VacuumSalesinc.com, (888) VAC-UNIT (822-8648). (PBM)

New 4,000 U.S. gallon, aluminum, vacuum tank. Mounted on a 2023 Freightliner M2-106 cab and chassis w/ a NVE Challenger 887 vacuum pressure pump package. Stock# 14056 www.VacuumSalesInc.com,

(888) VAC-UNIT (822-8648).



2014 Freightliner Cascadia 125 Truck. New 2500-gallon tank, Jurop pump, Detroit DD15 motor, automatic transmission, Cold air, Air ride, 60% rubber on tires, 450,000 miles, \$60,000. 800-721-2774 (PBM)

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2 - 300/125-gallon slide in units that are both ready to use. Looking for \$12k for both units. 713-458-8720. (P08)



550-gallon steel slide in, 100-gallon poly water tank. Masport HXL-3V vacuum pump w/9-HP Honda engine. 30' of 2" waste hose, 50' garden hose on hose reel. Toico water pump, 3" discharge. 7,000-Ib GVWR tandem axle trailer. Call our sales office at 800-558-2945, salesinfo@ imperialind.com. (PBM)

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2- 2015 5,500 gallon vac tanks. 78" diameter by 252 shell, NVE stainless gate valves, secondary garnet level indicator complete with 4307 NVE blower silencer. \$35,000.00 per unit. 724-350-2765 (P09)



2 used aluminum tanks 1,250 gallons 400/850. Fabian **720-436-3910 (PBM)**



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TRAILERS-VACUUM TANKER

1989 Petrosteel 5,500-gallon, carbon steel, vacuum tank trailer. Stock# 1146C www.VacuumSalesInc.com, (888) VAC-UNIT (822-8648). (PBM)



2000 Calumet 2,000-gallon tank. \$5,000. Contact Joe Rodriguez 616-835-5338. MI (P08)



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TRUCKS (DUMP, SEPTIC, MISC.)



2017 Freightliner M2, 60k miles, 6-speed manual transmission. 26' flatbed with large aluminum lift gate. Everything works perfectly. Asking \$50,000. 609-902-5093. NJ (P08)

2006 Mack CX612 Vision E7 ASET with a 10-speed, 4,700-gallon progress tank with jetter tank (150-gal). Truck is used daily. Everything works as it should. 90% rubber and brakes. \$35,000. Call or text 918-857-8318. Located in Oklahoma. (P08)



2006 Peterbilt 335 Vacuum Truck with 16,492 miles after engine overhaul in May 2016. Ready for work immediately. Caterpillar C7 330HP engine, Allison automatic transmission, Vac-Con Sewer Jetter/Vacuum Combo, Model: VPD4212LHAD, Roots 827 blower, 10'

Telescopic boom, front mounted telescopic/articulating hose reel, Hydro-Static driven blower, 1,300-gallon fresh water tank, 12 cubic yard debris body, high pump design, GVWR 60,000. Engine serviced at 15,760 miles and DOT

inspection completed February 2024. \$85,000. Please email cole.kaspar@ SJLouis.com or call 320-253-9291 if interested and for more information! MN (P08)



2000 Freightliner FL70 Jet Truck. \$9,999 Mercedes 900 with 187,432 miles. 6-speed Manual. 1FV6H6AA6YHF90254. Call Steve at 248-345-5960 (P08)



2008 F450. Diesel engine, automatic and a brand new tank. 4x4. 600-gallon 400/200. **Fabien: 720-436-3910 (PBM)**



2005 Sterling LT7500. 2002715 miles and 5915hrs. CAT C7 diesel engine mated to an Allison 3000RDS. 80GPM -2500psi, 1500 gallon water 15yr debris body. 824018 blower, stainless micro strainer, cold weather recirculator, 600' of 1" hose. \$65,000. Call Steve 248-345-5960 (P08)



2010 Freightliner M2 Pumper truck. \$25,000. 225,956 miles. 2000 Gallon tank. 8 speed manual trans. Call Steve at 248-345-5960 (P08)



2008 International 7600 1HTWYS-BT68J696975, with a CAT C13 and 10 speed manual . 1200 gallon tank, 3500psi, 12yrd debris body, tool package, 940,000 BTU burner, Hibon 8702 27" blower. \$130,000 Call Steve at 248-345-5960 (P08)

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2009 Hino Diesel 268. New Allison transmission. 2 year warranty 1500/ waste500/water. Masport Dc10 wash down 2 unit carrier. Fabian 720-436-3910 (PBM)

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