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Whether it's on-site dewatering or a paperless office, Nathan Officer promotes efficiency and the environment Page 36

GO GREEN, GET GREENBACKS

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Michigan's Shunk/Fiedler tweaks land application, upgrades trucks and office technology to build profits Page 18

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Go Green, Get Greenbacks

- Ken Wysocky

Whether it's on-site septage dewatering or going paperless in the office, California's Nathan Officer is always looking to promote efficiency and the environment.

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

Is a New Septic Service Truck in Your Plans for 2016?

Work truck buyers report steady fleet upgrades in a strengthening economy. declining interest in alternative fuels as long as oil prices are depressed By Jim Kneiszel, Editor

here was a noted excitement over new trucks displayed at the Water & Wastewater Equipment, Treatment & Transport Show earlier this year. Plenty of serious buyers joined the tire-kickers inside the Indiana Convention Center, as truck builders I talked to reported selling spec trucks off the show floor.

My unscientific evidence of a strong market for wastewater industry rolling equipment seems to be backed up by the findings of the 2016 Fleet Purchasing Outlook released by the NTEA - The Association For the Work Truck Industry. The annual survey of truck fleet buyers gives a generally positive forecast for truck purchasing this year. That's good news following a span of volatility in the market after the economic downturn starting in 2008 and a surge of replacements of aging vehicles in the past few years.

The roller-coaster economy over the past decade seemingly led to periods where a glut of trucks were available, followed by periods of short supplies of chassis and some reported longer wait times for work truck buildouts. At some points, pumpers I talked to seemed gun-shy about replacing older rigs, and at other times impatient to update trucks that were showing reliability issues. Fleet buyers and truck builders seem to be finding an equilibrium, with replacement trends becoming more predictable.

SENSE OF OPTIMISM

"The relatively healthy business environment has prompted interest in aggressive acquisition plans. With generally stable funding levels, fleets are focused on replenishing dated vehicles and considering new truck productivity technologies," Steve Carey, NTEA executive director, said in the survey introduction. "This year's study reveals a general sense of optimism among responding vocational fleets, influenced by modest gains and overall stability across the industry."

But there's room for more robust work truck updating, the outlook indicates. Many fleet buyers continue to take a conservative approach, holding on to trucks longer than they would have anticipated previously, and the collapse of oil prices seems to have muted interest in some alternative fuel technologies.

Important findings for 2016, noted in the NTEA executive summary,

- 40 percent of those surveyed report a rising average truck age
- 60 percent report their average truck age is 5 to 10 years
- Nearly one-third intend to expand truck numbers
- More than half continue to exceed their normal replacement cycle
- 95 percent report likely-to-sure funding for planned purchases

Interest in alternative fuel technologies has declined due to persistently low oil prices driving down the cost of diesel and gasoline. The report indicates that interest in alternative fuels will likely remain muted until oil prices bounce back.

RESULTS MAY VARY

When considering statistics provided by a wide variety of fleet buyers, I have to say that results and attitudes may vary among the subset of pumping and portable sanitation companies. Pumpers have unique requirements for their vehicles and typically have smaller fleets. Running a few trucks every day, they have limited resources to replace the rigs, and they must remain flexible and nimble with their purchases because they usually can't go too long with an unreliable truck parked in the garage. When they need a truck, they really *need* a truck, typically.

The NTEA survey respondents included a broad sampling of fleet purchasers across the U.S. and Canada; among them the largest number (38 percent) manage municipal or government fleets. About 40 percent of the responses were from buyers within several smaller fleet categories, those with less than 100 trucks, while only 9 percent of those surveyed have less than 10 trucks. So it's fair to state that less than half of the responses came from buyers that would align closely with the pumping industry.

That said, the report says that smaller fleet buyers have a shorter truck life cycle and will have slightly newer fleets in 2016 over 2015. For those with less than 10 vehicles, 53 percent of the equipment is less than 5 years old, 16 percent is 5 to 10 years old, and 31 percent is 10 to 15 years old. For larger fleets, generally more trucks fall into the 5- to 10-year age and fewer trucks are less than 5 years old.

The overall trend is for strong work truck purchases in 2016, according to the report. More than 60 percent of respondents indicated fleets will remain the same size as 2015. More than 30 percent expect fleet size will grow, while only 5 percent say they will decrease in size, with that number declining dramatically over recent years.

"Although fleet purchasing plans have become a bit more conservative in 2016 as compared to the last two years, levels remain high, with 86 percent

(continued)

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of respondents seeking acquisitions," the report reads. "In fact, 66 percent hope to add at least as many trucks as last year. While 2016 data shows fleet buyers are less inclined to acquire more trucks than last year (24 percent compared to 38 percent for 2015), plans to purchase the same number largely offset the change, with an 11 percent gain, suggesting fleets are following a more regular replacement cycle."

In short, here's the breakdown of expected purchases in 2016 over 2015:

- 24 percent will acquire more
- 42 percent will acquire the same number
- 20 percent will acquire less
- 14 percent have no new purchases planned

OIL PRICE FACTOR

Not unexpectedly, interest in alternative fuel technologies has declined due to persistently low oil prices driving down the cost of diesel and gasoline. The report indicates that interest in alternative fuels will likely remain muted until oil prices bounce back. Support for alternative fuels dropped from 37 percent of buyers in 2014 to 18 percent this year. In 2016, 53 percent of fleets plan to modify truck specs to improve fuel economy or reduce utilization, off 11 percent from last year.

Respondents aren't showing much interest in auxiliary power units, electrification of truck systems or improved vehicle aerodynamics. They are showing modest interest in powertrain optimization, telematics and route optimization, use of engine stop/start technology, and vehicle weight reduction. The most prevalent alternative fuels being used presently are biodiesel, E85 and compressed natural gas. Biodiesel is being used by 18 percent of fleets now, up from 15 percent in 2015. Gains also recorded for propane/au-

togas, full electric and hydraulic hybrid technologies, but trends are mostly down from 2013, however.

"Given the diverse range of available tax advantages, financing options and potential cost savings, implementing alternative fuels can be a smart decision in the long term," the report concludes on an optimistic note.

The report uncovered an interesting trend in vehicle maintenance. It states that use of an in-house mechanic is on the decline, from 80 percent of fleets in 2015 to 68 percent in 2016. The buyers reported moving toward outsourcing maintenance to a fleet management company or other outside garage.

These are just a few of the trends outlined in the 24-page fleet outlook. The NTEA makes the complete report available to member companies or for a fee to nonmembers. To learn more, go to www.ntea.com or call 800/441-6832.

HOW ABOUT YOUR PLANS?

I'm interested in learning if *Pumper* readers reflect the trends from the NTEA survey. Will you be shopping for a new vacuum truck for septic or portable sanitation service this year and selling off an older rig? Is your fleet aging to the point that inconvenient breakdowns are hurting your ability to meet customer demands? Is an improved business climate prompting you to upgrade a truck or put another one on the road? Let me know your thoughts at editor@pumper.com.

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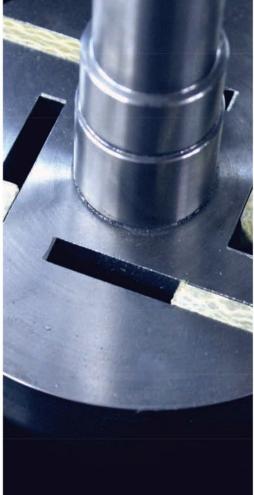
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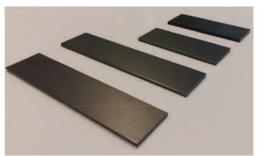
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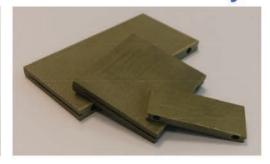




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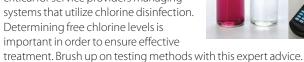


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'05 WS 4900 515 S-60, 118 Spd. Airliner Airride Suspension, Double Frame, 20 x 69 Axles, Gear Ratio 4.89, 260" Wb, 188" Cab-Trunion, Custom Vacuum Rig-up, TC407/412, Hibon 820 Blower, 5070 US Gallon Tank, Excavator Boom, 223K Miles, Loaded **\$74,500**



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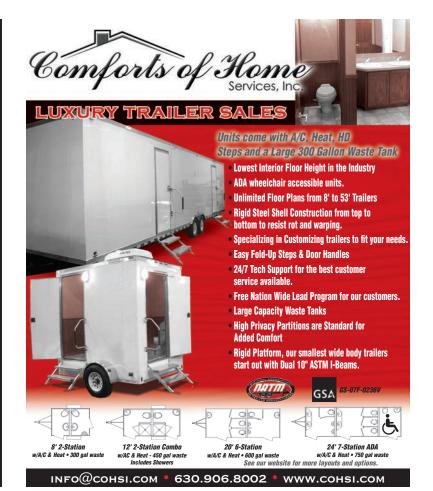
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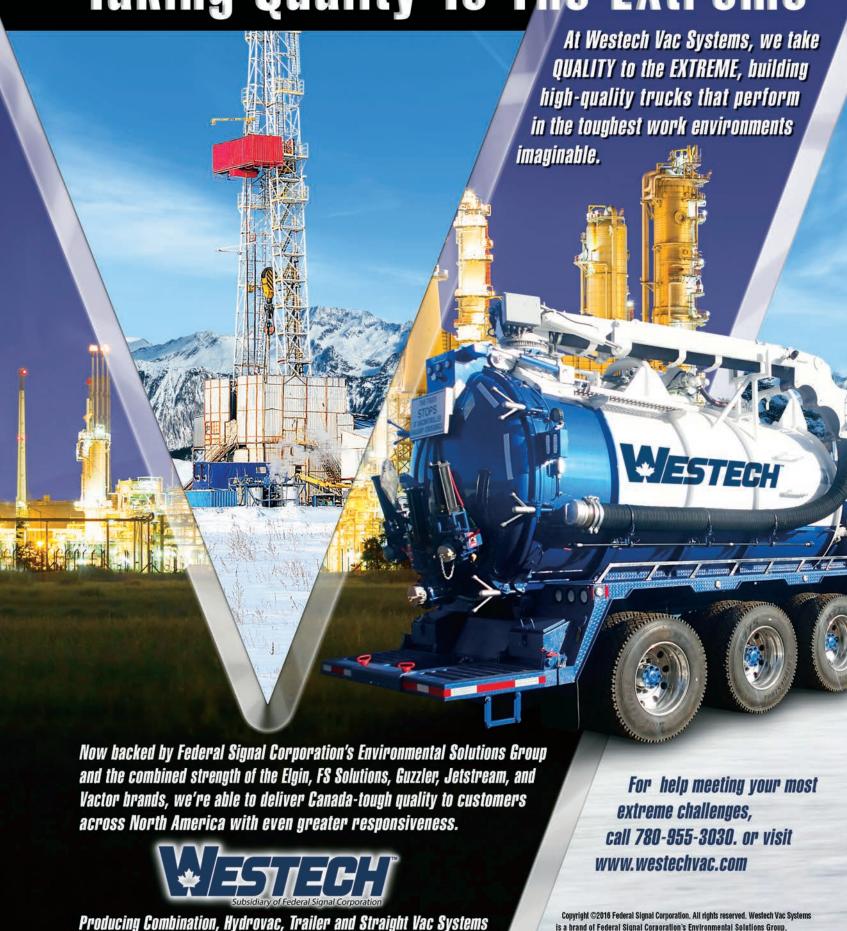




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At the time, septage could be applied year-round, and the Fiedlers rented the same land Shunk had used for application. As planned, Terry had one of his trusted employees take care of pumping during the summer and Terry pumped in the winter.

Then, state regulations tightened.

"They shut us down from Dec. 15 to March 15 for applying on the field. So we have to store everything in the lagoon and wait until springtime and then get it in," Nancy explains, noting that now it's a "frozen ground" rule, which still means about three months of shutdown.

So landscaping and pumping occur at the same time. But

the Fiedlers have made it work. Terry works with and coordinates the schedule for the landscaping crew, and employee Jason Miller takes care of the pumping. Nancy coordinates the pumping schedule and handles bookwork for both businesses.

"There is a good, complete division of labor," Terry says, and the businesses are run separately.

LAGOON LOGISTICS

The ability to land-apply has always been the economic dealmaker for the pumping business. When the Fielders bought a second company, R & L Septic, in 1995, they had five 20,000-gallon tanks to store septage before it was field-applied.

Instead of buying more Slurrystore tanks (CST Industries) for addi-

tional storage, the Fiedlers decided it was more economical to spend \$80,000 for a 200,000-gallon lagoon, including a \$10,000 liner. While it took several

Technician Jason Miller hooks up the hose to the Freightliner truck with vacuum tank from Tank Truck Service & Sales. He is preparing to dump a load in the company's lagoon.

years to get a return on their investment, the lagoon eliminates wastewater treatment plant fees, hauling (30 miles one way) and waiting time, and helps the Fiedlers keep costs down.

answers a customer call

in the office.

"The lagoon is in the middle of a (640-acre) section. That's good because it isolates us a little bit," Terry says. "I have 10 acres and





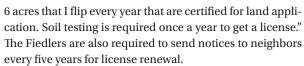


We are seeing the light at the end of the tunnel and will keep doing this as long as it's a good retirement income. We don't need

to grow. ... With just one truck, it's easy to keep a handle on the business

and maintain a good reputation.

— Terry Fiedler



Jason unloads septage into a concrete trash tank, where a steel bar screen with 3/8-inch gaps captures the "flushable wipes" and other large debris. The septage then flows into the lagoon. When timing and field conditions are right, the septage is pumped back in the truck and spread on the field using a reverse funnel. Terry follows up within

six hours with the tractor and disc.

"We apply 20,000 to 30,000 gallons on the field about every week," Terry says. "It depends on the weather." Live bacteria, bioForce, from Chempace, is used in the lagoon to break down the septage.

EQUIPMENT INVESTMENTS

With two companies, the Fiedlers inherited a good client base and incorporated both business names for continuity with customers. The trucks from both businesses, however, were old. While they ran two trucks for a time, they typically have only had one.

"It's very important with one truck that the truck keeps running," Terry says, noting he was reminded of that last summer when the transmission went out. He

lost two days of work — and possibly customers he'll never get back.

His strategy has been to upgrade regularly and sell trucks through *Pumper* magazine classifieds. His current 2010 Freightliner built by Tank Truck Service & Sales Inc. with a 2,500-gallon aluminum tank and Challenger pump will soon be replaced with a newer model. Important features include automatic hydraulic valves and heated collars, which are necessary for Michigan winters. It also has a large-screen Garmin GPS unit to help Jason efficiently plan routes.

(continued)



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Another factor when purchasing a truck is size. Terry sticks to trucks with 2,500-gallon tanks.

"I like that size, because the next size adds an extra axle, and everything is more expensive from the truck to the license," Terry says. The biggest issue with the tank size is that most new onsite systems he encounters have

1,500-gallon tanks, so only one tank can be pumped instead of two of the older 1,000-gallon tanks common in the area.

"All new systems are engineered in Ingham County," Terry says. The benefit of that is that they have risers, which makes access easier. About 90 percent of the pumping is residential, and more than half are older systems without risers.

Online maps are available but not very user-friendly, so the customer is sometimes asked to be around when Jason arrives. "We have to know where it (septic line) leaves the house, and he probes," Nancy says. "About half need to be found. It's amazing the number of people that have put decks or put cement driveways over them."

We have to know where it (septic line) leaves the house, and he probes.

About half need to be found. It's amazing the number of people that have put decks or put cement driveways over them.

— Nancy Fiedler



The shovel is a well-used tool in the truck. If deeper digging is required, clients are referred to local excavators.

Jason and Terry also complete septic tank maintenance reports for the county, which are required for home sales. One form for each tank is required.

Above: Terry Fiedler scoops debris that doesn't make it through the screen into pails.

Right: Terry Fiedler has a marker in the lagoon to monitor the water level.

To help customers schedule pumping, Nancy provides a maintenance log. It reminds them that systems should be inspected and serviced every three to five years, things to avoid putting in the system and room to make notes such as tank location. Her hope is that it educates customers and makes finding tanks easier in the future.

CREDIT CARD EDGE

Another thing that makes it easier for customers is that the Fiedlers offer a credit card option, online and on the phone. "We started doing credit cards about four years ago. We had a lot of requests," Nancy says. "It's been

Managing a lagoon

Land application of septage saves on disposal fees and time waiting in line at a busy treatment plant. But it also takes planning, preparation and flexibility, says Terry Fiedler, owner of Shunk/Fielder and R & L Septic Service.

He uses two approved fields, 6 and 10 acres, alternating between them every other year. The land is in the middle of 110 acres he owns, which is important to meet regulations for setbacks for wells, property lines and wetlands. A farmer rents all the acres to plant crops for animal feed, except for the land Fiedler uses for applying septage that year. The soil is tested annually. Finding someone to rent his land is easier than finding land to rent, Fiedler says.

Just as in farming, he needs to prep the field. While he had a small tractor for his landscaping business, it was not large enough, and he purchased separate equipment for the pumping business — a John Deere 5000 Series 4WD tractor and a 9-foot disc. If there is time in the fall, he likes to work the field after his renter has harvested the soybean or corn crop. If not, Fiedler works the ground as early as he can in the spring, and he discs often throughout the season.

"I disc in between land applications to keep it in good condition all the time," Fiedler says. "I don't want any foliage in the field."

It's also important that the field is accessible for his two-wheel-drive truck.

"Pumper trucks aren't meant to go on a field, so I disc it to make everything nice and smooth," Fiedler says.

The tool that really makes land application work is a duckbill nozzle he purchased at a Michigan Septic Tank Association conference. It couples into the truck's 6-inch dump valve and does a good job of evenly dispersing the septage the width of the truck.

"It's the best \$150 I ever spent," Fiedler says. "It never plugs."

Still, the job can be wet and sloppy when he follows up with the tractor and disc to incorporate it into the soil.

During the summer and fall he is at the mercy of the weather. Heavy rain means the truck can't get in the field without leaving deep ruts, so he has to wait a few days until the soil dries. The 200,000-gallon lagoon provides plenty of storage, but Fiedler likes to land-apply between 20,000-30,000 gallons every week in order to keep up. Once the ground freezes, he continues to pump and stores the septage in his lagoon until it freezes.



a huge boon to us. It's made a tremendous difference in collections. We don't have to go back and bug them or track down insufficient checks."

It's well worth the \$100 per month for credit card services, she says. Jason uses a phone app when customers pay him on location.

The Fiedlers credit their technology-savvy son, Casey, 25, for setting them up with a website and using the right words to get a high number of views, a process called SEO or search engine optimization. He set up Nancy's computer when she moved her office from the shop to her home in 2008.

"I use Software Control, a basic accounting program for billing and payroll, and if you do inventory, you can take care of that. We started out with that for landscaping, then we took this (pumping) on and use it for that."

Because of their strong internet presence through Google (at a cost of \$300 to \$400 per month), the Fiedlers only take out small phone book ads.

LOOKING TO THE FUTURE

At 60, Terry realizes he needs to plan for retirement. The Fiedlers' children, son Casey and daughter Sam, put in their share of time with the businesses, but have gone on to other careers.

Though he has the most experience with landscaping, he says it's the business he will let go in a couple of years, because it is more physically demanding.

"We are going to keep the septic business because it pretty much runs itself," Terry says. One thing the economic downturn illustrated was that people can live without landscaping, Nancy says. Terry's three crews were reduced to two men, to mostly maintenance and mowing. But people have to have septic tanks pumped, especially when there are problems, she says.

Keeping the pumping business going ensures work for Jason. "Most of my guys have worked for me for 15 years," Terry says. "We try to treat them right with good compensation."

With good help and an efficient system in place, the Fiedlers plan to operate their pumping business as long as they can.

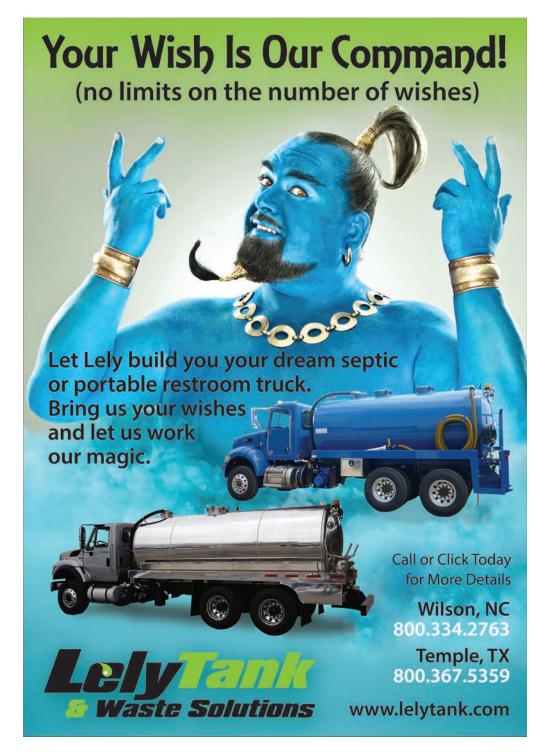
"We are seeing the light at the end of the tunnel and will keep doing this as long as it's a good retirement income," Terry says. "We don't need to grow. We are a small 'mom and pop' business, and Nancy and Jason have a good rapport with customers. With just one truck, it's easy to keep a handle on the business and maintain a good reputation."

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New Chemical Threats Found in Onsite Effluent

Micropollutants with unknown long-term impact on human health are being studied in New York, Massachusetts By David Steinkraus

esearch into groundwater contamination from onsite wastewater systems has primarily focused on the bacteria and viruses that make people sick. But there is another imminent problem wastewater professionals need to be aware of: micropollutants. These chemicals, present in very low concentrations, are an emerging issue for wastewater plants, and two recent studies suggest they may be the same for onsite systems.

In daily life, micropollutants are medicines, sunscreen, cleaning products and artificial sweeteners used in products such as toothpaste. Except

for a few cases, scientists generally do not know the effects when people and animals are exposed for a long time to very small amounts of these substances.

Two recent studies found micropollutants flowing from onsite wastewater systems and migrating to nearby private wells. These were not advanced treatment systems, but





Patrick Phillips

Laurel Schaider

densely clustered conventional onsite systems, and the study results hold lessons about how public health officials and onsite professionals should think about this newly discovered problem.

SANDY SOILS, OLD SYSTEMS

"Fire Island in many ways is a worst-case scenario," says Patrick Phillips, a scientist with the U.S. Geological Survey in Troy, New York. His study, published last year in *Science of the Total Environment*, looked at onsite systems on the island and at a health care facility for the elderly in New England.

Fire Island stretches along the southern shore of Long Island. Clustered along its narrow length are small communities of mostly seasonal homes. Treatment consists of cesspools, typically a hole lined with cement blocks, Phillips says. This was the system of choice when the island developed after World War II. "It's a barrier island so there's lots of sand. There is little organic matter in the soil so transit times are very quick. And there are about four dwellings per acre."

The 60-bed health care facility had a septic system more than 20 years old consisting of a settling tank, four septic tanks and two drainfields of about 5,400 square feet each and alternately dosed for two to three days at a time. The aquifer is sandy.

A study of Cape Cod well contamination was led by Laurel Schaider, a research scientist at the Silent Spring Institute in Newton, Massachusetts.

Cape Cod homes are typically served by standard septic tanks discharging to drainfields. The aquifer is sand and gravel.

Wells downstream of the treatment areas ranged from a depth of about 3 feet on Fire Island to about 130 feet on Cape Cod.

MEDICATIONS FOUND

At the elder care facility, tests of water wells detected several chemicals, among them a sedative, a muscle relaxant, the antibiotic sulfamethoxazole, the topical anesthetic lidocaine, an anti-seizure drug and an opioid pain reliever. On Fire Island, tests found traces of the insect repellent DEET, a fragrance called galaxolide and a food additive called triethyl citrate. Tests of Cape Cod water looked for 117 chemicals, and 85 percent of the tested wells contained detectable amounts of at least one. Among others found were sulfamethoxazole, another drug called carbamazepine used to treat

For a lot of these chemicals, we don't have a basis for evaluating the effects of chronic exposure: a long period of time at very low doses.

Laurel Schaider

seizures and nerve pain, several flame retardants, and a broad class of chemicals called polyfluoroalkyls that are used in cleaners and paints, and in nonstick, waterproof and stain-resistant coatings.

For most of the chemicals detected, there are no guidelines for what a safe dose is. For chemicals that do have maximum allowable doses, the tests found concentrations well below the threshold. But the absence of a safety guideline does not mean chemicals are risk-free. This is particularly true for chemicals

that can act like hormones.

"This is a new area," Phillips says. "There have been reports of subtle effects on fish. Fish aren't killed, but their mating behavior changes, and it's pretty well established that some chemicals will change the ratio of males to females and their sexual characteristics." These results have been found in fish exposed to discharge from wastewater treatment plants, he says. The effects of septic systems have not been studied, although Cape Cod ponds affected by septic systems show elevated levels of hormones.

"For a lot of these chemicals, we don't have a basis for evaluating the effects of chronic exposure: a long period of time at very low doses," Schaider says. The effect of exposure to combinations of the chemicals is also not known, she says. "We tend to study one chemical at a time, but a certain combination of chemicals may act to block the effects of one or enhance its effects."

How well chemicals are broken down depends on the chemical and



the wastewater treatment system. Some aren't degraded unless there is very advanced treatment or a blast of UV light, Phillips says. Some chemical compounds readily bind to soil particles and break down in the biologically active zone of soil. Some chemicals don't break down at all, such as acesulfame, an artificial sweetener widely used in everything from soft drinks to toothpaste.

WHAT CAN THE ONSITE INDUSTRY DO?

A key point from Schaider's study and others is that the minimum required distance from wells to drainfields may not be enough to allow treatment for chemicals. One idea for new developments is to have a single well serving all the homes and to locate that well upstream in the groundwater flow, she says.

A wastewater professional who wants to test well water for the presence of chemicals migrating from an onsite system faces a difficult task. Testing for the chemicals detected in the studies required specialized laboratory equipment. Schaider said her group spent \$1,800 per water sample to search for those 117 chemicals. An alternative is to use markers, easily found substances that tend to appear with the substances you're looking for. One is nitrate.

When contaminants turned up in wells, so did nitrate, she says. The same was true for boron, which is used in home cleaning products. The problem with nitrate is it can also come from fertilizer, which makes it a poor indicator in areas dominated by agriculture. Another option is to test for the artificial sweetener acesulfame, Schaider says. It doesn't break down in our bodies or in the soil, and because it is used in consumer products, its presence signals the presence of other chemicals.



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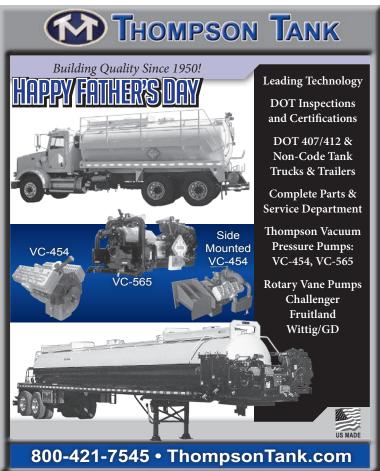
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where Brad Piesch started out his septic service business by rejuvenating a white 1993 Kenworth T800 with a 3,800-gallon steel tank and Masport pump built out by Engle Fabrication. The truck is powered by a Cummins engine tied to a 10-speed Eaton transmission. Piesch freshened the truck with new Alcoa aluminum wheels up front and powder-coat white drive wheels, had the tank repainted by LaRue Brothers and added graphics by Signs of Times. He added a drop axle and had FMI Truck Sales & Service add a new 3-inch valve on the rear for backflushing, in addition to another 3-inch inlet and a 5-inch dump valve. Also new are LED running lights, heated mirrors and chrome accents. Valves have heated collars. The truck also features two sight glasses, a stainless steel toolbox, top and rear manways, Garmin GPS, power windows and AC. Piesch drives the truck, used mainly for residential septic service.

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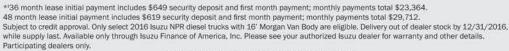
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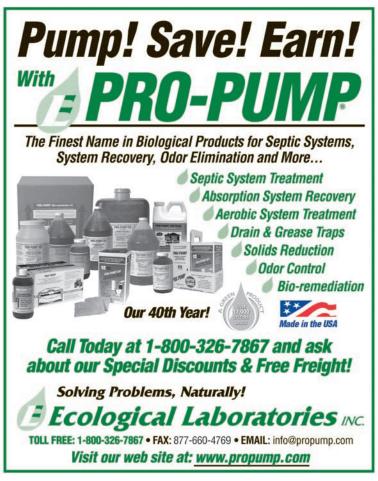


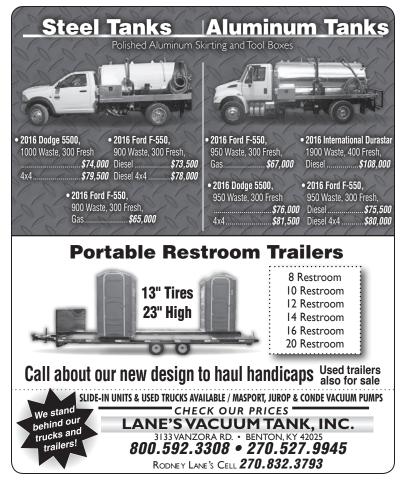












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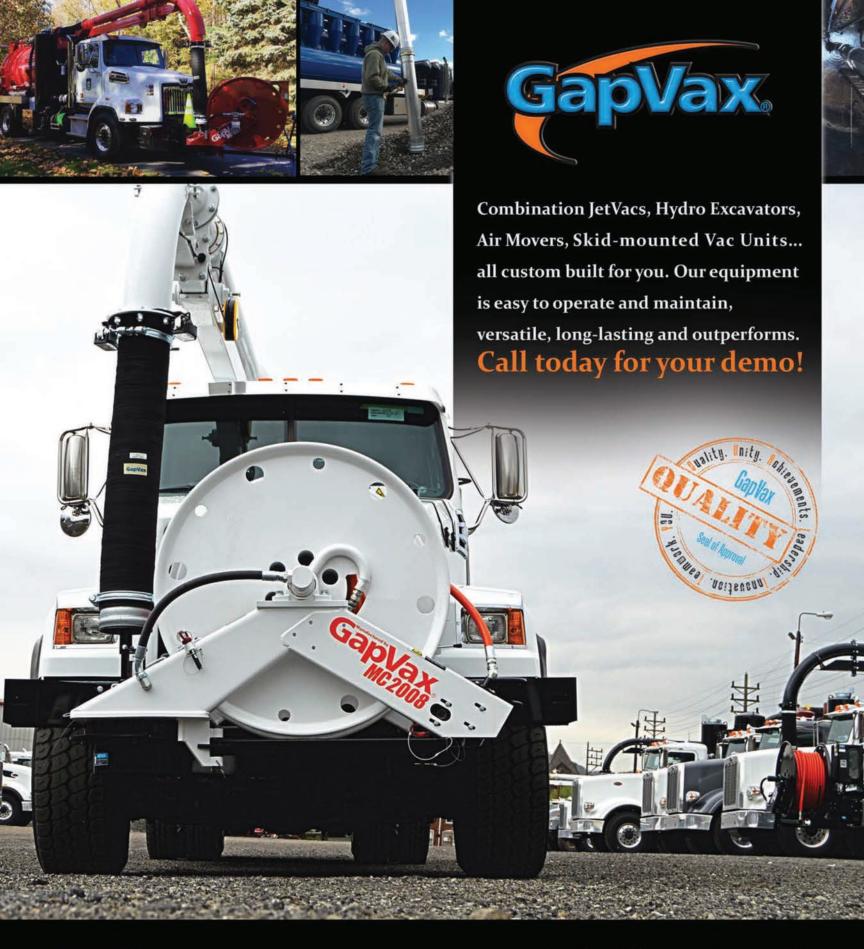
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His answer was a dewatering truck from ABCO Industries that separates septage into solids and liquids and puts clear water back into the tank. After a short time in the field, he says the mobile dewatering technology helps him save on operating expenses and promote an environmental solution to pumping that has become popular with customers.

FAMILY TIES

Officer grew up in the decentralized wastewater industry, often working weekends and summers for his father's company. "Any time school was out, I was not at the beach — I was working with my dad," he says. "I learned how to run equipment and about trucks and plumbing."

Septic Pumping was established by Officer and his wife, Kaisha, in response to frequent requests from Septic Solutions customers. The company $\,$

had been referring customers to other local pumpers, so it made sense to stop turning away the extra revenue. In the end, it was decided that it made business sense to let Officer put his experience to use by running his own pumping company.

Officer credits his father and Wilder for his inclination toward embracing new technology. "They've always been local pioneers in the industry — always on the cutting edge of technology and staying ahead of the regulatory curve," Officer says. For example, the duo adapted quickly after California passed a law that required the use of an advanced

A regular truck can only manage about two jobs before we need to discharge, so I figured if we were going to do it, we were going to do it right — find a more profitable way than the traditional way of disposing waste.

- Nathan Officer

treatment septic unit if a property has less than 5 feet of separation between the ground level and the water table.

LIGHTEN THE LOAD

The San Diego area presents challenges for pumping professionals, not the least of which is a scarcity of disposal sites that drives up operating costs — and customer invoices. That's where the ABCO Industries rig came in. The

The combined teams of Septic Pumping Service and Septic Solutions include, from left, Jon Wilder, Tony Wiebe, Sandie Officer, Michael Wilder, Keith Condon, Wayne Officer, Amanda Auge, Nathan Officer and Kaisha Officer (holding Landon Officer). In the background is the ABCO Industries dewatering truck used by the pumping company.

truck essentially vacuums septage from a septic tank, then uses a polymer and filters to separate the water from the solids. After completing that process, the truck dumps the water back into the tank, thereby reducing disposable waste volume by up to 90 percent.

The significant reduction in disposable waste is critical because the nearest treatment facility is 50 miles away, says Officer. The substantial decrease in disposal trips — from one or two per day down to once or twice a week — coupled with a huge decrease in waste volume (the company pays 9 cents per gallon) helped Officer justify the cost of the truck, which costs more than a conventional septic service truck. Moreover, fewer disposal trips allows time to pump out more tanks per week, which boosts profitability, he notes.

"I had buying this truck in mind from the day we started the business," he says. "A regular truck can only manage about two jobs before we need to discharge, so I figured if we were going to do it, we

(continued)







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It's unlikely that Septic Pumping Service in Fallbrook, California, will buy any filing cabinets in the years ahead. Why not? The company operates almost completely paperless, a move that increases efficiency and profit margins and enhances customer service and satisfaction, says Nathan Officer, who co-owns the company with his wife, Kaisha.

"We do everything paperless, from septic system inspection certifications to billing to truck inspections," he explains. "It's much faster and so much easier to keep track of records. And with unlimited storage capacity, we can keep records on hand longer."

Officer's brother, Kyle, who works in information technology, helped set up the paperless system. "To find out what systems work best, we also called a lot of other pumping companies in Orange County and Los Angeles," he says. "Some people would give me good information."

Going paperless saves substantial amounts of time and money, Officer says, eliminating hand-written invoices and receipts — a practice that could easily consume untold numbers of hours over the course of a year. "We did a cost-benefit analysis and found we're easily saving about \$10,000 a year in administrative costs by doing things paperlessly," he says. "When we need to refer back to something, bam! It's right there." (Information is stored wirelessly onto an external hard drive.)

Going paperless also enables Officer to spend more time on customer service — explaining things to customers on job sites, for example — and reducing expenses leaves more money available for other things, such as more advertising.

The company relies on smartphones to handle almost all administrative tasks, although Officer still carries a printer and a laptop in the truck for old-school customers who prefer paper documents, or for situations where failed wireless connections render smartphones unusable for transactions. "We also have a card reader that allows customers to pay their bill by credit card via a smartphone," he adds. "It's an added-value convenience. People expect to be able to pay for things with a credit card."

The company uses credit card software made by PayPal and Square and a wireless "hotspot" device from Verizon. The company pays a per-swipe fee of 2.5 percent of the total transaction. "It adds up," he notes, "but the convenience outweighs the cost. Plus, I think we'd lose some customers if we didn't have it." PayPal and Square integrate seamlessly with the company's Quick-Books accounting software, which reduces by about one-third the time spent on bookkeeping because there's little need for hand-keying financial data. "For example, the per-swipe credit card fees get automatically deducted from our bank account," he says. "We don't do anything manually — it's all automatic, except when people pay by cash or check."

were going to do it right — find a more profitable way than the traditional way of disposing waste.

"I'm still a bit daunted by the cost," adds Officer. "But our increase in profitability and the capability to do more jobs in the same period of

residential pumpout.

a truck payment and even-

A swing-out hose reel

Nathan Officer during a

on the dewatering

rig is operated by

time outweighs my concerns. In the long run, it's a truck payment and eventually it will go away."

ADVANCED TECHNOLOGY

Using the dewatering truck requires a little more time at each job site because the water/solids separation process takes about 15 minutes, depending on the thickness of the sludge. Then it takes an additional 15 to 25 minutes to filter the water and pump it back in the tank. "The truck filters and discharges the cleaned water back into the tank simultaneously," he says. "The filtered water contains solids of only .02 parts per million. And it's good for the tank because it restarts the bacteria."

The sludge that Officer takes to a treatment center is typically about 85 percent solids. He says his company pays a few cents more per gallon for disposal because the sludge is thicker than typical septage; that higher rate applies even when he takes in septage that hasn't been dewatered.

Built on a 2013 International 7500 WorkStar chassis, the truck features an 1,800-gallon waste tank made of polyvinyl-coated steel; a 600-gallon water tank; dewatering capability of 200 gpm; an 850 cfm Wallenstein pump; 240 feet of hose; and an articulating hose reel that mechanically retracts the hose.

If conditions warrant it — such as tanks that haven't been cleaned for so long that it's almost impossible to separate the solids from water — the truck can also be used like a traditional vacuum truck. In fact, Officer gives each customer the option of cleaning a tank either in traditional fashion or by using the dewatering technology.

CUSTOMER EDUCATION

"We explain the technology after we get on a job site, not over the phone, because it can be confusing," he says. "Most of our customers love it because it's saving a precious resource, plus it allows us to charge less than competitors. But we want to be up-front about the technology we're using. ... The last thing we need is a customer coming out to ask us what we're doing,

then having them say, 'No, I don't want it done that way — put the water back in the truck.' It's much better to let them know from the get-go."

The ABCO truck requires approximately 30 minutes of maintenance for every 10 hours of operating time. So running six days a week, eight to

Septic Pumping Service can encounter some tight spots during residential calls. Nathan Officer walks alongside his truck during one stop.







12 hours a day, it requires at least two hours of maintenance weekly, including cleaning sensors, filters and the drain vent. In addition, the truck is larger than a conventional septic service truck, so sometimes it's too big for the job Nathan Officer monitors the dewatering process through a viewing window on the ABCO Industries truck.

site; in those instances, the company refers the customer to another pumper. "We try to overcome that issue by carrying more hose than a typical truck," Officer explains. "We've found we have to ask customers a lot of questions up-front. We also have to explain the technology, so we need someone in the truck that can articulate it in a way that customers can understand. But I'd say nine times out of 10, customers say, 'That's great, I definitely want to do it that way."

We do everything paperless, from septic system inspection certifications to billing to truck inspections. It's much faster and so much easier to keep track of records. And with unlimited storage capacity, we can keep records on hand longer.

- Nathan Officer

ALL-IN ON PUMPING

The transition from installing to pumping was relatively easy, Officer says, and he notes that he works closely with his father's company, sharing equipment and services as necessary. "It made sense financially for our businesses," he explains. "We became more of a one-stop shop, which in turn makes us more attractive to customers. And before, we were taking money out of our own wallets. Revenue increased substantially since we started pumping."

In a few years, Septic Pumping has grown from about 30 pumping jobs per month during the first six months to about 45 jobs per month. "We're on a steady and consistent rate of growth," Officer notes.

Looking ahead, Officer envisions more slow but steady growth that

enables the company to keep providing superior customer service. He also plans to buy another vacuum truck, though he's not sure when that will happen. One thing is for certain, though: It will not be a conventional vacuum truck. "We're already established in the dewatering market and it provides us with a lot of advantages," he says. "There's no turning back now — we're in it for the long haul."

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MyTana Midsize Camera a Solution for Septic Line **Inspections**

By Craig Mandli

ften, the business that succeeds is the one that can offer the most to its customers. That means not only streamlining operations, but also diversifying service offerings — in essence, offering more with less. That idea was on full display in the MyTana Mfg. Company booth, as the company highlighted its MS11-NG midsize video inspection camera at the 2016 Water & Wastewater Equipment, Treatment & Transport (WWETT) Show.

The MS11-NG system can be used to inspect 3- to 4-inch lines with up to 150 feet of range. According to MyTana President Jock Donaldson, the camera is not only a fit for sewer and drain cleaners, but its lightweight portability also gives plumbers and septic pumpers a viable option for inspecting septic drainlines.

"That's why I feel that this camera is such a great fit for this crowd," he says. "It's a product that fits both a private contractor or municipality equally well, or allows a contractor to diversify services. It has the capability of allowing a drain cleaner to perform municipal sewer inspections, or a septic pumper to also do plumbing jobs. It's one of our most versatile products."

The camera allows the user to record or upload an inspection using the MyTana viewer app, available for iPhone, iPad and Android. Built-in Wi-Fi allows multiple viewers, as inspection video can be viewed wirelessly at up to 100 feet away. Otherwise the user can save the job video, upload it to You-Tube and email either the video link or still photos to the customer for viewing within minutes.

"Almost everyone has a phone or some other portable device that can receive files," says Donaldson. "With this system, the customer can review the video or photos in the comfort of their own living room nearly as the inspection is happening. There's very little delay."

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SELF-LEVELING FEATURE

It has a 1 1/2-inch color self-leveling camera head, with an "Ice Ball" protective covering that is a field-replaceable, and a translucent polycarbonate light ring cover built into the camera head. A built-in 512 Hz transmitter allows the technician to locate during the inspection, and its daylight-readable 6.4-inch monitor includes an on-screen footage counter. The unit can be powered with eiBoone Greenly, right, a product manager with MyTana, explains the features of the MS11-NG midsize video inspection system to a 2016 WWETT Show attendee. The camera allows the user to record or upload an inspection to a personal device, while built-in Wi-Fi allows multiple viewers wireless access to video up to 100 feet away. (Photo by Craig Mandli)

ther household electric current or an onboard battery with a two-hour life. Media connects through RCA jacks on the front of the unit.

"The self-leveling feature is very popular, especially for customers watching the video, as it keeps the image consistently upright," says Donaldson.

MyTana is a longtime WWETT Show exhibitor, as Donaldson considers it a "must-attend" for companies looking to get their products in front of the wastewater industry. The company launched the MS11-NG four years ago, but just recently added the Wi-Fi capability — a feature that he says is already proving popular.

"Certainly having the ability to wirelessly send the video to an unconnected device is a huge benefit," he says. "We believe that we've taken a product that was already very strong and desirable, and made it even better. The feedback we've received has been overwhelmingly positive."

Donaldson says his company is at work on several innovations to present at the 2017 WWETT Show. As portable devices continue to offer more functionality, he says his company needs to work hard to keep up.

"The technology is changing so fast every day," Donaldson says. "You really have to keep on top of it or you'll miss something. We intend on staying on the cutting edge." 800/328-8170; www.mytana.com. ■





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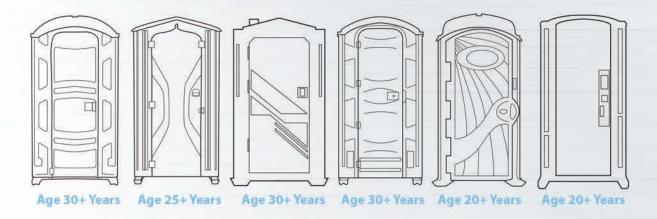
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EPA Targets Nitrogen Reduction in Five Eastern States

By Doug Day

he U.S. Environmental Protection Agency has warned five states that they aren't doing enough to reduce nitrogen in Long Island Sound. EPA proposed new strategies to reduce nitrogen in a letter to officials in New York, Connecticut, Massachusetts, Vermont and New Hampshire. Besides continuing to upgrade wastewater treatment plants, EPA said nitrogen targets for each state would help reduce the amount of nitrogen reaching the Sound from other sources such as storm drains, septic systems and lawn fertilizers.

Colorado

Illegal dwellings are popping up all over Colorado as people look to cash in on the state's new legal marijuana industry. It's not known how many people are living off the grid with no running water, sanitation or proper heating systems. One fire chief in Park County said he counted 287 illegal

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homes in a single 50-mile drive, including RVs, campers, tents and makeshift structures. The county has hired two additional code enforcement officers and are updating zoning codes to make sure local ordinances properly regulate the dwellings.

Hawaii

With a new tax incentive program to encourage people to replace cesspools with modern septic systems, several legislators have asked Gov. David Ige not to approve strict rule changes to ban all new cesspools. Hawaii is the only state that still allows new cesspools, with about 3,000 approved every year. In a letter to Ige, lawmakers say a proposed rule that would require all cesspools to be replaced would cost \$1.5 billion on the Big Island (Hawaii) alone, which has more than 50,000 cesspools. They say a new septic system runs from \$20,000 to \$30,000 in Hawaii, while a cesspool costs \$2,000 to \$3,000.

The tax credit has been available since January, offering up to \$10,000 to replace cesspools located within 200 feet of a shoreline, perennial stream, wetland, or within a source water assessment program area over the next five years, with an annual cap of \$5 million in credits.

New York

The Chautauqua County Board of Health began inspecting all private onsite wastewater systems within 250 feet of its five lakes in May. The inspections will focus on two lakes in 2016, with the project expected to take a few years to complete as the county reduces phosphorus reaching into the lakes and contributing to algae blooms. The county will be looking at systems more than 30 years old and those installed before permits were required.

Property owners will not be charged for the inspections but will have to pay the cost of uncovering the system and the cost to have it pumped for inspection. Local health officials will conduct a visual inspection and dye testing to determine the capacity and structural integrity of systems. The Environmental Health Department will work with owners of failed systems to determine actions needed to repair or replace them in order to meet sanitary codes.

Officials in Astoria, New York, say it will be 2019 before a popular park's bathrooms can be reopened. Last spring, it was discovered that the bathrooms for Astoria Park pool and playground were draining directly into the East River for decades because of an outdated septic system installed in the 1930s. Portable restrooms are being used in the interim as repairs go through the community's design and procurement process.

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Richard J. Bryan is a speaker, executive coach and author of Being Frank: Real Life Lessons to Grow Your Business and Yourself. For more information, visit www.richardjbryan.com.

4 Steps to Building an Abundance Mentality

Promoting teamwork and recognizing a job well done will not only motivate employees but will help grow your business as well By Richard J. Bryan

ave you ever worked with people who had a scarcity mentality? In other words, they believed that if someone else was successful, there was less opportunity for them. Their whole belief system was one of winning at all costs, at the expense of friends, colleagues, customers and even family members. They had a win/lose outlook on business and life in general.

Typically, this sort of approach is less successful in the long run because it is not conducive to building long-term relationships. Other people are turned off by this compulsive will to win, regardless of who loses in the process.

It is far more productive if, as a manager or small-business owner, you can promote an abundance mentality in the workplace. This helps you and others find creative solutions in problem-solving, and it is far more motivational for employees, ultimately leading to business growth. How do you do this? Try adopting these four simple steps in your business:

Become a coach and mentor

Don't be so quick to criticize members of your staff if they get something wrong or fail at a particular task; instead view it as a coaching opportunity. If you can become more of a coach and mentor rather than a task-oriented leader, you create an opportunity to grow your people and let them learn from their mistakes. This also makes the team of people working for you more self-sufficient and stronger, enabling you to focus on other strategic priorities.

Seek creative solutions

Encourage your employees to come up with creative solutions to issues. This will empower them to discover new and better ways of doing things that can directly impact the bottom line.

For example, Peter, a longtime owner of a car dealership, was amazed at how much money he saved when his employees offered to paint the white lines that marked out the 500 car spaces on the site. Normally this simple task would have cost thousands of dollars each year by employing outside contractors to paint the lines every six months. However, with his own staff doing the job, not only was it completed at half the cost, but they also did a far better job because they took more pride in the task at hand.

Encourage risk-taking

Persuade your team to take calculated risks and learn from their mistakes. By doing this you send a signal that you want them to think bigger and help to grow the business rather than just sticking with the status quo. This

If you can lead in a way that encourages collaboration, you will build an abundance mentality that promotes teamwork and what is best for your company and its customers.

can deliver results and create a culture in which looking for new and better ways of doing things is not only encouraged but also rewarded.

Remember that the first attempt at doing this may not result in the best solution, but this approach does encourage outside-the-box thinking rather than worrying about being "right" and playing it safe. Allow time for both you and the team to get accustomed to this approach.

Give praise and recognition

It is amazing how something as simple as giving regular, positive feed-back can be so effective as a strategy for growing your business. What is even more amazing is how few organizations do this well.

Bob, the general manager for a successful retail store, had more than 50 salespeople working for him. He maintained that his team was motivated by winning the "Salesperson of the Month" award, not because of the financial bonus they received but because of the peer recognition and praise from their manager and colleagues. "It is a huge motivator for our team," he said. So ask yourself: What ways can you find to give genuine praise and recognition to your employees?

THE BOTTOM LINE

A CEO of a multibillion-dollar software company put it best when asked about the many things his organization had achieved during the past 10 years. He was quick to praise his management team and said, "We take it as a given that you need to have the skills and the experience to come and work as part of our team. Then we look to hire those who have a positive outlook and an attitude of abundance. This is what helped us to grow revenues and profits even during tough times."

If you can lead in a way that encourages collaboration, you will build an abundance mentality that promotes teamwork and what is best for your company and its customers. More creative ways of doing things are discovered and a win/win philosophy becomes the norm.

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Erik Gunn is a business writer in Racine, Wisconsin.

Poor Financial Planning Can Tarnish Your Golden Years

Small-business owners and their employees can utilize easy online retirement calculators and Social Security to prepare for life after work By Erik Gunn

ometime in the future, you're thinking, you'll pass the business along to the next generation and go fishing. Sounds wonderful! How will you get there?

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Start with information gathering. Pull all your ("your" means belonging to you and your spouse) financial information together: life insurance policies, bank accounts, retirement savings plans, your most recent Social Security income statement, mortgage information, pensions, and the last couple of years of tax returns — personal and business.

Include any divorce decrees, marital settlement agreements or child support agreements you or your spouse are a party to, as well as basic information about your children (dates of birth, college plans, any insurance policies or savings accounts you have for them) and a short comment about circumstances particular to your spouse or children (special needs children, a spouse who is much older or younger than you are, children with a broad age span from oldest to youngest).

Last but not least, you need a copy of your will and power of attorney, the articles of incorporation or partnership agreement for your business, and your financial statements for the last couple of years.

CONTEMPLATE YOUR FUTURE

Next, talk to your spouse about your mutual expectations. Buy an RV and see the United States, or move next door to the grandkids? Work at something different? Volunteer?

Don't take the answers for granted. Better to find out now that you have different ideas about retirement than after you've sold the business to your foreman and applied for Social Security benefits.

Other questions: How much longer do you want to work? Do you have significant personal debt? Are you expecting to pay for your children's college education? How healthy are you?

Of course these answers can change over time, but thinking about them as early as possible will help you keep track of where you want to be, where you are and how to adjust as your vision for the future changes.

MAKE SOME PROJECTIONS

Then look at projecting possible outcomes. Here's where the web can

Talk to your spouse about your mutual expectations. ... Don't take the answers for granted. Better to find out now that you have different ideas about retirement than after you've sold the business to your foreman and applied for Social Security benefits.

help. Choose a calculator, enter your specific financial information and some personal data, and you'll get a report.

As with any calculator, the old adage "garbage in, garbage out" applies. If the calculator only asks a few questions, you get basic information with limited applicability. Try several calculators and think carefully about the information provided.

The Social Security Administration's website (www.ssa.gov) gives the complete picture of the government retirement benefit, including helping figure out how much you're projected to receive at full retirement age. (If you were born between 1943 and 1954 it's age 66; for those born between 1955 and 1960, the age rises by a few months each year until it's 67 for those born in 1960 and after.)

Create an account and you can get a personalized statement based on your record of Social Security earnings that will tell you exactly what you're projected to receive, or just take a quick look for a rough projection based on your last couple of years of earnings.

Social Security sends you a paper statement every five years, but you'll get current data if you create an account, and you can check it any time.

HELP IS ON THE WAY

You can find lots of information to help as you sort out your plans for retirement. Some are fairly simple, others more sophisticated. Each has advantages and drawbacks.

For basic projections:

No-load mutual fund company Vanguard, (www.vanguard.com) on its personal investors page, offers a variety of planning calculators, including a basic "When can I retire?" simulator and worksheets for retirement income and expenses. Discount broker Schwab (www.schwab.com) offers a simple calculator. AARP's (www.aarp.org) calculator winds up with a handy graph



with green for your money and red for any expected shortfall. It also allows for changes in expected savings withdrawals and amounts of preretirement savings.

More details, but still free:

Discount broker Fidelity (www.fidelity.com) allows for detailed expenses, various scenarios including retirement work, Social Security estimates/override, tax calculations, and you can also save your data. Analyze Now (www.analyzenow.com) offers a pre- and post-retirement planner, which has good explanations, lets you save data and allows you to consider real estate purchases and various financial events.

A deeper dive at a cost:

J & L Financial Planner (www.jlplanner.com) is Windows-based and offers a 21-day free trial; cost ranges from \$109 to \$169 with more interesting and complicated features in the more expensive versions. Flexible Retirement Planner (www.flexibleretirementplanner.com) works on Java, the web, Windows, Mac and Linux. A personal edition is available for as small a donation as \$20.

OnTrajectory (www.ontrajectory.com) is web-based and allows you to track progress and view your history; pay \$3 per month or \$30 per year.

OTHER HELPFUL RESOURCES

Laurence Kotlikoff's book *Get What's Yours* is a guide to maximizing your Social Security benefits — especially useful if you have complicated personal circumstances such as a disabled family member.

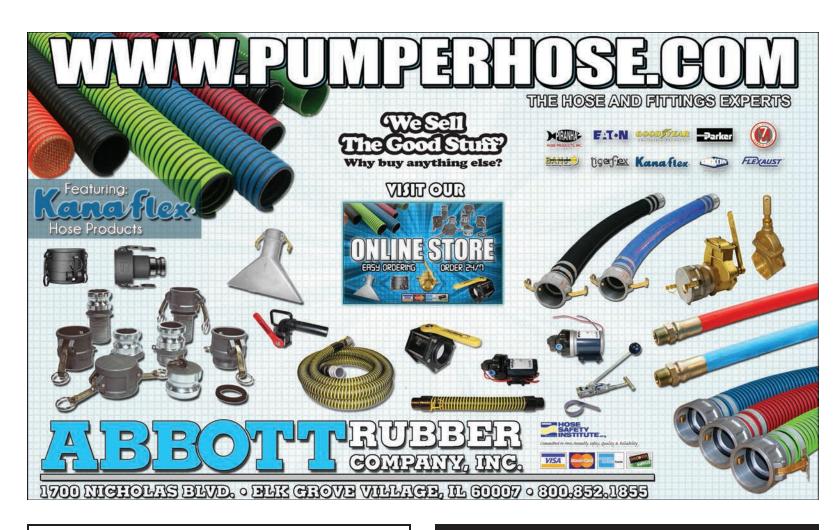
Jane Bryant Quinn's recent book, *How to Make Your Money Last*, is full of practical, straightforward explanations of the financial world, both preand post-retirement, and of financial products from the basic to the arcane. She also includes extensive information about Social Security — claiming it and maximizing it.

Also consider booking a session with a fee-only financial planner. These are people who do not sell financial products of any kind and thus have no built-in bias for a specific company's products.

Expect to pay around \$350 an hour for their time, which might sound steep, but consider: They have no hidden agenda. You give them information regarding your resources and objectives, they give you recommendations.

The National Association of Personal Financial Advisors (www.napfa. org) has an advisor search function and explains the qualifications necessary for a planner to make that list. ■





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A New Focus on Septic System Inspection in Mississippi

The state will have fewer inspectors, but they will be well-versed in onsite issues and technology, says a Department of Health official By Doug Day

t's a time of transition for the Mississippi onsite wastewater industry. While the number of state health department inspectors is being reduced greatly, their duties are now specific to wastewater services and they are expected to benefit from better supervision and access to more training and resources.

Jim Weston, the director of onsite wastewater for the Mississippi State Department of Health, says budget cuts led to several recent changes, but he is expecting an improvement that will help the onsite

installing and septic service industry.

What is the major change in the inspection program?

Weston: We used to have 103 environmentalists statewide who did all kinds of things: food programs, wastewater, rabies inspections, all kinds of stuff. As of March 1, we've gone to 33 locally based inspectors spread around the state with three supervisors in each office. They will focus exclusively on onsite wastewater and hopefully become subject matter experts over time by being able to concentrate on training on a single program. We're going to assign duties based on where they are located and reduce the amount of travel. We're also going to leverage



technology using iPads to generate recommendations, issue violations and provide services.

I think the most positive of this is that before, we had a supervisor in each of the nine districts. But we didn't have anyone above that person who had knowledge of the wastewater program. Now, the local environmentalists will be in a chain of command that goes all the way up to the Division of Onsite Wastewater and they'll have more support because the supervisors will be more technically savvy.

We did 7,100 site evaluations last year in which we made recommendations. But we did only about 1,600 final approvals, which are required by law. That's one of the problems we had with the old system. That doesn't mean people are just doing whatever they want with those other systems or don't take action on our recommendations.

Being such a rural state, oftentimes there are not mechanisms to ensure final inspections take place. Of 83 counties, 27 have their own code that requires a final approval, so that's a separate mechanism from us that ensures people in those counties get final approval. Fortunately, most of those are the counties with larger populations. We hope to bring up those numbers.

So I think it's going to be a positive change. Onsite wastewater is a very technical field and having them specialize and having the opportunity to train them and spend time making them the best inspectors they can be will make a huge difference.

How many onsite professionals do you deal with across the state?

Weston: There are about 490 installers, 170 pumpers and 80 certified manufacturers. We have a Wastewater Advisory Council with 21 members including certified installers, business people, real estate agents, the chair of Mississippi State University Engineering, and others. They give us advice on regulatory changes and provide feedback from the industry. When we change regulations, they generally set up a subcommittee and we meet with

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- Jim Weston

them. We try to make adjustments as we can to meet the needs of the onsite and public health communities and the clients we serve.

My office is responsible for training and certification programs for installers and pumpers. We offer continuing education classes every year where we go over regulation changes for the 13 CEUs required of certified installers and pumpers. They often help our four program specialists in training our own people annually; we have courses in systems and soils for the staff, and we spend time

with them in the field to make sure everyone's on the same page.

With our new system, we're looking at ways to reduce the number of hours but increase the opportunities for installers and pumpers to get their credits, and offering them online and having home-study courses. We're going to give them credit for taking community college courses, helping us with training and serving on the advisory committee. There are ways to learn other than sitting in a classroom so we're thinking about options for continuing education credits or professional development hours.

We hope we can encourage onsite professionals to help each other. One of the things we're thinking about is development of an apprenticeship program.

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What types of systems are common in Mississippi?

Weston: We use (conventional) septic systems with drainfields when we can. In the southern third of the state we have coastal plains soils that are very sandy and we run into water table problems as we get close to the ocean, of course. Across the state, we have a wide variety of soils ranging from sandy loam to clays. So we offer advanced treatment systems that rely on secondary disposal like overland or spray distribution, drip irrigation and elevated sand mounds.

We make good recommendations and do good final inspections when we're involved. I think the changes will definitely make it to where we're enforcing the laws and regulations as they're written. And we're going to start holding people more accountable for their actions when it comes to installing these systems to make sure installers are doing it correctly and that the property owners are doing what they have to do so their systems work properly.

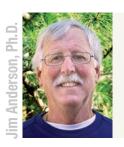












Jim Anderson, Ph.D., is an emeritus professor at the University of Minnesota Department of Soil, Water and Climate and recipient of the pumping industry's Ralph Macchio Lifetime Achievement Award. Email Jim questions about septic system maintenance and operation at editor@pumper.com.

Get Ready to Address the Scarcity of H2O

With population growth in desert regions and aquifers being depleted nationwide, will your future onsite systems incorporate a water reuse component? By Jim Anderson, Ph.D.

s I've mentioned in past columns, I have spent a lot of time in the desert Southwest. Some say this is just to escape the snow and cold of Minnesota and Wisconsin, but I actually have family ties in Arizona and did graduate work at the University of Arizona in Tucson.

I have developed an appreciation for the unique environments found throughout the Southwest and the impact limited water resources has on its residents. The small community where my mother lives gets its water supply from a private well more than 600 feet deep within an aquifer where the water level continues to drop despite conservation efforts.

So what does that have to do with our industry?

This type of situation is not confined to the Southwest; water scarcity receives a lot of attention because of the extended drought period currently being experienced. Even Minnesota — a water-rich state at the headwaters of three major river systems — has areas where aquifers are being depleted. The growing concern over water means we are going to be challenged as an industry about how we plan to incorporate reuse and aquifer recharge into decentralized wastewater treatment systems.

REUSE IS GROWING

The concept of using treated wastewater for irrigation and aquifer recharge is not a new idea. In California, treated water has been used to irrigate open park areas since the early 1900s and used to irrigate golf courses since the mid-1900s.

We also see reuse in terms of recycling water within buildings for use in flushing toilets combined with waste separation to conserve water. As the need for water conservation increases, you will see this in your communities if it is not already happening. Even in Minnesota, municipal buildings around the Twin Cities have these features built into them.

To this point, most examples of reuse have involved municipal treatment plants or collections systems involving millions of gallons. This involves large expenditures of energy and the need for significant infrastructure (pipes, pumps, etc.), which makes it somewhat inefficient and does nothing to provide advantages for the more than 60 million Americans served by decentralized systems. These systems do not move large quantities of water and reuse systems could operate at a much lower cost.

There are many ways decentralized systems could realistically present water reuse opportunities. Serving single residences, clusters or small communities, they are smaller in size, scope and operation costs. The collection, treatment and reuse occurs near the point of generation. Treated water could be used to generate energy locally or for horticultural or agricultural purposes as well as contributing water for aquifer recharge.

Water scarcity receives a lot of attention because of the extended drought period currently being experienced. ... The growing concern over water means we are going to be challenged as an industry about how we plan to incorporate reuse and aquifer recharge into decentralized wastewater treatment systems.

CAN WE CHANGE?

So back to my mom's community. It was designed in the early 1960s by renowned architect Bennie Gonzales, a disciple of Frank Lloyd Wright. The landscaping and housing units were to emulate a Mediterranean village with a Southwest flair. It involved open turf grass spaces and a large variety of plantings from both Arizona as well as non-native species. To lose the turf grass and plantings would destroy the appearance and appeal of the community. Of course, there is resistance to move to desert landscaping to conserve water.

This is where our industry and reuse comes into the picture. Ongoing research is looking at subsurface drip irrigation using treated effluent for turf grass areas. In the grand scheme of things it does a couple of things. It reuses the water on site, can be managed locally, uses the nutrients in the wastewater to benefit the plants, and since it is applied, becomes part of the treatment process to make sure water that moves downward to replenish the aquifer does not carry unwanted contaminants.

What does this type of system look like and what is involved? Researchers at the University of New Mexico are evaluating a system that uses a membrane bioreactor (MBR), a relatively new technology for our industry, in combination with a sequencing batch reactor aerobic treatment system. Some of the problems with simply using aerobic treatment units to provide the additional treatment common for drip applications are the variable flow quantities and quality encountered day to day in onsite systems.

CONSERVATION FOCUS

This type of system uses a combination of nitrification and denitrification processes so specific qualities of effluent can be produced over a few days. This can occur under rapidly changing conditions due to different household use patterns that create problems for some technologies. This also means different water qualities can be obtained through management

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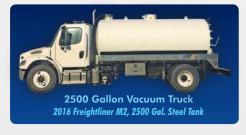
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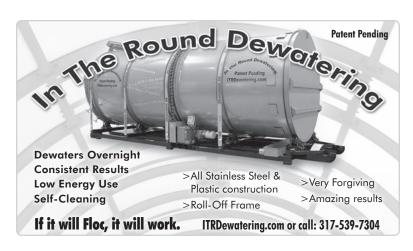




that fits particular plant needs — whether turf grass, trees or shrubs — based on the soil types at the site.

The final treatment and dispersal area is then a subsurface drip irrigation system like those we currently employ. Putting in a subsurface system helps allay public concerns about wastewater at the surface, reduces losses of water through evaporation and promotes movement of water through the soil for aquifer recharge.

Whether this is a long-term solution or not for my example remains to be seen. Perhaps additional conservation will be required, but the system takes advantage of the decentralized wastewater treatment approach. A question for our industry going forward: Are we prepared and knowledgeable enough about the installation, operation, maintenance and management of systems like this so we can be involved in the future? If not, now is the time to obtain the education and the skills necessary to play a part in innovative solutions to our wastewater and water use problems.









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By Dhru Bhatt

he Vacuum Truck Technician training course is targeted at those who own or operate a vacuum truck used to clean septic tanks, aerobic treatment units, holding tanks or grease traps. The National Association of Wastewater Technicians course is directed at owners and employees who may be starting in business and need a good base of information to perform daily tasks. The one-day training also provides a good refresher and overview for experienced operators.

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State associations

NAWT is developing a pathway for state associations to build educational programming. Using models developed and successfully utilized in state associations, NAWT is creating programs to help other state associations or interested parties bring training and educational programming to their states.

Training programs

NAWT is working to refresh its training programs. Jim Anderson is currently reviewing existing association programs to update and include newer technologies and trends developed within the onsite industry.

SepticSmart Week

Each year, the U.S. Environmental Protection Agency holds SepticSmart Week with outreach activities to encourage homeowners and communities to care for and maintain their septic systems.

The fourth SepticSmart Week is Sept. 26-30. NAWT requests you join in during SepticSmart Week to encourage and inform homeowners and communities on proper septic system care and maintenance, assist local agencies in promoting homeowner education and awareness, and educate local decision-makers about the infrastructure options available to improve and maintain septic systems.

Across the country, local environmental groups, health departments and governments face the challenges posed by improperly maintained and failing septic systems. The EPA and NAWT, with your help, seek to assist these local agencies in promoting homeowner education and awareness.

Nearly one-quarter of all American households depend on septic systems to treat their wastewater. Failure to maintain a septic system can lead to backups and overflows. As we know, this can lead to costly repairs, well contamination, polluted local waterways and risks to public health and the environment.

The SepticSmart website (www.epa.gov/septicsmart) has a toolkit with materials that can assist us in providing this information to homeowners and communities. If you can't find what you are looking for on the EPA website, contact the SepticSmart staff at 208/378-5626 or email decentralized@epa.gov. ■











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Georgia Onsite Wastewater Association www.onsitewastewater.org; 678/646-0379

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

Idaho

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

Illinois

Onsite Wastewater Professionals of Illinois www.owpi.org

Indiana

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

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

Kansas

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

Kentucky

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

Maine

Maine Association Of Site Evaluators www.mainese.com.

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

Maryland

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

Massachusetts

Massachusetts Association of Onsite Wastewater Professionals www.maowp.org; 781/939-5710

Michigan

Michigan Onsite Wastewater Recycling Association www.mowra.org

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

Minnesota

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

Missouri

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

Nebraska

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

New Hampshire

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

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

New Mexico

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

New York

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

North Carolina

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

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

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

Ohio

Ohio Onsite Wastewater Association www.ohioonsite.org; 866/843-4429

Oregon

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

Pennsylvania

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Tennessee

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Texas On-Site Wastewater Association www.txowa.org; 888/398-7188

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

Wisconsin

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

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

NATIONAL

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

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

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

CANADA

Alberta

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

British Columbia

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

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

Manitoba

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

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

New Brunswick

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

Nova Scotia

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

Ontario

Ontario Onsite Wastewater Association www.oowa.org; 855/905-6692 Ontario Association of Sewage Industry Services www.oasisontario.on.ca; 877/202-0082

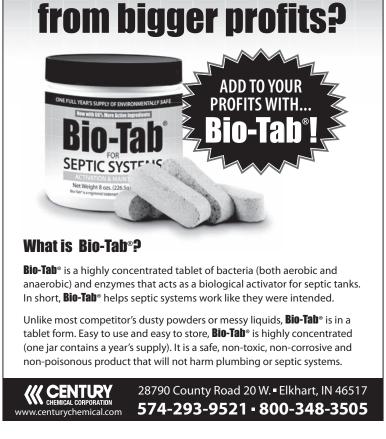
Saskatchewan

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

Canadian Regional

Western Canada Onsite Wastewater Management Association www.wcowma.com; 877/489-7471





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Containment Tray



Interior View of Deluxe TJ-III



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wner Jeff Boutell added this Sherwood green 2015 Kenworth T800 vacuum truck with a 4,200-gallon waste/200-gallon freshwater aluminum tank and Wittig RFL 100 pump built out by Imperial Industries. The truck is powered by a 450 hp Cummins engine and tied to a 13-speed Eaton transmission. The tank has top and rear-side manways, dual 3-inch inlets and a 6-inch dump valve, a Garnet SeeLevel gauge for the waste side and three front sight glasses for the freshwater tank. The frame carries toolboxes on both sides and a second driver-side box containing a garden hose and freshwater pump. It also carries a Crust Busters tank agitator and 250 feet of hose from Jack Doheny Companies. The truck also features Alcoa aluminum wheels, chrome accents including stack and horn, rear work lights and LED running lights, and air-ride suspension. Graphics were done by Tom Parshall. Mike Wimmer is the driver and the truck is used for residential and commercial pumping.

SHOW US YOURS!

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

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

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



Introducing the **All New** 4000PSI @ 18GPM

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- Automatic Tank Overflow Shutoff
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- 50' Wash-down Hose
- Wash-down Gun, Wand, & Tips
- For Cleaning up to 16" Sewer Lines

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- Low-Rise Rails for Equipment Protection

*NOTE: This model has 2 Engines and 2 Pumps. These units can be run in Economy Mode (4000PSI @ 9 GPM) with only one engine running or Max Mode (4000PSI @ 18 GPM) with both engines running.

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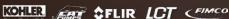














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Septage Disposal Management

By Craig Mandli

DEWATERING EQUIPMENT

ABCO INDUSTRIES LIMITED DEWATERING TRUCK

The Dewatering Truck from ABCO Industries Limited is a self-contained solution for the dewatering of private, municipal and industrial sludge. It conditions incoming



sludge with a polymer, and the onboard filter system separates the solids and liquids. The solids are stored in a holding chamber on the truck, while liquid filtrate and useful bacteria are returned for normal on-site treatment. Solids on the truck can be disposed of at an approved composting or landapplied area, eliminating the need for further processing at a lagoon. Operating costs are reduced due to minimal transport of water, meaning fewer trips to the off-load site, reducing fuel costs, mileage, truck wear and tear, and disposal fees. It can be outfitted with a high-pressure jetting system for clean-out applications, and can be used as a conventional vacuum truck if required. 902/634-8821; www.abco.ca.



BRIGHT TECHNOLOGIES BELT FILTER PRESS

The 1.7-meter, mounted belt filter press unit from Bright Technolo-

gies has an insulated control room with FRP walls, air conditioning, electric heat, a refrigerator, stainless steel desk, tool storage, locker, closed-circuit TV and remote operator controls. The modular design allows the room to be custom-manufactured to fit most single-drop trailers. Units are made for rapid setup, with folding conveyor and operator walkways. No special lifting equipment is required. 800/253-0532; www.brightbeltpress.com.

ELGIN SEPARATION SOLUTIONS CONTAINERIZED **DEWATERING UNIT**

Containerized Dewatering Units from Elgin Separation Solutions are designed to be mobile and compact. They incorporate so-



phisticated graphical user interfaces, chemical additive injection systems, an ESS-1450HD2 or ESS-1967HD2 decanter centrifuge and inline mixer systems. By using polymer hydration manifolds, the polymer-enhanced flocculation of colloidal and ultrafine drilled solids can be efficiently removed with a decanter centrifuge, maximizing fluid recovery, lowering overall mud costs as well as disposal and transportation expenses. With a zero-discharge or closed-loop system, rigs can operate without mud pits, reducing the location footprint and environmental impact. 281/261-5778; www.elginseparationsolutions.com.



IN THE ROUND DEWATERING HORIZONTAL **DEWATERING DRUM**

User-friendly horizontal dewatering drums from In The Round Dewatering are

mounted on a powder-coated roll-off frame. The drum is constructed of stainless steel and lined with PVC filter tiles. The unit can dewater 18,000 to 25,000 gallons per fill and works overnight to separate liquids from solids. The drum provides consistent results with any material that will flock, including grease. Filling can be done multiple times prior to rotation, then the unit rotates one turn every two hours. The unit is energy-efficient, as it only requires 1/4 hp to operate. 317/539-7304; www.itrdewatering.com.

PARK PROCESS GEOCAT

The GeoCat dewatering container from Park Process uses disposable filters to remove solids from wastewater. The disposable filter media is available in different weights and equivalent mesh sizes to match the requirement of the application. When the container is emptied, the filter is discarded, leaving the inside of the container clean and ready for a new filter to be installed. The support basket for



the inside of the unit. Drain ports for filtered water are located on the back bottom of the container. They are available as roll-off containers, dump hoppers or front loaders. 713/937-7602; www.parkprocess.com.

(continued)

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DEWATERING EQUIPMENT

SIMON MOOS MASKINFABRIK A/S KSA-UNIT

The **KSA-unit** from **Simon Moos Maskinfabrik A/S** combines a sludge tanker and on-site dewa-



tering unit. The sludge is taken up into the vacuum tank, and when the vacuum tank has been filled, the sludge is then pumped into the dewatering chamber via the machine room. During this process a polymer is added to cause flocculation. During and after the pumping process, dewatering takes place through the filter screens. The flocculated dry material is held back by filter screens. The dewatered sludge can be transported to a treatment plant, disposed of in land-fills, composted or used on farmland. The reject water is returned to the tank and only the dewatered sludge remains in the unit. www.simonmoos.com.



TRIDENT PROCESSES KDS SEPARATOR

The **KDS Separator** from **Trident Processes** dewaters wastewater and produces clarified effluent. The flatbed design has a small footprint, but is highly scalable. It can operate as a stand-alone unit or integrate into ex-

isting systems, with or without polymers. Rows of oval discs rotate between stationary plates during the dewatering process. Low speed minimizes power requirements. Precision machining ensures nonclogging. The system requires little maintenance. It is constructed from durable 304 stainless steel. 800/799-3740; www.tridentprocesses.com.

CASE STUDY

ROTARY PRESS EFFECTIVELY REPLACES DRAINAGE BAG SYSTEM

Problem: Organic Systems & Solutions of Milford, Indiana, processes septage and previously used drainage bags to dewater the material. In addition to the continual need to purchase the bags, each bag required one full week to properly dewater. Not only were

bags cumbersome to move and haul away, they let a significant amount of particulates through and were not a reliable technology.

Solution: The company installed a **Fournier Industries** rotary press in 2007, equipped with two dewatering channels to treat its current flows, and was built with the capability of adding an additional channel in the future. The press would allow the septage to be dewatered continuously with little operator attention, and



would free up space that was being taken up by multiple drainage bags.

Result: The system operates at a current level of 50,000 gpd, processing septage coming in on 12 trucks per day. The rotary press receives the sludge at 2 to 3 percent solids and discharges the material as dry cake that is typically 35 to 40 percent solids — a significant improvement over the old technology. The capture rate is consistently 96 percent or better, solving the particulate issue associated with the previous system. In addition to the clean filtrate leaving the system, the press only uses a small amount of wash water at the end of the shift. **418/423-6912; www.rotary-press.com.**

LAND APPLICATION

LINCO-PRECISION BIO-PLIER LAND APPLICATOR

The **Bio-Plier Land Applicator** from **Linco-Precision** is a custom-built truck with a 350 hp 4x4, 380 hp 4x2 or 475 hp 6x6 chassis. They are avail-



able with automatic or manual transmissions, and spec'd for number of axles, with recommended weights per build. Pressure or vacuum tanks are available in aluminum, stainless steel or steel, and available from 800 to 6,000 gallons with baffles, full-length catwalks and a side ladder to the top of tank from the catwalk. The sludge system is inclusive with 12-inch primary moisture traps with stainless steel ball, special cfm-rated secondary shut-offs, manual 4- or 6-inch fill ports, a 4- or 6-inch discharge, 20-inch load manway, 25-inch manual front hatch, and pressure only or vacuum pressure pumping system. Options include a choice of spray fan rear deflector or four-shank toolbar, and springreset injector toolbar with self-sealing 30-inch coulters with down pressure control with float. 309/527-6455; www.lincoprecision.com.



SCREENCO SYSTEMS PORTA SPREADER

The **Porta Spreader** screening system from **ScreenCo Systems** doubles as a mobile screening

device. Tow the unit behind a vacuum truck to screen out all inorganic debris while land-applying septic or grease trap waste. Its telescopic dump hose flexes up and down and moves in and out while traveling across the field. It has a telescoping and adjustable tongue height, and its 2-inch ball receiver makes it adaptable to virtually all vacuum trucks. It has hinged trash chutes, a powder-coated steel frame and aluminum hopper assembly construction with 2- to 12-inch fan spreaders on the bottom rear. Its 3.8-inch gapped steel screens meet ecology 503s. It has a complete trailer light package and comes with custom cleaning tools. It works with either 4- or 6-inch dump valves, with a capacity of up to 500 gpm. **208/790-8770; www.screencosystems.com.**

RECEIVING STATIONS

DRYCAKE DSS-R

The **DRYCAKE DSS-R** septage receiving system receives and pretreats effluent from septic haulers to prevent solids from overcharging or overloading the downstream plant. The installation can be as simple as the DSS-R 100 in-tank screw screen, rock trap and a scale, or complete as a



hauler access station with flowmeter and actuated plug valve. The hauler access station can be integrated with existing accounting and logging software. The database can be managed remotely either by DRYCAKE or by the end user. The logger has the capacity to accept additional input parameters, such as pH or total suspended solids or others, and as standard has the capacity to produce the drive signal (typically a form C contact output) to open and close the septage receiving system automated valve. The logger can trigger a sample of the hauler load as it is transferred to the plant. 877/379-2253; www.drycake.com.

(continued)

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RECEIVING STATIONS

HUBER TECHNOLOGY ROFAS SEPTAGE RECEIVING STATION

The RoFAS Septage Receiving Station from Huber Technology is designed to handle environments that would cause standard receiving sta-



tions to fail. It easily handles large rocks and debris, protecting headworks from unpredictable septage. Its large-capacity center-feed drum allows for rapid off-loading of tanker trucks. It offers the option for a fully automatic hauler station with card key access, quick connect and data logging features. 704/990-2053; www.huberforum.net.

ROLL-OFF CONTAINERS



AQUA-ZYME DISPOSAL SYSTEMS 30-YARD DEWATERING UNIT

The **30-Yard Dewatering Unit** from **AQUA-Zyme Disposal Systems** can be filled with 22,000 to 25,000 gallons of sludge at 1 to 2 percent

solids in about two hours. After draining 24 hours, the unit can be picked up using a standard capacity roll-off truck and transported for solids disposal. Sludge volume can be reduced by 80 percent, with reductions to 98 percent in BOD, COD, FOG and TSS. The effluent is clear. The unit has few moving parts, and the size of the filter media can be selected to match job requirements. Standard equipment includes a roll-over tarp system; side, floor and center screens; 1/4-inch floor plate; 7-gauge side plates; four door binder ratchets; eight drain ports; two inlet ports; and long-handle scraper. Units have an average life span of 12 to 14 years. Units are also available in a 15-yard size. 979/245-5656; www.aqua-zyme.com.

BUCKS FABRICATING DEWATERING CONTAINER

Dewatering containers from **Bucks Fabricating** can be used to haul mate-



rials to abide by U.S. Environmental Protection Agency regulations. Tailgates and binders create a watertight seal, preventing leaks and spills. Dewatering can decrease weight at the scales, which, in turn, decreases costs. They can be equipped with fittings for draining, liner hooks and tarp systems. Liner hooks allow for disposable liners to be hung inside the container prior to filling and then dumped at the landfill along with the slurry. The dewatering basket can be customized to properly separate the material being hauled. The basket can have perforated sides/floors/center dividers, as well as be permanent or removable. A removable dewatering basket can be taken out for thorough cleaning and also to convert the container to a sealed unit. 800/233-0867; www.bucksfab.com.

DRAGON PRODUCTS LIQUID-TIGHT ROLL-OFF

The lightweight liquid-tight roll-off container from **Drag-on Products** is compatible



with the company's line of roll-off trailers. It is ideal for liquid waste haulers, environmental cleanup companies, hazardous waste transporters and oil and gas service companies. The container has a high payload and long life span, according to the maker. It has continuous welded construction, a 7-gauge floor, 10-gauge sides, interior plastic liner hooks, front and rear grounded rollers, and a side-to-side EPDM E-Seal lid. Options include heavy-duty long sills, an interior ladder and top- or side-hinge tailgate. 877/231-8198; www.dragonproductsltd.com.



FLO TREND SYSTEMS SLUDGE MATE

The **Sludge Mate** container filter from **Flo Trend Systems** is designed to provide a simple one-step process for dewatering a variety of sludges. It has no moving parts and requires minimal labor and maintenance, according to the maker. The Poly-Mate Polymer Mixing and Injection System conditions incoming sludge. Sludge

is then pumped into the unit's inlet manifold through the Mix-Mate manifold. The Poly-Mate prepares sludge for ease of dewatering and clarity of discharged fluid. It dewaters alum and wastewater treatment plant sludge, septic tank and grease trap waste, lagoon sludge, slaughterhouse waste, wastewater residual, sump bottoms and industrial waste. 800/762-9893; www.flotrend.com.

REDBOX+ SERIES

The **Redbox+ Series** is designed to be an efficient portable restroom and roll-off box waste container combination. The units are available in 10-, 20- and 30-nominalyard capacities. In addition to the waste container combination, trucks are fitted with an onboard, fully functional scale and a pump and vacuum system to service the



portable restrooms. The pump and vac system includes holding tanks for fresh and wastewater containment, allowing for the portable restrooms to be serviced on site before contents of the container are disposed of. Splash caps fit snugly into the restroom openings to prevent secondary leakage, and cross bars are used to secure the doors during the disposal process. 507/452-8242; www.redboxplus.com.

(continued)

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450 Gallon Aluminum Slide-In

300 Gallon Waste/150 Gallon Fresh

Electric Start 5.5 HP Honda, Condé Super 6 vacuum pump w/4-way valve 30'x2" Tiger Tail inlet hose w/ stinger, washdown system w/50' hose, 3" discharge, 12V battery & work light

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Industries,

ROLL-OFF CONTAINERS

WASTEQUIP DEWATERING CONTAINER

Dewatering containers from

Wastequip separate liquids from
solids with the goal of reducing the

overall cost of waste disposal. They can be used at wastewater treatment facilities, manufacturing facilities, spill sites, construction sites, refineries and mines, and can be custom-configured for specific applications. To ensure no leaks, they undergo stringent hydro-testing and have a rear door with neoprene rubber or T-gaskets. Bolt-in, easy-to-remove liners are available. When removed, the container can be used for sludge containment. With a 1/4-inch floor, 7-gauge sides, continuous inside welds, solid steel nose cone and outside rail understructure, the containers are available in 20- or 25-cubic-yard sizes, with round bottom or rectangular configurations. Custom sizes are also available. 877/468-9278; www.wastequip.com.

STORAGE TANKS



HUSKY PORTABLE CONTAINMENT BLADDER TANK

Husky Portable containment bladder tanks are manufac-

tured to meet specific requirements and specifications. They are available in sizes from 25 to 50,000 gallons, from materials including XRs, PVCs and urethanes (mil spec). Fittings are PVC (NSF 61), aluminum, stainless steel and brass from .75 to 6 inches. Bladders include all stainless steel hardware, including access panels, maneuvering straps near the corners and every 5 inches down the sides, flame arrestors, double T-style vents and mushroom vents. Storage bags are included, with optional ground covers and sunscreens in various weights. All tanks come with field repair kits. 800/260-9950; www.huskyportable.com.

IMPERIAL INDUSTRIES DRY BULK STORAGE

Welded, one-piece, dry bulk storage silos from **Imperial Industries** can be customized. Bulk silos and tanks need minimal maintenance and save material-handling costs over many years of use. Tanks are available



in carbon steel, stainless steel and aluminum, in silo diameters to 16 feet, and in capacities to 12,000 cubic feet. Paint finishes per the Imperial standard or customer paint specifications are available on carbon steel silos. Standard guardrail and ladder assemblies in aluminum, carbon steel and galvanized steel ensure easy assembly and maintenance-free durability, according to the maker. 800/558-2945; www.imperialind.com.

CASE STUDY

DEWATERING TUBES USED TO DEWATER AND STORE SLUDGE

Problem: The City of Jackson, Mississippi, had three equalization basins at the Savanna Street Wastewater Treatment Plant that received overflow sewage during heavy rain events. Over the years, biosolids had built up to the point that there was a 70 percent re-

duction in the available storage volume. The city needed to remove approximately 92,000 dry tons of solids from the basins, while keeping them available to handle overflow during wet weather.

Solution: Denali Water employed hydraulic dredging together with TITAN-Tubes from Flint Industries as the



method to remove, dewater and store the solids. Because of the limited space, the tubes needed to be stacked four high, and the contractor was required to achieve at least 22 percent solids after 30 days of tube dewatering. The dredged slurry was injected with aged and mixed polymer flocculent and then pumped to the high-flow geotextile tubes.

Result: The dewatering process exceeded expectations by dewatering the sludge faster than anticipated. This allowed the contractor to keep pumping and safely stack the tubes, and to use fewer tubes than originally expected. The UV stability of the TITANTubes also allowed the city to put off hauling and disposal to a future budget cycle. **912/685-3375**; www.flintusa.net.



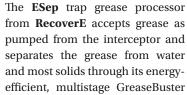
SNYDER INDUSTRIES CAPTOR

Captor double-wall containment tank systems from Snyder Industries are polyethylene tanks with secondary containment systems that can safely store a wide range of hazardous chemicals. The design increases safety and protects the environment. The system consists of a primary tank with a secondary outer containment tank at a capacity of 115 to 120 percent of the inner tank's capacity, exceeding U.S. EPA stan-

dards. Double-wall construction is completely enclosed so rain, snow and debris won't collect in the outer containment tank, making it ideal for outdoor chemical storage. They are shipped fully assembled on either a standard or wide-load flatbed trailer, reducing field assembly costs. Sizes range from 35 to 12,500 gallons. They are available in high-density linear polyethylene or cross-link polyethylene. **402/467-5221; www.snydernet.com.**

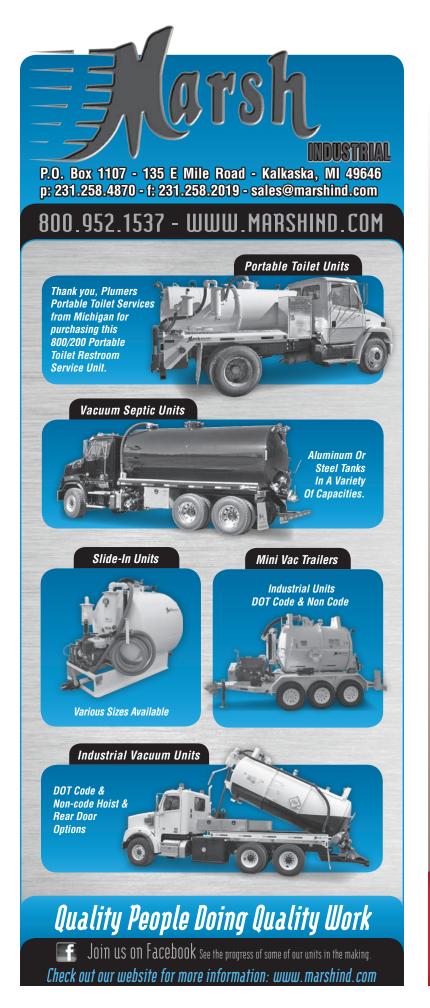
SLUDGE TREATMENT

RECOVERE ESEP





process. No additives are required, the water and solids are returned to the customer's process, and the brown grease is recovered as a pasteurized, low-water biosolid. The fully automated and instrumented process simplifies odor management, according to the maker. Its design is flexible, and can be scaled to the customer's needs, whether 1,000 gallons a week or 300,000 gpd. 269/271-4977; www.recovere.biz.



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Our handwash unit is designed as a self contained system which allows outdoor crowds to have easy access to warm soapy water.

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- Large fresh & gray water holding tanks.
- Commercial trailer chassis
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- Locking utility cabinet with diamond plate doors
- Mirror & Lighting accessories available



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in the SPOTLIGHT By Luke LeNoble

FRANKLIN ELECTRIC LITTLE GIANT GRINDER PUMPS DELIVER 414,000 CUTS PER MINUTE

The Little Giant GP Series grinder pumps from Franklin Electric are designed to handle low-pressure applications and residential and light commercial wastewater transfer where high head conditions



The GP-A (automatic) is available for single-phase power sources, and the GP-M (manual) is designed for both single-phase and three-phase power sources. An epoxy-coated finish adds corrosion resistance and durability to the cast iron construction, while the cutting system provides tight cutting clearances, according to Scott Stayton, director of portfolio management at Franklin Electric.

"Our design is very efficient, and our grinder mechanism is one of the keys to its success," Stayton says. "We have a patented 'floating' (stationary) cutter; this allows us to focus on the two pieces of the mechanism (stationary and rotating) in the manufacturing process and maintain a very close tolerance for a clean cut," in conjunction with efficiencies in the motor and pump head.

"We also pump throughout the complete performance curve," he continues. "We find grinder pumps in applications where they don't belong, and it can be detrimental to the pump. So we removed the issue altogether, and said, 'Let's let it pump all the way through the curve,' so that we could cover applications where higher pressure is demanded and others cannot reach."

Units incorporate a nonclogging, corrosion-resistant brass impeller staged for efficient pumping of sewage slurries with a shut-off head of 130 feet, which Stayton says minimizes downtime and maintenance.

"The key to grinding is you want very fine particles so that it travels through the impeller assembly without clogging," Stayton says. "If you have longer pieces of material, it can cause 'roping.' It will essentially tie itself together and can clog up the unit, so that's one area we really wanted to focus on.

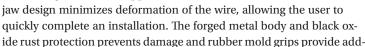
"When you're not getting clogs, it's a real advantage for contractors because they're not getting a callback for something that should have been a nonissue."

Pumps operate across voltages ranging from 208 to 230 volts. A single-phase, capacitor start/run motor with built-in overload protection prevents over-current and over-temperature damage. **260/824-2900**;

www.littlegiant.com

MILWAUKEE ELECTRIC TOOL CORP. CABLE-CUTTING PLIERS

Cable-cutting pliers from Milwaukee Electric Tool Corp. feature a hardened blade for clean cuts through 4/0 – 2/0 copper wire. The bevel



ed comfort. 800/729-3878; www.milwaukeetool.com.



COXREELS BIODIESEL REELS

Biodiesel reels (SHF-N-525-BBN, TSHF-N-XXX-BBN and TSHL-N-635-BBN) from COXREELS are designed for biodiesel concentrations above B5. Model TSHF-N-620-BBN is designed for biodiesel concentrations above B20 when used with Viton seals and the Flexwing VersaFuel Hose. 800/269-7335; www.coxreels.com.

EMPIRE LEVEL TRUE BLUE I-BEAM LEVELS



The e55 Series True Blue I-Beam Levels from Empire Level feature a topread window for clear overhead viewing and built-in molded grip zones for enhanced portability. Magnetic models include a continuous magnetic edge that provides maximum holding power when measuring. High-contrast vial surrounds provide visibility in all light conditions. **800**/**558-0722**; www.empirelevel.com.



VACALL – GRADALL INDUSTRIES WATER RECYCLING SYSTEM

The AllClean water recycling system from Vacall – Gradall Industries is designed to conserve water and allow for AllJetVac operators to work all day without the need to refill water tanks. It uses a series of filters, screens and centrifugal motions to remove matter of different sizes from water collected in the debris tank before returning it to the water tanks. A 240-gallon clean water washdown is included. 800/382-8302; www.vacall.com.

DITCH WITCH DIGGING SYSTEM FOR WALK-BEHIND TRENCHERS



The OptiCut digging system from Ditch Witch, a Charles Machine Works Company, is made to enhance walk-behind trencher productivity in all soil conditions. Designed for depths up to 36 inches and 3.5 inches wide, the digging system uses low-profile teeth for a smoother cut with less chain wear. Configurations include a 4-pitch DuraTooth, a 2-pitch Shark and a 2-pitch DuraTooth/Shark combination. The digging system is compatible with Ditch Witch C12, C14, C16, C16X, C24X and C30X walk-behind trenchers and can be adapted to other makes and models with a special conversion sprocket. **800/654-6481; www.ditchwitch.com.**

(continued)



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ISUZU COMMERCIAL TRUCK OF AMERICA CLASS 6 MEDIUM-DUTY TRUCK

The 2018 FTR Class 6 medium-duty truck from Isuzu Commercial Truck of America features a 4HK1-TC, 5.2-liter turbocharged four-cylinder diesel engine and Allison 2000 Series automatic transmission. Eight wheelbase configura-



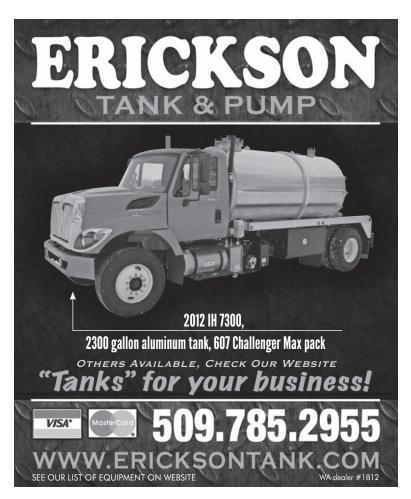
tions accommodate bodies from 16 to 30 feet, allowing for a wide variety of body applications. Options include a 50- or 100-gallon aluminum fuel tank. The F-Series truck is slated to go into production in the United States in mid-2017. **866/441-9638**; www.isuzucv.com.



SJE-RHOMBUS DATA LOGGING CONTROL PANEL

The EZ Series In-Site CL data logging control panel from SJE-Rhombus is designed to control one or two 120-, 208- or 240-volt

single-phase pumps in water and sewage installations. The panel utilizes the C-Level sensor for continuous level monitoring and records up to 4,000 system events, including pump runtimes, pump cycles, alarm conditions, HOA settings, power outages and service calls. The software formulates system data to create reports quickly and easily. The panel includes a Bluetooth Smart Ready module for wireless connection to an Android device that allows users to configure the panel, view system status or download data via the EZ Connect mobile app. 888/342-5753; www.sjerhombus.com.



ALCOA WHEEL PRODUCTS ALUMINUM WHEELS FOR MEDIUM-DUTY COMMERCIAL VEHICLES

M-Series aluminum wheels from Alcoa Wheel Products are designed for medium-duty commercial vehicles, including the Sprinter, Ford Transit and GM 3500/4500. Each wheel provides the same benefits as Class 7 or Class 8 heavy-duty forged aluminum wheels, but are customized to fit mediumduty Class 2 through Class 6 applications. Single-piece forged aluminum construction is designed to provide a smooth ride, extend tire life and lower operating costs. 800/242-9898; www.alcoa.com/alcoawheels.

MUNCIE POWER PRODUCTS FR3C POWER TAKE-OFF

The FR3C power take-off from Muncie Power Products is designed for Ford F-650 and F-750 trucks. It allows for higher torque capacity (237 ft-lbs) by providing the maximum torque available from the Ford Torqshift transmission and a keyed shaft output. Built with integrated wiring harnesses, the PTO also contains an enhanced clutch pack, bearings and gearset. A one-piece housing pro-

vides fewer leak points and easy installation, according to

the company. 800/367-7867; www.munciepower.com.

BJM SKG SERIES SHREDDING PUMPS

The SKG Series of high-performance shredding pumps from BJM Pumps are available in three sizes with two impeller trims for lower head requirements and the ability to handle industrial liquids with gravities higher than water. Features include RAD-AX dual shredding technology to chew through difficult solids, hardened 440C stainless steel shredding elements, and large-solids-size passage through the impeller and volute coupled to a high-torque, four-pole motor (2, 3 and 5 hp). 877/256-7867; www.bjmpumps.com. ■

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Liquid Environmental acquires All American Grease Services

Liquid Environmental Solutions acquired All American Grease Services Companies, a nonhazardous liquid waste company that offers grease trap and used cooking oil collection services across the Gulf Coast and southeastern United States. The acquisition adds five service branches and three wastewater treatment facilities to the Liquid Environmental network.



Curry Supply Company opens new facility

Curry Supply opened a 32,000-square-foot facility in Houston to better serve customers in the southwestern

United States. In addition to staff, a full inventory of products and extensive inventory of commonly requested parts will be housed at the new facility.

Wabash National expands Progress Tank dealer network

Wabash National added four dealers to its network for Progress Tank truck-mounted vacuum tanks. American Road Machinery will serve Ohio, western Pennsylvania and West Virginia. Great Lakes Equipment Sales will serve Illinois. Mid-Atlantic Waste Systems will serve eastern Pennsylvania, Delaware, Maryland and Virginia. Peirce Eagle Equipment will serve northern New Jersey and New York.





Federal Signal acquires Westech Vac Systems

Federal Signal Environmental Solutions Group, parent company of Vactor Manufacturing, acquired Westech Vac Systems, provider of

vacuum-truck-mounted solutions. As a Federal Signal subsidiary, Westech will continue to operate in Nisku, Alberta, as Westech Vac Systems.

Group 42 completes sale of Flo Trend Systems

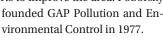
Group 42 completed the sale of its subsidiary, Flo Trend Systems. The sale allows Group 42 and Flo Trend Systems to operate as two separate entities. The management team at Flo Trend Systems remains in place. All current employees are expected to continue with the company, and existing clients can expect uninterrupted services, according to the company.

Benlee acquires Huge Haul

Benlee acquired the assets of Huge Haul in a cash transaction. Huge Haul works in the lugger trucks and trailers sector.

GapVax founders receive local honor

GapVax founder Gary Poborsky and his wife, Rose, were inducted into the Greater Johnstown Cambria County Business Hall of Fame in Johnstown, Pennsylvania. The GJCC Business Hall of Fame honors individuals who have made a lasting impression on the region through business contributions or efforts to improve the area. Poborsky





Gary and Rose Poborsky



Steve Brinton accepts the Flay & Glenda Anthony Volunteer of the Year award from PSAI President Karen Holm at the group's annual meeting in Charlotte, North Carolina.

Satellite Industries vice president receives volunteer award

Steve Brinton, vice president of Satellite Industries, received the Flay & Glenda Anthony Volunteer of the Year award at the Portable Sanitation Association International annual meeting in Charlotte, North Carolina. Brinton was chosen based on his years of service to PSAI and the sanitation industry.





Vacuum Tank &

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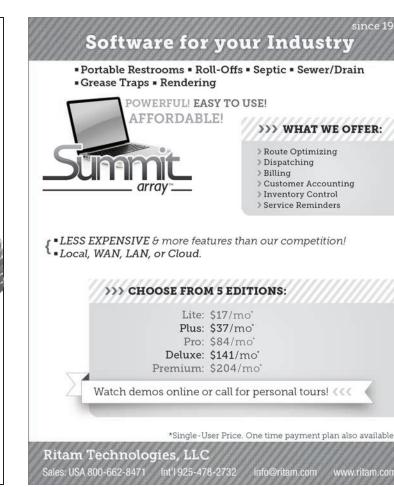
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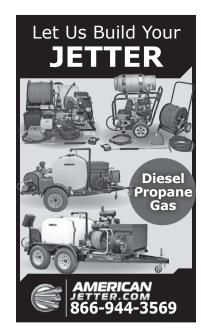


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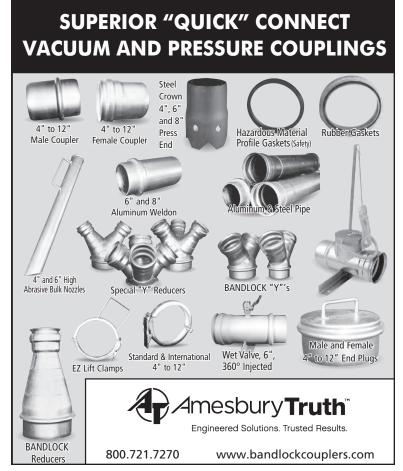












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BUSINESSES

Septic Service Business for Sale with On-site Stabilization Plant -- Northeast FL. 20,000-gallon lime stabilization plant is one of only three septage stabilization plants located in NE Florida. Owner wishes to retire. Callahan area is north of Jacksonville, a fast-growing area in Florida. Profitable, turnkey business. 30 years in business with loyal customer base. Two pump tuck operation: (1) 1996 International 4900: DT466, 5-speed transmission, 2-speed axle. 2.500-gallon capacity, 299,000 miles, Good tires, excellent condition. (2) 2000 Freightliner FL70: 8.3 Cummins, 6-speed transmission. 2,400-gallon capacity. 196,000 miles. Good tires, excellent condition. Owner will train and assist with licensing. Call for more information. Kenny Farmer 904-879-4701 or 904-545-0357. (P06)

Septic tank cleaning & inspection service business for sale in Central Maine. Owner is branching out after 20 years and wants to sell this part of the business. Profitable, turnkey business with a loyal customer base. Two pump-truck operation (1) 2000 GMC - 2,500-gallon capacity, 136,000 miles. (2) 2004 Peterbilt — 4,500-gallon capacity, 129,000 miles. Serious inquiries only! \$257,000. Call 207-782-1620 or email septicbizsale@gmail.com (PBM)

Colorado Septic Pumping Company for Sale — Montrose, Ridgway, Ouray, Telluride, Delta, Norwood: Owner retiring from this well-established family-owned Colorado business. Impressive, large, loyal customer base. Absolutely turn-key with website, client lists, trucks and lots of tools. Ideal for owner-operator-currently two additional employees. Proven good income. This is the most recommended and recognized septic pumping business in our area! Love where you live and work! Contact Todd Schroedel United Country Sneffels Realty for more information 970-318-2160. Also view at www.sneffelsrealty.com (P06)

Busy Sewer & Septic business in rural Oregon. Buy-in, or buy-out, either way, owners are out within two years. Complete training and seamless transition with all licensing. certifications and customers. Septic pumping and inspections, drainfield cleaning, system maintenance and repairs, portable toilets, sewer and drain cleaning and jetting. Phenomenal growth over the past four years with excellent reputation, margins, cashflow and potential! We roll hard and fast with a large footprint - just sayin'. Turnkey operation with excellent marketing program, computers, records, staff and equipment. Business including real estate and lots of equipment \$750K with 50% down. Would make an excellent family business. No brokers. Evenings 503-319-5930. (P06)

For Sale: Established septic pumping business currently operating in west-central Minnesota with a substantial customer base. 2000 Freightliner with 3,200-gallon Engle tank and all the equipment needed to maintain septic systems in MN, additional equipment, porta-potties, etc. \$180,000. Call 320-249-8341 for more information. (P06)

Well-established SW Florida business for sale. 900+ units on the street, 15 ADA, 30+ sinks, 20+ holding tanks, 7 trucks, 2 trailers. Many long-term construction customers, year-round event customers. Documented yearly growth. Only serious buyers need to inquire. portapottyrentals@yahoo.com (P08)

wind river environmental is actively seeking opportunities to acquire companies in the septic, grease, waste hauling, drain cleaning and commercial plumbing service lines on the East Coast. Join a winning team! Check us out at www.wrenvironmental.com. Email Dave@Klinesservices.com or call my cell at 717-587-1909. (P06)

Central Florida septic business for sale, \$250,000. Truck & equipment. 40+ yrs. same phone number 352-429-2426. Email tcraigseptic@gmail.com (P06)

www.RooterMan.com. Franchises available with low flat fee. New concept. Visit website or call **1-800-700-8062.** (PBM)

Large, successful septic and well service business for sale - Central Florida. Nets \$950,000. 45-year-old company. All trucks and equipment included. Owner retiring. Price: \$3.5M. SBA qualified. RL Group adorin@bellsouth.net 352-494-0784 (P06)

Start your own septic tank business anywhere in Florida! I have license - will sponsor. For more information call 931-248-1284 or 931-287-5413. (PBM)

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Portable toilet rentals in Berks County, Pennsylvania, established 21+ years. Gross sales \$130,000+. Price \$220,000. Employees: Owner/Operator. Excellent turn-key business opportunity that has grown 30% in the last year, more than 100% in the last 15 years. Steady customer base. Business includes all contracts, 150 portable toilets/sinks, 2 service/delivery trucks, and an 8-unit delivery trailer. Owner can assist with training and transition if requested. Neither vehicles, equipment, or customer list will be sold separately. Call Rick at 610-927-9114 or email itspottytime@comcast.net

Septic tank cleaning & inspection service business for sale in Central Maine. Owner is branching out after 20 years and wants to sell this part of the business. Profitable, turnkey business with a loyal customer base. Two pump-truck operation (1) 2000 GMC - 2,500-gallon capacity, 136,000 miles. (2) 2004 Peterbilt — 4,500-gallon capacity, 129,000 miles. Serious inquiries only! \$257,000. Call 207-782-1620 or email septicbizsale@gmail.com (PBM)

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2013 Kenworth HXX Hydroexcavator: 12-cubic-yard debris tank. 1,200-gallon water tank. 16,446 miles. Hibon tri-lobe 28" blower. 20gpm CAT tri-plex. Aluminum wheels.\$289,600

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2016 Honda TBS1: 4.5 gallon per minute. 200' 1/4 inch hose, reel, penetrating jet nozzle, and reservoir tank. Ready to clean clogs. \$2,620

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Vac-Con V390LHA combination unit with Roots 827 blower, 1999 International Model 2554 cab and chassis. (Stock #3918C) www.VacuumSalesInc.com, (888) VAC-UNIT (822-8648)



2001 Peterbilt Vactor 2100: C-10 CAT, push-button Allison. 80gpm @ 2,000psi. 61,000 municipal miles. Exceptionally clean unit. Ready to work. Delivery available. CHAMBERS MOTOR CO., Boring, Oregon \$99,500

Call John 503-887-0070 PBM



2006 Vactor, 2110-15 Vacuum Tk., Freightliner Condor, C-9 CAT 350hp (engine apart), Allison automatic, 46k rears, 20k front, Roots 821 PD blower. Electric Utility Co. truck. \$19.975

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P06

2015 Camel Western Star 1200 combo truck, 824 blower, ejector plate, 12-yard debris tank, 80gpm @ 2,000psi water system, 1,500-gallon freshwater, 600' of 1" jet hose. Low hours and miles, some factory warranty left. For pic and more info call Jeff 317-258-4900

2000 Clean Earth combo: C-10 CAT engine, 824 Roots blower. 80-20 rebuilt Myers water pump. Good overall truck. \$50,000. 2002 Sterling C-12 rebuilt CAT engine, 120gpm Uraca water pump, 827 Roots rebuilt blower. Good overall truck. \$65,000. Can send specs and pictures. 813-677-7655. e-mail jerrybaes@aol.com

2015 Freightliner Camel combo truck, 824 blower, ejector plate, 12-yd debris tank, 80gpm at 2,000psi, 1,500-gallon freshwater, 600' of 1" jet hose. Low hours and miles. For more info and pics contact Jeff 317-258-4900 (P06)

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PORTABLE RESTROOMS

200 portable toilets for sale, suitable for construction. Mixture of PolyJohns & Satellite. 50 or more \$125 each. Pickup location Golden Valley, AZ. Call 928-565-3000. (P06)

Handicap PolyJohn Comfort XL (8) \$300 each, Satellite Tufway brown door/green sided (35) \$200 each. ALL construction grade. 724-459-5680 PA portajohnrental@aol.com (P06)

130 Used Blue PolyJohns in Brandon, SD. \$350 OBO. 605-553-5993

Synergy World High Tech portable restrooms. Near-new, used-very-little to useable condition. Pricing varies. Two (2) Dodge 3500s: 5.9 Cummins, 5-speed, custom-built aluminum 500-gallon waste/240-gallon water tank, 2 storage boxes, 14-unit gooseneck and 8-unit bumper hitch trailers. Call 308-870-0042.

For Sale: 75 Olympic and Phil Carter port-ajons - \$150 each. 9 VIP Phil Carters - \$200 each. 15 American poly - \$50 each. Call 607-265-2888. (P07)

PORTABLE RESTROOM HAULERS

Have 11 double laydown trailers for sale. \$825 each. Trailers only. Will send pictures. Call 402-463-8073. South central Nebraska (P07)

PORTABLE RESTROOM TRAILERS



(2) ASCI Restroom Trailers. 2001 - \$12,000 and 2002 - \$14,000. Both 24 foot. 5 stalls, 2 sinks. / 2 stalls, 2 sinks, 2 urinals, heat, a/c, and hot water. Syracuse, NY.

Call 315-382-1431, NY P06

WANTED: Used Wells Cargo UltraLav and Comfort Elite, Ameri-Can restroom trailers or any small shower trailers. Call Jamie Hunter at Hoosier Portable Restrooms 317-439-9383. (P09)

2004 Olympic: (4) ladies stalls, (2) sinks, (1) mens stall, (3) urinals, (1) sink. 1997 Olympic (6) ladies stalls, (2) sinks, (2) mens stalls, (4) urinals, (2) sinks. All have smooth fiberglass interiors, heat, a/c, hot water, interior and exterior lighting. \$15,000 each. Call 845-883-7880. (P06)

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

PORTABLE RESTROOM TRUCKS



Complete Portable Toilet service truck mount units (turn-key), mounted on your truck or ours. Tool boxes, dual work stations, dc10 washdown pump, reversible vacuum pump, hose reel, set up complete, toilet racks available. 1100 waste/400 fresh: \$21,000, 1700 waste/600 fresh: \$23,500. Any custom options or sizes available!

TexLa Services
936-641-3938
www.texlaservices.com

2004 UD 2600: 1,000-gallon tank. Masport pump. Pumps and runs great! All six tires 98%. 196k. Must sell! \$25,000 OBO. Text or call 706-207-9492. (P08)



> 336-474-1436, NC Jason@64portables.com



Call 719-580-3007, CO

1999 Sterling 2006 Imperial 900/450 body. New Masport vacuum. Very clean body. New steers, 276k miles. \$18,500. Rich 612-221-2800 (P06)

2010 Isuzu NQR, Workmate 1050, 165,777 miles, new turbo, completely new (DPF filter) exhaust. Carries 4 toilets with lift gate. Burks water pump. 612-221-2800 (P06)

Keith Huber Princess on 1996 Ford F-700. 1,100-gallon waste/400-gallon freshwater tanks. Tank baffle needs repair. Truck runs great and vacuum system in good shape. \$19,500. Contact Mark 504-415-6067 or mroussel@matrixservice.com (P08)

2007 Ford F650: 5.9 Cummins, auto. Allison transmission, 197,000 miles, Satellite MD1250 steel tank. Used daily. \$31,500. Call 320-583-4831 (P06)

1982 International: 2,000-gallon tank, DT466, automatic. Engine and transmission recently rebuilt. Great starter or backup truck. \$10,000. Call 719-580-3007. (P06)

2006 Chevy C5500 TopKick portable restroom truck. Runs great, no problems, just looking to get something bigger. 600 waste/400 fresh. Any questions call Dan 330-705-4540 (P08)

2008 Isuzu NPRHD: Crescent tank, 111,000 miles. Works daily, one driver/owner. 550waste/250fresh, 6-unit carrier, Masport pump, dual service, exhaust brake, Thieman liftgate. \$45,000. 203-948-8869 (P06)

2013 International TerraStar: 950 waste, 300 fresh. 114,000 miles. \$45,000. Call Rick at 317-440-1206. (P07)

2013 International TerraStar: 950 waste, 300 fresh. 168,000 miles. \$42,000. Call Rick at 317-440-1206. (P07)

Pumper truck/porta-potty truck. Year: 2000 Model 4700 International Truck with porta-potty rack and separation tank for water. Ready to work, totally restored. \$27,000. Call or text 256-759-0454. (P06)

2012 Ford F550: Crescent tank 900 (650w/350f) Carries 6 units. 148,500 miles. \$41,000. Progress Slide-In Tank (525w/275f) \$7,000. PolyJohn Bravo soap dispenser complete units - 100 available. \$25/double unit. NW Illinois 815-946-2813 (P06)

2011 Ford 550: 4WD, MD950 with split fresh tank, dual side service, DC-10 water pump, Conde hydraulic vacuum pump. 95,000 miles. \$42,000. Call or text Tom @ 419-466-1349; email tom@clswrents.com (P06)

2012 Isuzu NQR, diesel, automatic, with Progress aluminum tank, 900/350. Masport pump, two-unit carrier, 140,000 miles. \$39,000. Call 845-883-7880. (P06)

2014 Dodge Ram 5500, Satellite MD950, 4WD, Conde pump, 75,000 miles - \$52,000. 2004 Sterling CAT C7, 3-compartment tank, Masport pump, 371,000 miles - \$18,000 OBO. 2001 International T444E, 3-compartment tank, BP pump, 77,000 miles - \$25,000. All 3 trucks have steel tanks. Sioux Falls, SD. 605-553-5993 (P06)

2016 Hino 268 non-CDL portable restroom trucks. 500 fresh, 1,500 waste. Ready to go! Call Larry Towner 770-241-0989, servicegroupinternational@gmail.com (P07)

2007 International 4300 1,350-gallon \$39,500; 2006 International 4300 1,350-gallon \$37,500; 2002 International 4300 1,350-gallon \$21,000. 256-757-9900 or www.pbsos.com (PBM)

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

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Trenchless Technology company in Seminole County, Florida is looking for self-motivated Field Supervisor experienced in sanitary sewer and storm water pipeline maintenance and rehabilitation. Required to have experience using TV and Cleaning trucks. Knowledge of pipe & manhole rehabilitation is required. Must have a clean driving record, able to work days, nights and/or out of town. Call 407-339-7134

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ROLL-OFF TRAILERS

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

SEPTIC TRUCKS



Two (2) Keith Huber Dominators: 1995/1996 Mack CH600s, good working condition, still in use. 450K +/-, well maintained. \$110,000 for both OBO. Call for details.

601-953-1627, MS P06



Tony Price 509-954-8614, WA PO6

2000 International 4900: 16,000 front axle, 46,000 rears, spring suspension. DT530 300hp engine, 3,900-gallon tank. 140,551 miles. Needs transmission. \$20,000 Firm. 845-226-5405 (P06)



1988 International 8300: Cummins, 13-speed transmission. 3,280-gallon Erickson tank. New valves and pipes on the back. 10 new tires. ... \$20,000 OBO

Tony Price 509-954-8614, WA P06



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

TexLa Services 936-641-3938 www.texlaservices.com

P06



Call 517-204-7536



1999 Volvo: 400hp Cummins, Transway 3,800-gallon tank. New Fruitland pump March 2015, hoist just rebuilt. New transmission, 160k miles. \$50,000

Mike 443-235-5979, DE P06



740-961-7431, OH



717-587-1910. PA



334-799-0575, AL



2001 Freightliner: 6-speed manual, 2,500-gallon tank w/rear dump, heated valves, Battioni 8000 vacuum pump. Ready for work. \$30,000 0B0

724-837-6084, PA



2002 International 4300: Rust-free Arizona truck. DT466 engine, Allison transmission, 1,500-gallon tank. Engine just rebuilt - has 90 miles on it. \$35,000

602-725-2996, AZ

P06



716-474-7013, NY



1998 Mack RD688S 4,000-gallon pump truck by Transway Inc. 170,000 miles, 350hp, 12-speed, engine brake. Newer paint, full-opening rear door, tank hoist, 1,050cfm Transway pump. Current sticker, tires 70%. This truck needs nothing and is in excellent condition for age. All work completed and up-to-date. Used by owner/operator. \$50,000 OB0

Dustin 978-473-4510, MA P07

2001 Freightliner: 450hp, 10-speed, engine brake. 4,200-gallon aluminum tank, Masport 400 pump, 4" & 6" valves, hose trays. Good, dependable unit. \$48,000. Kenneth 865-577-1157. (P06)

2000 Peterbilt Model 377 tri-axle, C-12 CAT motor, jake brake, 10-speed. 4,500-gallon steel tank. Jurop LC-420. \$45,000 0BO. Call 715-546-2070. (P06)

2002 Kenworth T800: 4,600-gallon steel tank, air ride, Cummins ISX450, 10-speed, Jurop pump. 434,xxx miles. New rubber on rear. \$59.500, 203-650-0315 (P06)

2002 Freightliner FL80: 18,000 front axle, 40,000 rears. CAT 3126 300hp engine, 4,000-gallon aluminum tank. Runs awesome, needs head work. \$25,000. Call for info: 845-226-5405 (P06)

SEPTIC TRUCKS



1994 Ford L9000 septic truck: 3,000 gallons, new vacuum pump, very reliable. \$15,000. Questions? Call Dave Lucero:

970-946-3692. CO

6-3692, CO ₽



800-433-2070, PA

P06



2009 Freightliner M2: 260,000 miles, 10-speed, air-ride. 3,200 waste, 400 water. Progress aluminum tank, hoist unit with 36" manway. 957NVE blower, CAT 18gpm/4,000psi jetter with recirculator for winter, heated valves. New truck arrived - This one must go! ...\$79,000 OBO

Call 815-933-7600, IL PC

1990 International with a DT466, air brakes, 265,000 miles. Used only 6 months a year. New rubber, 80% brakes with a 1,900-gallon Husky tank, 317cfm Jurop drip-lube vacuum pump. Brand-new 45-gallon freshwater tank, 120' of new suction hose. Brand-new arctic blaster system, flushable location system, magnetic loccator. Heated valve. Truck is 100% ready to work with piles of extras and consumables. This is a turnkey operation. Very motivated seller. \$35,000 or best offer. Call today 207-227-2964. (P06)

1999 International 8100: Air-ride, 370hp C10 CAT, 272,000 miles. 3,500-gallon tank capacity, MEC8000 pump. Asking \$27,900. Call 920-765-1903. Can Email or text picture upon request. (P06)



770-241-4185, GA



1995 International 9400 Eagle with 5,000-gallon Imperial carbon tank. 20,000 lb. steer with 14,000 lb. pusher. Was our backup truck but just updated. \$28,000. Call Brad with any questions.

920-979-7711, WI P08

2004 Sterling: 350hp CAT, 8-speed w/LH. 4,000-gallon aluminum tank, Masport pump, hose trays, tool basket, 4" & 6" valves. Above average unit, bought new. \$58,000 OBO. Kenneth 865-577-1157. (P06)

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

New 4,000 U.S. gallon aluminum vacuumpressure tank. Mounted on 2016 Peterbilt 348 cab and chassis with a Masport HX-L400WV vacuum-pressure pump package. (Stock# 13670) www.VacuumSalesInc. com (888) VAC-UNIT (822-8648) (PBM)

2000 International 2674 triaxle with 4,000 waste/200 water, Wittig RFL100 vacuum pump and Harben jet pump system. (Stock# 9982V) www.VacuumSalesInc.com (888) VAC-UNIT (822-8648) (PBM)

New 4,000 U.S. gallon aluminum vacuumpressure tank. Mounted on 2016 International 7500 cab and chassis with a Masport HX-L400WV vacuum-pressure pump package. (Stock# 13665) www.VacuumSalesInc. com (888) VAC-UNIT (822-8648) (PBM)

1992 International 2654 with a 4,000-gallon, carbon-steel unit. (Stock# 6246C) www. VacuumSalesInc.com (888) VAC-UNIT (822-8648) (PBM)

2008 International 4300 with 2,500 C/S vacuum tank unit and Masport pump with washdown-type system. (Stock# 1537C) www.VacuumSalesInc.com (888) VAC-UNIT (822-8648)

2006 GMC 7500: Duramax diesel, 210hp, Allison auto., under CDL. New 1,850-gallon vac tank, build in progress. www.pumper trucksales.com. Call JR. @ 720-253-8014, CO. (PBM)

2004 GMC 7500: Duramax diesel, 250hp, 6-speed manual. 1,700-gallon vac tank, Jurop pump. www.pumpertrucksales.com. Call JR. @ 720-253-8014, CO. (PBM)

NEW 2015 International 7300: with warranties, MF-DT engine, 230hp, 6-speed, new 1,850-gallon vacuum tank, new WV75 Masport pump. \$83,000. www.pumper trucksales.com. Call JR. @ 720-253-8014, CO (PRM)

1987 Kenworth T600A: CW CAT 6-cylinder. Eaton-Fuller 15-speed. 8-bag A-R suspension. 3,365-gallon vacuum tank, Masport 75 pump. \$31,000. www.pumpertrucksales.com. Call JR. @ 720-253-8014. CO. (PBM)

1996 Western Star: Detroit Series 60, 18-speed transmission. Hendricks suspension. 3,365-gallon vacuum tank, Masport 400 pump. www.pumpertrucksales.com. Call JR. @ 720-253-8014, CO. (PBM)

1994 Peterbilt 377: Detroit Series 60, 10-speed transmission. 3,365-gallon vacuum tank, Masport HXL pump. www.pumpertrucksales.com. Call JR. @ 720-253-8014, CO. (PBM)

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New Slide-In Units: 650-gallon, Honda powered, Jurop pumps, fully equipped. Other sizes available. Call for pricing. 337-315-0692 (P06)

New 400-gallon slide-in, Jurop/Honda powered. Turnkey, everything included. \$6,400. 337-315-0692 (P06)

SLUDGE APPLICATORS



Call 802-343-1657. VT

P06

1988 2004 Ag Chemical Terra Gator: Yellow, 2,200-gallon tank, Moro pump. Factory-rebuilt 519 Cummins motor – 200 hours. New clutch, 10-speed Road Ranger transmission, injectors, floater tires. Good shape. \$15,000. 802-477-2716, VT (P10)

1986 Field Gymmy Truck: Blue, 427 automatic. 2,000-gallon stainless steel tank, newer Moro pump. Floater tires. Extra set of new tires. Good shape. \$5,000. 802-477-2716, VT (P10)

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2012 VSI Vacuum Tank: Includes pump bracket with secondary, SS heated valves. Very little use, great condition. Asking \$9,000. Northeastern PA. Text for photo 610-703-2634. (P06)

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

TRAILERS

2002 Peterbilt 379 tractor with Wittig RFL100 pump package – Presvac 5,460 C/S vacuum tank trailer. (Stock# 0197C) www. VacuumSalesInc.com (888) VAC-UNIT (822-8648)

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

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2015 Acro Vacuum Trailer: Stainless steel 6,000 gallon, DOT certified double conical with air-ride suspension. Aluminum wheels all positions, full hose trays, OSHA walkways and railings. Vacuum pump option either hydraulic or self-contained. KLM Companies 617-909-9044 (PBM)

2002 Super Products Camel 3-cubic-yard vacuum trailer with Roots 412 blower package. (Stock# 0197C) www.VacuumSalesInc. com (888) VAC-UNIT (822-8648) (PBM)

2002 Peterbilt 379 tractor with Wittig RFL100 pump package – Presvac 5,460 C/S vacuum tank trailer. (Stock# 0197C) www. VacuumSalesInc.com (888) VAC-UNIT (822-8648) (PBM)

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631-767-9404, NY

1992 Ford L8000 Vac-Con: Everything works, needs TLC. Drive anywhere. Some rust. 757-438-8986 (P06)

VACUUM EQUIPMENT

2011 GapVax HV43: 3,500cfm blower, 9.5-cubic-yard tank, 4 cyclones, 32 bags, hp water pump, lift. 45 hours. Excellent shape! Best reasonable offer. 763-428-4322. (P06)

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361-318-4459, TX

P06

2001 GapVax HG57 WET/DRY on Volvo WG64, 5,500 cfm, 27" Hibon blower, Cummins engine, chassis tank and bag house, in good condition, ready for work. KLM Companies 617-909-9044 (PBM)

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

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

WANTED

WANTED: Grout trailer unit in good condition with hoses and packers. 813-677-765 or email jerrybaes@aol.com (P06)

Looking to purchase vehicles/equipment that may no longer be wanted/needed from local companies. Cash buyer. Please call 508-868-7627. (P11)

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