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BEST BAREFOOT FORWARD

A New York pumper uses his catchy family name, integrated marketing and constant education to capture more customers Page 38

FOSTERING A LEGACY

A Canadian family has a long tradition of helping customers get the most out of their septic systems Page 18

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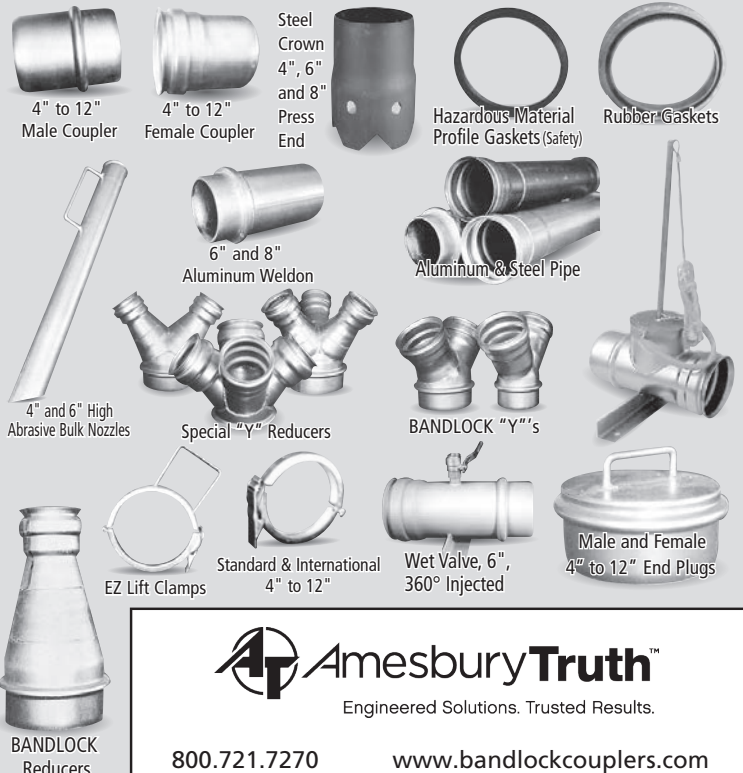
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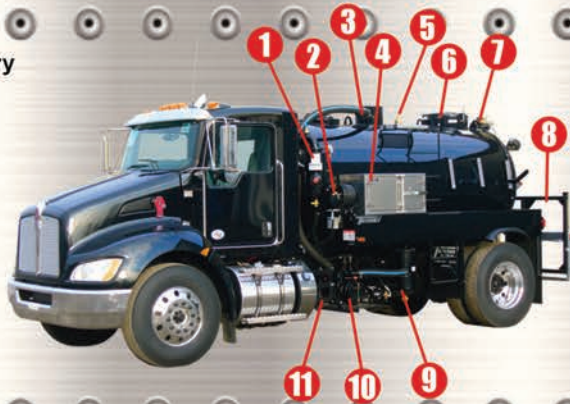
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38 Best Barefoot Forward

- Ken Wysocky

New York pumping operation uses catchy family name, integrated marketing and constant consumer education to capture more customers.

ON THE COVER: Scott Barefoot has been the catalyst for marketing changes that have propelled Barefoot Septic & Sewer forward in a high-tech world. Barefoot is shown in the company's Caledonia, New York, yard with one of its vacuum trucks, built out by Vacutrux and using a Wallenstein pump. (Photo by Mike Bradley)

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Jim Kneiszel, Editor



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

Beware of Stumbling Into a Meth Lab

'Breaking Bad' has run its course, but septic service technicians heading into the busy season must continue to be aware of home-based drug production By Jim Kneiszel, Editor

Did you get caught up in the television phenomenon of *Breaking Bad*, which wrapped up a few years ago? The show about a terminally ill chemistry teacher transforming into a drug kingpin captivated television audiences, with unexpected plot twists and gruesome edge-of-your-seat surprises prompting a new habit of “binge watching” television series.

I came to the show late, watching the exploits of unhinged characters Walter White and Jesse Pinkman as they cooked methamphetamine and spiraled into ever-more-dangerous lives of crime. Unnerving at times due to the graphic violence, I couldn't bring myself to watch every episode, returning now and again to see how Walter was faring.

But when I'd hit Netflix for an update and see the guys cooking away, I'd often think back to a story we ran in *Pumper* in 2008 about signs to look for that a septic service customer is running a meth lab. In light of *Breaking Bad*, the warnings to septic tank pumpers in Gary Barnes' story seem prophetic nearly a decade later.

As pumpers across the country gear up for the busy 2016 season, it's a good time to revisit the issue of home-cooked meth and remind your technicians about the telltale signs that they might unwittingly stumble into a dangerous cooking operation by simply responding to a customer's call about a failing septic system.

HITTING HOME

Unfortunately, this is really a serious concern for pumpers, as the drug is often produced in crude, makeshift labs in rural homes, mixing a toxic slurry of common household products on kitchen countertops or in bathtubs. To understand the likelihood of someone on your team encountering one of these criminal operations, all you have to do is look at an interactive

A technician should never open the septic tank or probe a drainfield where a meth operation is suspected. Don't touch anything or go inside buildings. After leaving the site, wash up and shower as soon as possible.

map of the United States published by CNN in 2013 showing the number of meth labs discovered by county:

<http://money.cnn.com/interactive/news/meth-lab-map/>

The U.S. Drug Enforcement Administration numbers are staggering and widespread. For example, police identified the highest number of meth labs in Tulsa, Oklahoma, with 979 sites. Counties that also had high numbers of meth labs included Jefferson, Missouri (472); Summit, Ohio (353); Kalamazoo, Michigan (318); and Kanawha, West Virginia (235). Few regions are spared these illegal operations, which appear to be more common in the Southeast, Midwest and Western states.

The problem was serious when Gary Barnes, a registered environmental health specialist with extensive experience in the onsite wastewater industry, wrote about it in *Pumper* in 2008. And it remains a concern, according to a federal National Survey on Drug Use and Health released in 2012 during the height of the *Breaking Bad* series. In the survey, 1.2 million people in the U.S. reportedly used meth in the prior year, and 440,000 reportedly used it in the previous month. In 2011, meth use was reported as the reason for 103,000 emergency room visits in the U.S. The good news is that this number was trending a bit downward from a survey several years earlier.

RURAL LOCATIONS COMMON

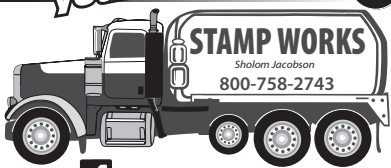
The National Environmental Services Center at West Virginia University produced a report to help explain the basics about methamphetamine or meth, also known as speed, ice, crank, crystal and glass. It is a highly addictive central nervous system stimulant that can be swallowed, inhaled, smoked or injected. Meth recipes vary, but they include a mix of inexpensive products including paint thinners, drain cleaner, cold medicines, lithium from camera batteries, Freon (refrigerant), ether (starting fluid) and ammonia.

Meth labs are often found in rural areas, those served by septic systems, according to the NESC, “because the telltale odors they produce — smelling like ammonia, ether, cat urine or rotten eggs — are less likely to be discovered in open areas. Another reason rural areas make ideal lab lo-

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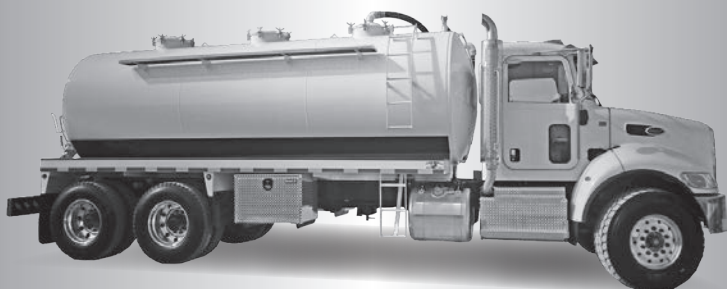
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cations is because farms keep an ample supply of anhydrous ammonia, a nitrogen-based agricultural fertilizer that drug dealers often use to manufacture illegal meth."

Waste from the meth manufacturing process washed down a household drain may kill the beneficial bacteria growth in the septic tank, leading to system failure and resulting in a homeowner or landlord calling on a pumper for service. That's when you or your crew can walk into an illegal operation that could threaten your safety.

Barnes recognized all the dangers associated with meth labs — and illustrated in *Breaking Bad* — when he wrote about the topic in *Pumper*.

"Even brief exposure to meth lab chemicals can result in shortness of breath, chest pain, dizziness, lack of coordination, irritation and burns to the skin, eyes and mouth," he said. He warned that the vaporized solvents can exceed Immediately Dangerous to Life and Health (IDLH) values, resulting in coma and death.

LOOK FOR CLUES

Pumpers are advised to watch for signs of illegal drug production when they respond to a new customer location. Among these are unusual security measures at the home, such as camera monitors, bars on windows or guard dogs; windows open for ventilation, even in bad weather; makeshift ventilation systems set up in unusual places; high traffic and numerous vehicles at all hours; stained soil, burn pits or dead vegetation; and strong odors of rotten eggs or cat urine.

What should you do if you notice any of these signs of a drug operation?

"Leave. An active meth lab can endanger you not only from toxic chemicals and flammable gases, but also from those running the lab," Barnes said. "Users are often extremely paranoid and arm themselves, booby trap the area and use attack dogs to protect their production site."

A technician should never open the septic tank or probe a drainfield where a meth operation is suspected. Don't touch anything or go inside buildings. After leaving the site, wash up and shower as soon as possible because airborne chemicals can be absorbed through skin. Don't have contact with others, especially children, until you clean up, Barnes said.

"Don't say anything to the occupants of the house about your suspicions. Have a rehearsed excuse as to why you are leaving and sound convincing if challenged," he said. Then contact local law enforcement.

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signs of trouble

Concrete tanks are a standard in the wastewater industry, but when you confront one in the field, how do you know if it has a problem? Fortunately, they're pretty easy to spot, says one industry expert. And if you do find a problem, odds are you won't have to replace the tank. Concrete tanks are no longer simple things, if they ever were, but this article gives you guidance.

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DO indicates septic health

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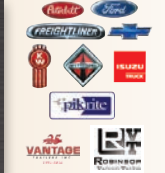
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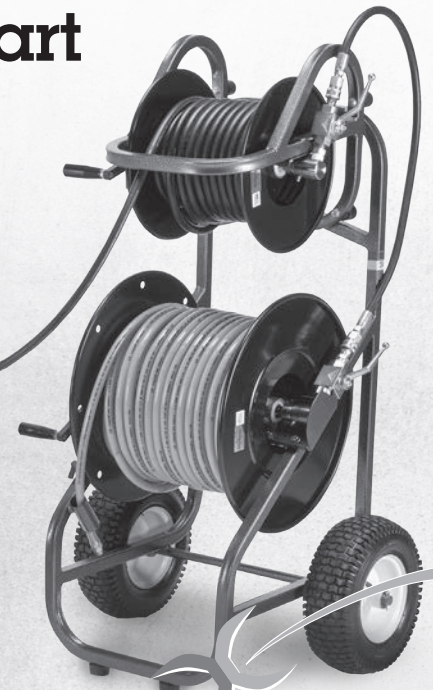
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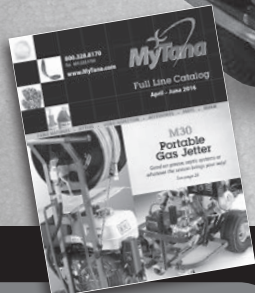


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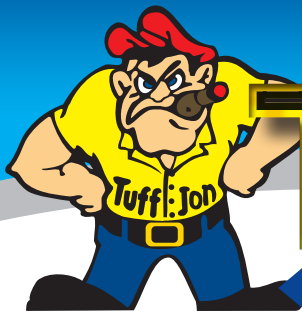
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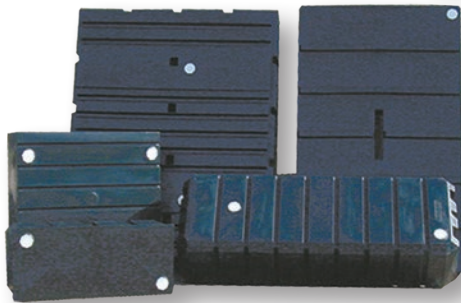
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FOSTERING A LEGACY

The family of Canada's Jim Aitkin are caretakers of a long tradition of community involvement, pumping industry professionalism and helping customers get the most out of their septic systems *By Doug Day*

Providing consistent service and being able to adjust to technology advances are two keys to the long-term survival of a small, family septic pumping business. Without appropriate customer care and constantly taking the pulse of the wastewater industry, a family business may go the way of the dinosaur.

The Aitkin family and their company, Rankin's Septic Tank Pumping Ltd., have avoided extinction for 40 years, partly because of their involvement in professional trade groups and remembering that customers come first.

The Waterdown, Ontario, Canada, company had been in operation for about 10 years when Jim Aitkin bought it from his uncle, Stewart Rankin, in 1977. That explains why the Aitkin's don't have the same name as their family-owned business. Owner Joyce Aitkin continues to operate the office while sons Chris and Paul now run the two trucks since their father died in 2012.

(continued)

The team at Rankin's Septic Tank Pumping is shown with their fleet of vehicles, from left, Chris Aitken, Joyce Aitken and Paul Aitken. Septic service trucks are from Vacutrux and carry Wallenstein pumps. *(Photos by Bruce Bell)*

Profile

Rankin's Septic Tank Pumping Ltd.
Waterdown, Ontario, Canada



OWNER: Joyce Aitkin

FOUNDED: 1967

EMPLOYEES: 4

SERVICES: Septic pumping, repairs and inspections, portable sanitation

SERVICE AREA: Areas of the cities of Burlington and Hamilton

AFFILIATION: Ontario Association of Sewage Industry Services

WEBSITE: www.rankinsepticpumping.ca

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“Everything has to be done instantly,” says Joyce of the biggest change through her years in the septic service business. “Instead of phoning you to make an appointment, people will email you at 11 o’clock at night. People expect you to be able to look up anything, like when they last had their tank pumped, and you can with all the computer records. If we’re doing inspections, they expect their report that day. And you have the ability to email them anything they want, like receipts, instantly. You have to have a website and Facebook page because that’s where people look.”

Being in a tourist area, she says she never knows where business may come from because so many homes are rental units. There are people in Egypt who own residential units who pay through e-transfers. “The world is just a different place, as far as business,” she says. “You have to be ready to accept that.”

“Government is doing its best to have an efficient way of disposing of sewage, and we are trying to work with them to see that it stays that way. If government is going to be able to function, you have to be a cooperative member and be willing to offer suggestions and help out when they need input.”

— Joyce Aitkin

SPLITTING THE LOAD

Since the communities where they work require septage to be disposed of in the city where it is pumped, Rankin’s has two pump trucks on the road, with Paul and Chris dividing the



Above: Chris Aitken attaches a vacuum hose in preparation for a pumping job.

Left: Rankin’s Septic Tank Pumping’s Chris Aitken, left, and Paul Aitken clean up following a residential pumping job. Their Freightliner truck was built out by Vacutrux.

“The portables are just a very small sideline,” says Joyce. They mainly serve landscaping companies and farm customers who need temporary sanitation for pick-your-own operations or in the orchards that are common to the area. They also provide service for large portable restroom companies in the region.

Residential pumping is the company’s main interest and makes up the bulk of the business. The company also does a lot of drainfield line flushing to try to breath life into aging septic systems.

“Over time, a septic system will get solids out into the tile lines,” explains Paul. “In our area, systems were getting to be up to 30-plus years old. We found a lot of people were using the only option of replacing them with a new system, which can be up to \$30,000.”



work to keep one truck in each area as much as possible. That helps to cut down on travel between disposal sites.

Their septic trucks are Freightliners built out by Vacutrux, located about an hour away in Elmira, Ontario, and utilizing Wallenstein vacuum pumps. They are 1999 and 2003 dual-axle models with 3,500-gallon steel tanks. A 1993 Ford F-350 carries a Vacutrux 350-gallon waste/150-gallon freshwater steel tank that Paul uses for servicing a small inventory of 25 portable restrooms that date to 1995. Paul uses deodorant products from PolyJohn Canada.

WIPES A CONCERN

To flush a system, they excavate to expose a 2-foot section of each tile line at about the halfway point. Paul used to do the digging by hand, but they bought a small New Holland excavator in 2009 to make it easier. Using a jetter they built themselves, they flush the entire system and then collect all the waste with a pump truck. The company does about 20 such jobs every summer.

(continued)

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“One of our biggest things is wipes,” adds Chris. “They cause more problems with septic systems. They foul systems, block our hoses, trucks and sewage treatment plants. We try to convince people that they are septic-friendly in that the chemical composition won’t affect the bacteria inside the tank, but they’re no good for your tank and they’re never going to break down.”

A lot of time is spent advising customers as problems arise. “Ninety percent of the people who phone in a panic don’t need their tank pumped, they just have a blocked line,” says Chris. “We can walk them through the process of clearing it out themselves on a Saturday afternoon as opposed to calling a plumber and paying \$500.”

Step one is to open the tank lid closest to the house and poke a stick into the line to see if that clears it. If not, they advise running a garden hose up the line toward the house until they reach the clog and clear it.

RISE IN INSPECTIONS

Both men also do system inspections. There is no legal requirement or demand for periodic system inspections, so they’re typically done on request for real estate transactions. “Real estate inspections are becoming more and more prevalent all the time,” says Joyce. “You never would do them years ago, but now it’s almost every sale.” There are no time-of-transfer regulations in the province, but banks, real estate agents and buyers are requiring them more often. “There’s rarely a week (in the summer) that we don’t do one or two.”

While they always look for problems on service calls and report them to the homeowner, their real estate inspection involves providing a detailed report to the buyer of the property. “We look at inlet/outlet baffles, the integrity of the tank and any degradation of the tile bed area,” says Chris. “We conduct a flow test to ensure the bed will take extra water in a short period of time to assure functionality, and look for any concerns with the system.”

Systems do fail inspections sometimes, which can cause heartache to

The Aitkins bought a New Holland compact excavator in 2009 to make tank access more convenient. Paul Aitkin is the operator.

“Most of the failures aren’t things that would cause an environmental concern, they’re more structural, such as baffles, lids and risers.”

— Chris Aitkin

They called him ‘Mr. Waterdown’

Chris and Paul Aitkin were just 5 and 3 years old, respectively, when their father, Jim, acquired Rankin’s Septic Tank Pumping Ltd. in 1977. Over the next 35 years, he built a big legacy in Waterdown, Ontario, Canada, and the surrounding community that has helped the company thrive since he died in 2012.

“There were 500 people at his funeral, and they put up a memorial to him in the park,” says wife Joyce, who still runs the office for the family business now operated by her sons.

“People like to know who they’re dealing with, they know we can be trusted,” says Joyce. “My husband and sons have been active in the community — it’s a big thing. It’s like seeing the librarian and you remember you have a book you haven’t taken back. People see us, they remember they need their septic tank pumped. They know they can trust us, and we trust them.”

Chris has stepchildren, ages 11 and 5, who show an interest in coming along on the truck a few times a week, and there’s a nephew that has helped out. “We’re educating the younger crowd so there’s somebody to do this job when we’re done, want to retire and sit back and relax. We’ll have to see what happens. If they want to, we’ll have something here for them to work at.”

That’s the way Paul started. Being a small town, he says his dad knew everybody, had been at most homes many times over the years and knew the systems. “I was fortunate enough to ride in the truck with him for many years and pick up on a lot of that.”

Jim was a charter member and longtime board member of the local chamber of commerce and the group presented a lifetime achievement award to him posthumously. He was also very active in environmental and conservation issues such as walking paths and trails and wetland conservation. One local paper, in an article about his passing, called him “Mr. Waterdown.” Another headlined its story with the words, “Aitkin’s influence will continue.”

That influence extends well beyond the Waterdown area, including many years on the board of the Ontario Association of Sewage Industry Services along with terms as vice president and president. “He set benchmarks with the Canadian Standards Association regarding septic tanks and onsite systems,” adds Chris, who is currently the president of OASIS.

“His bar was always just that much higher,” says Chris, who notes that his dad even met the Queen of England as a Queen’s Scout when he was a teenager. “It’s very hard to fill those shoes, so big that I don’t think my brother and I together can fill them.”

the homeowner. But in most cases, failure doesn’t result in a need for system replacement. “Most of the failures aren’t things that would cause an environmental concern, they’re more structural, such as baffles, lids and risers.”

WINTER WORK VARIED

Once winter arrives, residential work is limited to mainly emergency calls, with enough commercial jobs to get through until spring. Winter pumping was the topic of a story in *Pumper* in 1997 when the company was first featured in the magazine. “Generally, we only have enough work for one of the trucks,” adds Chris, who runs the truck during those months. “It’s mostly commercial holding tanks and the odd emergency call.”

Paul stays busy by plowing snow around the area and running his own power-sports company, Sleds R Us, which sells and services used snowmobiles, ATVs and personal watercraft from two locations. It’s enough to keep them busy, which requires effort to, as Chris puts it, “stay small enough to still be a family business and not getting too big that you aren’t anymore.”



A Rankin's Septic Tank Pumping vacuum truck waits at a pumping location in Waterdown, Ontario, Canada. The company's service trucks were built out by Vacutrux with Wallenstein pumps.

Paul, now 41, started working in the business in 1994 and Chris, age 43, joined in 2007 after several years as a fleet manager and long-haul trucker for a local company. "There's nothing better than working together with your family and in this industry," says Chris. "You get to meet a lot of different people. We're quite well-known in our area."

While every day might seem the same, Chris says it's also different every day. "There's always something, we're talking to somebody or doing something for them. It's very satisfying work."

The family has continued a long-standing tradition of supporting community events, whether it's sponsoring a chili cook-off or the Christmas parade, donating portable restrooms to community events or helping with school projects. "We're always donating to keep the community in mind and let them know we're there working for them."

WORKING WITH GOVERNMENT

Chris followed in his father's footsteps with the Ontario Association of Sewage Industry Services (OASIS). Both served on the board of directors, with Chris replacing his dad in 2012. Just like his father did, Chris is currently serving as the group's president.

"They had a lot of guidance from their dad, and they certainly know what they're talking about," Joyce says about her sons. "They've kept up their education and increased their knowledge by going to conventions and working with

government officials.

"Government is doing its best to have an efficient way of disposing of sewage, and we are trying to work with them to see that it stays that way. If government is going to be able to function, you have to be a cooperative member and be willing to offer suggestions and help out when they need input," she continues. "We've always found them to be most cooperative. That's how you find out what's going on in your industry, by being where it's happening." ■

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EPA Clean Water Act Changes Remain in Limbo

By Doug Day

Congressional attempt to block the U.S. Environmental Protection Agency's revisions to the Clean Water Act has failed. President Barack Obama vetoed proposed House legislation to block the law. The Senate had passed its version of the bill in November. The EPA is still not enforcing the Clean Water Act changes because a federal court blocked the law in 2015 while the courts continue to review challenges to the revisions. The EPA has said the changes clarify the law and apply it to fewer bodies of water than before, while opponents claim they expand the agency's power beyond what is allowed by the Clean Water Act. The votes in both houses were far short of the two-thirds required to override the veto, 53-44 in the Senate and 253-166 in the House.

Alberta

All holders of an Alberta Private Sewage Certificate of Competency must complete a training course covering the province's updated regulations. The Private Sewage Systems Standard of Practice 2015 went into effect in January. Certified onsite professionals must update their training by March 31, 2017. About 1,200 people will require the training. The Alberta Onsite Wastewater Management Association will be providing a number of courses on the new standards across the province.

New York

Residents of the watershed serving New York City who replaced or repaired septic systems in 2015 may be eligible for reimbursement for some of the cost. The Catskill Watershed Corporation had offered funding assistance last year, but only to those homes in priority areas close to bodies of water. Because the funding is still available, the group is now accepting applications from those who could not get assistance last year. Permanent residents of the watershed west of the Hudson River can get up to 100 percent of the cost covered, while part-time residents are eligible for reimbursement of up

to 60 percent. The assistance program last year funded 276 septic system repairs and replacements, and aided in paying for 224 systems being pumped and inspected.

Illinois

A barge company is facing about \$20 million in fines for illegally dumping sewage and wastewater into the Ohio River over seven years. The U.S. EPA alleges more than 550 violations and seeks up to \$37,500 per case in a complaint against American Commercial Lines and a subsidiary, ACBL Transportation Services. A company spokesman says the discharges were related to two malfunctioning sanitation units and were self-reported when discovered. The complaint, filed under the Clean Water Act, claims the company discharged sewage and wastewater from two office septic systems, a marine sanitation device and a barge-cleaning operation from 2007 to 2014, exceeding permit limits for BOD, TSS, total residual chlorine and fecal coliform. The fecal coliform limits were exceeded on more than 50 occasions with levels nine times or higher than allowed, and were 100 times over the limit in at least 16 cases, the complaint claims. During one reporting period in 2009, the EPA reports chlorine was more than 700 times higher than allowed.

Virginia

The state Department of Professional and Occupational Regulation is reviewing licensing requirements for onsite soil evaluators, onsite sewage system installers and onsite sewage system operators. The regulations have not been reviewed since 2009. According to the board's notice, the routine review is to make sure the regulations reflect current laws, procedures and policies, and to correct any errors. Meanwhile, the state Department of Health is reviewing its regulations for alternative onsite sewage systems. Both are periodic reviews and the agencies have invited public comments and suggested changes.

Nova Scotia

Effective May 1, most onsite sewage system installations will require only a notification to Nova Scotia Environment rather than approval. To qualify, the system must meet the province's new On-Site Sewage Disposal Systems Standard. A professional engineer or "qualified person" must determine the best type of system and location, and inspect and certify the proper installation by a certified installer. The homeowner has the legal requirement to have an adequate system and must maintain it in working condition. The owner is also required to notify NSE of any malfunctions or release of untreated or partially treated sewage to the environment. ■

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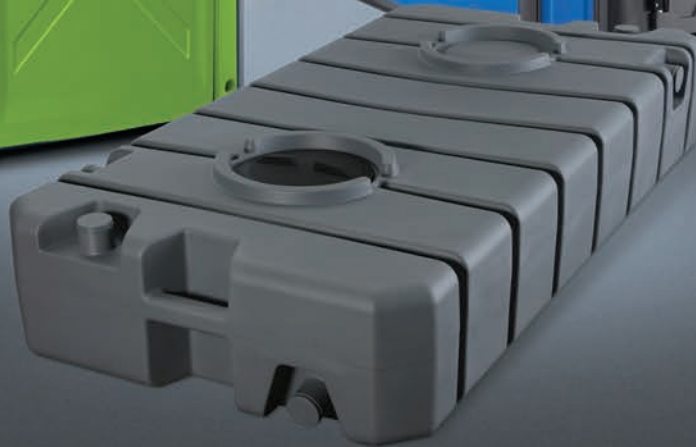
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Russell Trahan is president of public relations agency PR/PR. For more information, visit www.prpr.net.

Missed Connections — To Tweet or Not to Tweet?

Even in today's nontraditional business world, online communication is no substitute for traditional methods of follow-up — and it could cost you new clients **By Russell Trahan**

Bryan walked into his office and flipped on the lights. It had been one month since he had submitted his proposal to an industry-leading executive team, and today was the date of their decision on whether to retain his company. Securing this contract would be a pivotal moment in his career and in the future of his small business.

As the minutes turned to hours, Bryan became increasingly worried, but he had covered his bases and kept in touch. Just last week he engaged in some brief social media banter with the team's CFO, maintaining an air of informality while ensuring that the lines of communication remained open.

His inbox dinged — it was the company's CFO: "Bryan, we appreciate your proposal submission, but we have decided to go in another direction. We require more consistent interaction from our business partners, and while we scheduled today to finalize our decision, we had yet to hear from you in the interim. We wish you the best of luck."

The email hit him like a freight train. Bryan had avoided a formal follow-up process in fear of seeming overeager or pressuring his prospect, but he had maintained casual connections through his LinkedIn and Facebook accounts just to keep his name top of mind. While Bryan assumed the company's executive team would appreciate his distance while they were making their decision, it actually became the nail in his corporate coffin. They were awaiting his traditional methods of follow-up, and his lack of correspondence instead conveyed that he was not the right man for the job.

PROFESSIONAL COURTESY

In an ever-expanding digital business landscape, Bryan's story is all too familiar. Many working professionals are exchanging established means of follow-up, such as phone calls and face-to-face meetings, for quick messages over social media or email, and it is impacting their business relationships and bottom lines. They sacrifice professional courtesy in an attempt to appear casual, and regardless of the many ways we can now communicate, when it comes to follow-up, the best practices are the traditional ones.

Consider the following:

Social media can be bad form

Do you have a friend or relative who limits all contact with you to digital convenience? That person never fails to comment on your timeline or feed, but you cannot recall the last time you actually spoke.

These individuals also exist in the business realm, and they've attempted to streamline their communication by relying on their social media accounts. It's not just a bad business practice — it's bad overall form. Social

media can prove invaluable when creating connections, but maintaining them, which is the objective when conducting a follow-up on a potential deal, should always be reserved for traditional modes of correspondence. Anything less borders on lazy and unprofessional.

Attention or annoying?

Once you've curbed your inclination to follow up online, there are parameters that should be adhered to when following up with leads. The first — and most important — is to establish an agenda when touching base with your prospects and ensure that each subsequent call or meeting provides new information. There should be a concrete reason for picking up that phone and a distinct benefit to the individual on the other end.

Any parent can describe road-trip trials and tribulations, including the constant, maddening cries of "Are we there yet?" from the backseat. That same irritated feeling occurs with continuous follow-up business calls. There is a distinct difference between being attentive and being annoying — learn it, because your potential client is already well aware.

Two to tango

To avoid flooding your prospects with phone calls, give them the freedom to lead the interactions a bit. Allow them to dictate the follow-up flow by inquiring about their timeline and preference for the next call or meeting, and set a date. Whether your next meeting is in two weeks or two months, your prospect has provided an appropriate date and time for it to occur. The onus is now on you to follow the plan and pick up the phone.

Stick to your calendar

Today, there is a palpable aversion to following up with established leads in favor of "keeping things casual." This only leads to one thing: missed opportunities. Let your calendar hold you accountable. Before the end of a meeting or call, be sure to pencil in an appropriate time to follow up with your prospect, and stick to the date on the calendar. Keeping things casual may maintain pride, but it does not promote sales.

BETTER PLAN NEXT TIME

Because Bryan was remiss with his follow-up practices, he lost out on an important deal for his company and for his professional growth. Lessons are often learned through unintended or unwanted consequences, and going forward, Bryan will make sure to devote a large amount of energy and attention to the manner in which he follows up with prospective clients. ■

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Free Online Tool Helps Educate Onsite System Customers

The University of Minnesota created a customized owner's guide to raise awareness about proper use and maintenance of septic systems **By David Steinkraus**

Many agencies and organizations offer an owner's guide for wastewater systems, but they are often generic or limited to one or two major components. No comprehensive guide has been available for customers' particular systems — until now. With funding from the U.S. Department of Agriculture, the University of Minnesota Water Resources Center has developed online software that wastewater professionals can use to create customized guides that tell customers about their specific system.

It's called the Community Septic System Owner's Guide, and installers can register and use the tool for free by going to www.h2oandm.com.

"The easiest way to describe it is to say it's like TurboTax, the online tax-preparation software. You put the specifications into the online form, and the software draws in related information to generate the guide," says Sara Heger, a Ph.D. engineer and researcher at the Water Resources Center who led the project.

The guide is suitable for single-family homes, cluster systems or commercial buildings. Research partners in other areas of the country also looked at the software, and the result is a tool that adjusts for climates and conditions other than Minnesota's.

At the end of the process, the software generates a PDF file that can be shared electronically with customers, printed for them or posted on the website of a homeowners association responsible for a cluster system. Guides average 20 pages, but the complexity of a system and the number of photos or other graphic elements can change that. Stock images of a septic tank and other components are available, but the owner's guide can be

enhanced with manufacturers' images of specific components. Companies will be able to customize guides with photos from each job so clients see exactly what they have.

GETTING STARTED

Once wastewater professionals create online accounts, they can set up a template. With photos and other information stored in their online account, and with practice, they can generate a new customer guide in five to 10 minutes, she says.

"For most people, I think the biggest barrier to using any type of software tool like this is that first project," Heger says. "It's working through the options and learning where to go."

The tool will work for systems that are installed now and for those installed 20 or 30 years ago. People who have just paid for a new system may be more receptive to education, but supplying a custom guide for an older system builds credibility with customers, too, Heger says.

A webinar covering the Community Septic System Owner's Guide will be held May 25, 2-4 p.m. (Eastern time). For more information, go to <http://septic.umn.edu> and look under "upcoming workshops."

People who have seen the online tool are excited and have their own ideas for it, Heger says, such as linking it to maintenance scheduling software. That may come in future versions, but updates will require more funding, Heger says. The USDA grant runs through August, providing enough time for finishing tweaks. For example, the software was adjusted to take into account regional names for the same thing: A low-pressure pipe system in

one part of the country is called a pressure trench elsewhere.

"For this version we wanted to cover the basics, and we did that. I will never pretend this will cover 100 percent of the systems installed, but I hope it will cover more than 95 percent."

HELP FOR EVERYONE

It's not only designers, installers and pumpers who can use this, Heger says. County sanitarians, health department officials or state natural resources staff may also find this guide a useful tool.

No other major household or business purchase comes without technical documents, she says. Buy a car, a computer or a refrigerator, and there is a manual for each. But costly and complex wastewater technology doesn't typically come with an operations manual, she says.

"The industry can help itself, and professionals will look better to customers if they give people the information they need to help themselves," Heger says. ■



Contact Sara Heger at 612/625-7243 or sheger@umn.edu.

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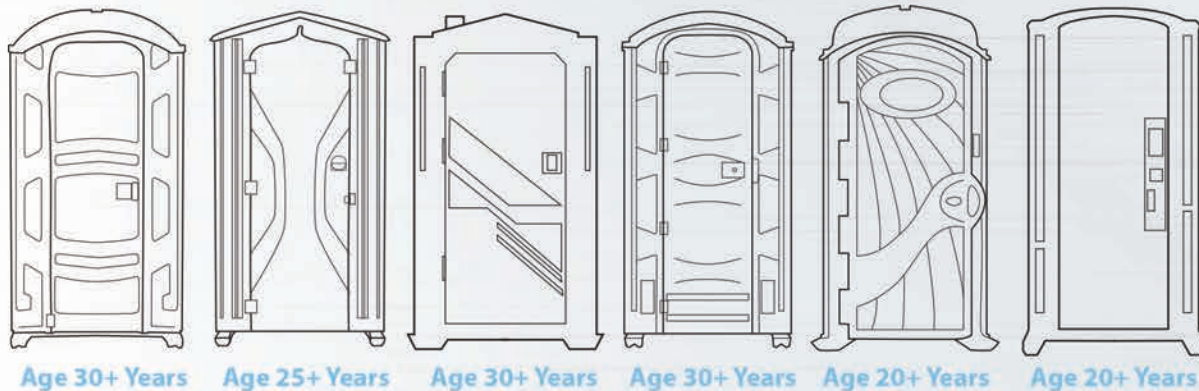
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BEST BAREFOOT FORWARD

New York pumping operation uses catchy family name, integrated marketing and constant consumer education to capture more customers **By Ken Wysocky**

Profile

Barefoot Septic & Sewer
Caledonia, New York

OWNERS: Jon and Scott Barefoot

FOUNDED: 1961

EMPLOYEES: 10 full time and six part time

SERVICE AREA: 25-mile radius around Caledonia

SPECIALTIES: Septic system pumping, repair, inspections and installation

WEBSITE: www.barefootseptic.com



Marketing can be a bit of a mystery for some septic service contractors. But to Scott Barefoot, the co-owner of Barefoot Septic & Sewer, the evidence is clear.

An integrated marketing strategy — coupled with an emphasis on professionalism and customer service — can definitely fuel growth for a small, family-owned service company, as Barefoot has learned through experience. And it's true even for a mature, well-established pumping company.

Like many service contractors, Barefoot Septic, based near Rochester, New York, once relied primarily on phone book advertising to promote its services, which include septic system installations, inspections and repairs along with pumping. After Barefoot's father, Jon (now majority owner and president), founded the company in 1961, the business slowly grew its phone book presence, finally to a full page in two books. But about five years ago, the duo took a step back to look at the big picture and realized they weren't getting a bang for their advertising buck.

(continued)



The Barefoot Septic & Sewer crew includes, from left, Scott Barefoot, Chris Rutherford, Cal Stetzel, Brian Weber, Kevin Walton, Penny Saulen, Ben Rutherford, Adrian Johnson, Liz Barefoot, Cole Johnson, Jon Barefoot, Adam Pursel and Jake Weber. *(Photos by Mike Bradley)*

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Left, top: Father and son owners of Barefoot Septic & Sewer, Jon, right, and Scott, left.

Left, below: Cole Johnson returns vacuum hose to his truck during a residential service call.

Below: Technicians Cole Johnson, left, and Kevin Walton empty a septic tank in Scottsville, New York.



“We were spending about \$40,000 a year on Yellow Pages advertising and not getting much return for investment. ... We knew that less people are using phone books when they look for a septic service provider,” says Scott Barefoot, a minority owner of the company and its vice president. “At the same time, we also were worried that the phone would stop ringing if we pulled the Yellow Pages ads. But eventually we became convinced it was a gamble worth taking.”

Clearly, dropping all advertising wasn’t an option. So, based on a referral from a friend, the Barefoots hooked up with Kristin DiProsa of Prosper Marketing + Branding. With her help, the Barefoots updated an old company website and redirected its marketing budget toward more grass-roots advertising efforts, such as mass mailing of postcards with a discount offer, educational pamphlets for customers, business cards and refrigerator magnets. All the materials are branded with the company’s distinctive logo: a red (barefoot) footprint.

“These changes have resulted in a significant growth spurt over the past several years,” Barefoot says.

“We’ve found (customers) don’t want to run the risk of expensive leachfield problems. People really do like to be reminded. And if we remind them twice, they don’t find it annoying — they’re grateful.”

— Scott Barefoot

DIRECT MAIL GETS RESULTS

A revamped reminder-card program keyed the surge. For decades, the company has mailed out postcards to customers on three-year pumping intervals. If the customer didn’t respond, Barefoot Septic made no further contact. “Now we send postcards out every two years,” Barefoot notes. “And if we don’t hear from them, we send out another one in six months. We went back in our database and sent out reminder cards to customers who’d fallen away

and we got an overwhelmingly positive response. ... Just this year alone, we’ve added more than 560 customers to our database.

“This tells me something I’d always suspected during the years I drove a pumper truck: Customers like to be reminded. My father was always concerned that we’d come across as badgering the customers. But we’ve found they don’t want to run the risk of expensive leachfield problems. People really do like to be reminded. And if we remind them twice, they don’t find it annoying — they’re grateful.”

Based on advice from DiProsa, the company also mails out promotional postcards targeted at potential customers in ZIP codes where municipal sewer service is uncommon. The company sends out the cards once a month from April through November; new customers get \$20 off a pumping

(continued)



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Inspections are a great marketing tool

Barefoot Septic & Sewer does a brisk business in septic system inspections — anywhere from 10 to 20 a week, prompting the Caledonia, New York-based company to employ a full-time inspector, according to Scott Barefoot, co-owner and vice president.

Inspections also serve as a marketing tool that exposes customers to the company's full range of septic services. "They boost our pumping business because the septic tank gets pumped every time we do an inspection," Barefoot explains.

"Perhaps most importantly, all new homeowners are provided with a clear, thorough report about the septic system at their new home with our name on it," he adds. "In this way, we often become the first call when service is needed."

The State of New York does not require a license to perform onsite system inspections. As such, the scope and thoroughness of inspections can vary widely from contractor to contractor. To make customers feel confident about the quality of inspections, Barefoot Septic has developed its own criteria for comprehensive inspections, Barefoot says.

"We've created our own forms," he says. "It's a very thorough procedure that also includes inspecting inside houses to see how all the wastewater plumbing exits. ... Sometimes we find that certain drains bypass the septic system altogether and drain into a ditch."

Brian Weber, Barefoot Septic's in-house inspector, works with local Realtors and generates a steady stream of inspection referrals. Most of the referrals come from Realtors, but sometimes people who are buying a home call for inspections, too, Barefoot notes.

"Aside from serving as an entree to pumping and repair services down the road, doing inspections also speaks to our company's professionalism because we're called in as septic system experts," he says. The company presents inspection reports in a folder with information gleaned from county health department records, which Weber researches to gain as much information as possible about a system prior to its inspection.

if they respond within the month the mailing occurs. "And whether or not a customer responds during the month they receive the card, a lot of them save the card and call us later, so it still works as advertising," he adds. "The mailings easily pay for themselves."

Barefoot has good news for pumpers who might think marketing firms are too expensive to use: He says the company doesn't spend any more now on marketing than it did before. "And if you look at the income generated from pumping, the cost of reminder postcards is a drop in the bucket," he adds.

A FAMILY BUSINESS

Jon Barefoot began his career as an excavator and worked closely with his father, James, who ran a water pump and well service business. In 1971, Jon bought out a local septic pumper and focused more on that market. Scott joined the company in 1991, about a year after he graduated from St. Bonaventure University with a degree in business administration.

"I hadn't planned on joining the business," Barefoot says. "But at the time I graduated, the environment was a hot topic. That was something that resonated with me. ... I saw a lot of potential for growth in an industry that interacts with the environment the way we do."

Barefoot spent his first decade pumping out tanks, but he also left his mark on company operations in other ways, especially in marketing. Under his tenure, the company changed its name from Jon Barefoot Septic Systems and developed a new logo that playfully — and memorably — leverages a unique asset: a last name that's as catchy as it is uncommon.

"We have an unusual last name," says Barefoot. "I think that it sticks in people's minds. Our barefoot logo is crisp and clear and we wear it loud and proud on all of our equipment. We get a lot of comments about it from customers."

“At the time I graduated, the environment was a hot topic. That was something that resonated with me. ... I saw a lot of potential for growth in an industry that interacts with the environment the way we do.”

— Scott Barefoot

The barefoot logo replaced a Winnie the Pooh image, with the lovable bear's hand in a honey jar. That reflected the Barefoots' decision to more proactively emphasize a professional image.

"We wanted to move away from goofy and silly to something that's serious and professional," he explains. "As a result, I think we're taken more seriously; and people need to take their septic systems more seriously," he adds. "There's no advantage to making a joke of it and treating the industry lightly."

Better yet, Jon Barefoot endorsed all of the changes. "He embraces change," the younger Barefoot says. "To tell the truth, he's probably more open to change than I am — more of a risk-taker."

(continued)

All of the Barefoot Septic & Sewer vacuum trucks are built by Vacutrux and utilize Wallenstein pumps.



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Right: Technician Adrian Johnson, left, and Scott Barefoot go over work orders for the day in the Barefoot Septic & Sewer office in Caledonia, New York.

Below: Cal Stetzel operates a Doosan excavator. Also shown is a dump truck carrying a Raglan Industries dump body. Barefoot Septic & Sewer runs four dump trucks and several excavators for installing work.



VERSATILE EQUIPMENT

Over the years, the company has invested heavily in equipment that enables it to offer a full range of services. That, in turn, allows the company to maximize revenue by minimizing the need to use subcontractors. “When people see that we have everything they need, that works to our advantage,” Barefoot says. “They see us as a one-stop septic shop.”

The company relies heavily on four vacuum trucks built out by Vacutrux Limited on either Mack or Kenworth chassis. The rigs feature 3,300- to 4,000-gallon steel tanks and Wallenstein pumps. In addition, the company owns four excavators made by Doosan Infracore America Corporation, Case (CNH Industrial America), Bobcat and Schaeff; two Case backhoes; a Bobcat skid-steer; a John Deere bulldozer; a Trojan loader; four dump trucks with aluminum and steel dump bodies made by Galion-Godwin Truck Body, Raglan Industries and Beau-Roc; a box trailer made by Atlas Specialty Trailers; five GMC pickup trucks; two equipment trailers manufactured by Interstate Cargo Group; and four CornPro utility trailers.

Investing in advanced, quality equipment not only enhances the company’s focus on professionalism, it also helps boost customer satisfaction by reducing downtime and allowing employees to finish jobs quickly and efficiently. But the little things that employees do on the job also contribute to great customer service, Barefoot says.

“Our business has been built on the simple do-unto-others principle. ... We strive every single day to treat our customers as we would like to be treated,” he points out. “We are very careful to leave every customer’s property at least as nice as it was when we got there, with no oil drips on the driveway, no mess on the lawn and garden hoses coiled away neatly,” he says. “Customers frequently tell us that we put dirt and sod back on top of a tank cover so neatly that they have to look closely to even know we were there. We love that.”

LOOKIN’ GOOD

Technician appearance is important to the company. Workers wear uniforms and a service is hired to launder the uniforms weekly. Barefoot said it’s important to keep the equipment in good working order as well. “We have the best mechanic in the world, Adam Pursel, and he keeps everything operating in tip-top condition,” he says.

The emphasis on customer service extends to the company’s website, which answers frequent questions and allows online service requests.

“Some of our customers don’t like to use the phone. ... They’re used to email or texting,” Barefoot says. “We’re also in the process of implementing a system that can send out (service) reminders via email instead of mailing them, or in addition to mailing them. It’s just another way we make things convenient for customers.”

There’s another aspect to customer service that Barefoot says makes a big difference: customer education. Technicians go out of their way to teach customers about proper septic system maintenance. That includes a recommendation to get tanks pumped out every other year, he notes, not three years, as technicians used to suggest.

“That’s because we see tanks that are overfull and neglected way too often,” he explains. But don’t customers see that as a cash grab? Not if it’s properly explained, he says. “The expense and inconvenience of having your septic tank pumped every other year is minimal when compared to the expense and inconvenience of repairing or replacing a neglected system,” he says.

KEEP ON GROWING

Barefoot Septic has enjoyed steady revenue growth during the last several years, and Barefoot expects to continue on that path for the foreseeable future. But beyond revenues and profit margins, Barefoot is also passionate about building on the family legacy his grandfather established more than a half century ago.

“I love to carry on the family tradition of excellent customer service that was started so long ago,” he says. “It’s important to me that customers continue to associate the Barefoot name with quality service they can trust.” ■

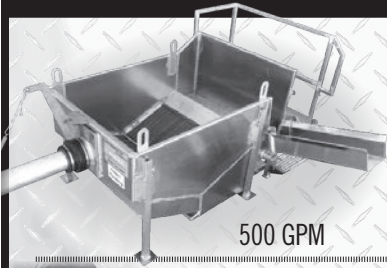
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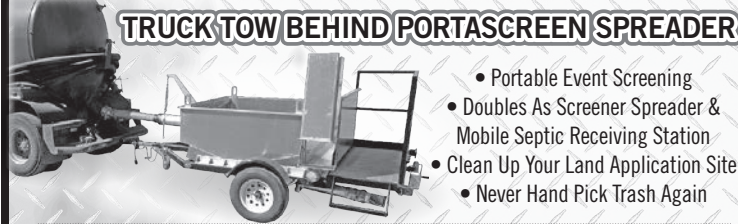


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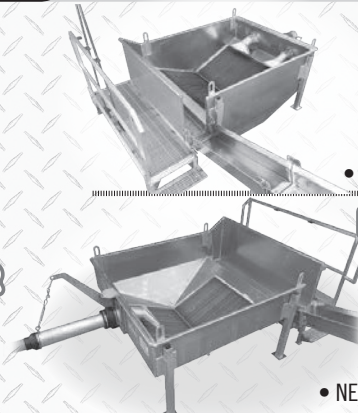
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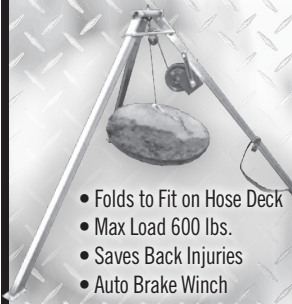
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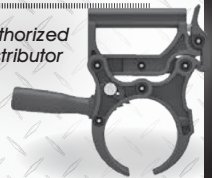
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Stiffer Regulation Aids Onsite Industry Professionalism

The Onsite Wastewater Professionals of Illinois favors continuing education, licensing measures to improve systems and protect the environment **By Doug Day**

You used to be able to get an installer license in Illinois by simply writing a check. Requiring an exam and continuing education has improved the qualifications of installers and pumpers, and regulatory changes over the years have improved the quality of systems going into the ground.

The Onsite Wastewater Professionals of Illinois was formed in 1997, in response to proposed septic code changes, according to Rick Maguire, past president of the group and former member of the Illinois Department of Public Health Onsite Wastewater Advisory Commission, and Steve Johnson, a founding OWPI member and current board member, who also chairs the group's annual conference committee. The organization now has about 300 members.

There's a complex history in Illinois. Can you take us back to the beginning?

Johnson: We were chartered in 1997. At the time, Illinois allowed surface discharge anywhere and environmental groups had threatened to sue. Our goal was to speak for contractors, regulatory agencies, designers, engineers, service personnel, portable restroom people, pumpers — anyone who has a stake in the game.

Eventually, the Illinois Environmental Protection Agency in 2006 proposed National Pollutant Discharge Elimination System permits on all surface discharge systems. The Department of Health tried to write a regulation but it wasn't acceptable to some legislators, so the U.S. Environmental Protection Agency got involved and regulations took effect in 2014. (See sidebar.)

Were you happy with the outcome?

Maguire: I'd say we agree with most of the changes. Overall, we came up with a good compromise.

Johnson: Compared to what it could have been, it's manageable. Change is a scary thing; it made things much more difficult and expensive. Some installers were doing mainly surface discharge systems and that came to a halt. Right now, we're in a "let's take a breath" mode to see how things shake out. DPH is talking about reactivating its Advisory Commission to start addressing some of the issues in our state code. As an organization, we don't have a punch list of items, but we'll be involved.

Are you happy with the status of the onsite wastewater industry in Illinois?

Maguire: We have the right amount of government, just enough to

make sure everybody plays by the rules. Designs are more site specific, utilizing the soils instead of just putting in a tank and discharging to a ditch. It's raised awareness of installers and they're trying new things, which helps the industry.

Johnson: It varies from county to county. The farther north you go, the more restrictive they are because it's more urban. Farther south is more rural, a different area, different population density. But there are minimum standards now that have raised the bar.

While the EPA surface discharge issue was being settled, were there other regulatory changes taking place?

Maguire: We did get mandatory maintenance into the state code and that will help. Septic tanks with a seepage field have to be evaluated every five

years, sand filters and waste stabilization ponds every year, and aerobic treatment units every six months. All others have to be maintained according to manufacturer specifications. There are also requirements dealing with pumping frequency of various systems and recordkeeping.

Johnson: If you're concerned with what's going out, require mandatory service. It makes people responsible and holds them accountable for the treated effluent they're producing.

Continuing education was one of the changes that threw a lot of contractors for a loop initially. To get a license, you now have to pass an exam and get continuing education. It became

effective January 2014 and contractors needed training hours by January 2015 — it's only three hours per year.

Did you support that?

Johnson: Absolutely, but we wanted more than three hours. Any organization that wants to improve professionalism would support it. Having to take an exam cut the number of license holders roughly in half; people who didn't really do it for a living or were just putting in a tank and piping it to the



Rick Maguire

“ We have to realize that we're all in the same field, whether you're sitting behind a desk as a regulator or sitting on a backhoe. Changes are coming. Technology improves, populations change, the economy changes, and all of that comes into play.”

- Steve Johnson

US EPA moves to limit surface discharge in Illinois

Part of the onsite industry in Illinois is now regulated by the U.S. Environmental Protection Agency. About 10 years ago, environmental organizations began pressuring the EPA about surface discharges allowed in the state.

According to an EPA notice in April 2012, the Illinois Department of Public Health had allowed surface discharge for more than three decades: "IDPH and local health departments have overseen the proliferation of such systems to an extent that surface discharging systems have accounted for approximately 40 percent of all private sewage disposal system approvals issued, at least since the collection of permit data from local health departments began in 1996. An estimated 150,000 surface discharging systems now exist in Illinois."

As of February 2014, new or replacement surface discharge septic systems are only allowed if alternatives are technically or economically infeasible. They will need a general permit from the U.S. EPA if they discharge to traditional navigable waters, tributaries of traditional navigable waters, and wetlands that are adjacent to traditional navigable waters or their tributaries. The federal permits, under the National Pollutant Discharge Elimination System, set discharge limits at 1,500 gpd and require periodic inspection, reporting and effluent monitoring by a qualified person every six months, and visual inspection by the property owner twice a year, including a log of inspection dates and findings. Connection to a sanitary sewer system is required if it is less than 300 feet away from the property.

The IDPH still regulates systems that have no surface discharge as well as those that discharge treated effluent up to 1,500 gpd to the surface.

ditch, those people are gone.

We offer 16 hours of training at our annual conference in February. For a state-level show, it's a pretty decent show and all the major players are there. We partner with the Portable Sanitation Association International for their training and exam, and host a room for the Illinois Department of Public Health for licensing pumpers and installers, and we offer a refresher course prior to the test.

We also partner with local health departments. We have a program that will provide seed money to help them do outreach and training for contractors.

How is the relationship between the industry and the regulators?

Maguire: It's going extremely well. When we were in the heat of the battle I wouldn't have said that. After the last two or three years, we have a good rapport with the Department of Health and with both Illinois and U.S EPA. The relationships improved drastically.

What's the key to improving such relationships?

Johnson: Communication. We have to realize that we're all in the same field, whether you're sitting behind a desk as a regulator or sitting on a backhoe. Changes are coming. Technology improves, populations change, the economy changes, and all of that comes into play. You have to keep an open line of communication and not make it adversarial. In our situation, nobody came away with everything they wanted, but everybody got enough of what they wanted. ■

For more information on the Onsite Wastewater Professionals of Illinois, go to www.owpi.org.

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Klear it Kone Accessory Designed to Clear Septic System Blockages

By Craig Mandli

Every septic service professional has come up with a shortcut or two to make the job easier. For years, Dan Marston, owner of New Hampshire's E & E Septic, and his crew dealt with blockages in the lines leading to residential septic systems. While the blockages only occur in an estimated one in 10 jobs, they typically required his technicians to stop what they were doing and return to the shop for a large pushrod cleaning system or trailered water jetter, costing valuable time and money.

Marston and his techs figured there had to be a better, more efficient way to clear blockages occurring in residential septic systems. That thought turned into the idea for the Klear it Kone, on display for the first time at the 2016 Water & Wastewater Equipment, Treatment & Transport (WWETT) Show.

Using industrial know-how and knowledge of vacuum science, along with their combined years in the septic industry, Marston and one of his lead techs, Chris McConnell, developed and began field testing a prototype of the Klear it Kone, a tool that harnesses the powerful suction capacity of the truck's vacuum pump without requiring use of any sewer snakes or jetting equipment.

"Our first prototype was essentially a safety cone at the end of a vacuum hose," says McConnell. "We made it with parts that were laying around the shop. When we started searching for an actual product that performed the same function, we couldn't find it."

Instead, Marston took the time to redesign, patent and ultimately manufacture a compact product that fits easily on any septic truck and, according to McConnell, has been proven to clear blockages nine out of 10 times.

"We've been perfecting this over the last two years, and I would say I use it on my route at least once a day," he says. "Anyone who's been pumping tanks a long time knows this is something that they need."



The unit comes with the hose attachment to be used on any inlet pipe running from the tank to the house. It also comes with a T-baffle attachment to be used to pump out a drainfield. According to McConnell, the effectiveness of the unit comes from the tight seal the rubber cone makes with the inlet pipe.

Chris Marston, a technician with E & E Septic, explains the Klear it Kone to attendees at the 2016 WWETT Show. The tool allows technicians to harness the suction capacity of the pump on a vacuum truck to clear blockages in inlets and septic lines. (Photo by Craig Mandli)

"The engineered rubber cone that we use in this product is the most important part," McConnell says. "It is made to stand up to heavy-duty use and still maintain a tight seal, allowing the vacuum pump to do all the work."

While the Klear it Kone is currently being marketed to the septic pumping industry, McConnell sees no reason why it couldn't also be used in portable restroom trailer applications. The science behind the tool, he believes, allows the idea to be expanded to other wastewater fields as well.

"We've played around with the idea of making a larger, industrial-sized version that could be used on larger sewer infrastructure and piping systems," he says. "Really, with this science, you're only limited by the size and power of your vacuum pump."

McConnell was pleased with the reaction his product received at the WWETT Show, as several Klear it Kone units could be seen in pumpers' hands on the show floor. He says other pumping professionals told him they've waited a long time for a product like the Klear it Kone to hit the market.

"So many of these guys were in the same boat we were, and many of the pumpers I talked with said they've made their own contraptions to deal with clogged septic lines over the years," he says. "They were impressed with the durability and simplicity of our product. It was good to hear from so many in the industry that were thinking the same way we were. We'll definitely be back next year." 603/693-2033; www.klearitkone.com. ■

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Erik Gunn
is a business writer
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Section 179 Deduction Lets You Keep On Truckin'

Now that a strong federal tax benefit for equipment purchases is permanent, it's time to think more strategically about keeping up with your machinery needs **By Erik Gunn**

There's some good news on the tax front for small companies that spend big bucks on equipment.

After more than a decade of year-to-year uncertainty, an important federal tax deduction on equipment purchases has been made permanent — part of the big federal tax and spending measure that Congress passed and the president signed late in 2015. The deduction is found in Section 179 of the U.S. tax code, and it lets small businesses take an immediate federal tax deduction on the price of certain kinds of new equipment in the year it's purchased.

YEARLY CLIFFHANGER

Back in the 20th century, Section 179 was a pretty small deal — you could only take it for equipment costing less than \$25,000, and you could only take the full deduction for a total of \$125,000 worth of equipment purchases in a year.

In the economic slump that followed the 9/11 attacks, Congress gave Section 179 a temporary big boost, setting the cap at \$500,000 for individual pieces of equipment that can be expensed in the year they are placed into service. Congress also raised the cap for all equipment purchases in a year that would qualify for the full deduction up to \$2 million. In the nearly 15 years since then, the higher limits have been renewed every time they were about to expire. That's been an annual ritual for several years now.

The latest spending plan ends that annual ritual by making those higher limits permanent (or at least as permanent as anything gets in Washington). No more late-December cliffhangers about the future of Section 179.

"This is something truly directed at small businesses," says Patricia Hintz, who practices tax law at the Milwaukee law firm of Quarles & Brady.

Here's how it works in practice:

Suppose in 2015 you bought a new specialized truck for \$100,000. Traditionally, a purchase like that has to be depreciated over a fixed period of time. That means you can't deduct the full cost the year you buy the vehicle — instead, you deduct a portion of the cost over several years, using a formula that also reflects its depreciating value.

FINANCIAL FLEXIBILITY

(Depending on a lot of factors, you might even want to stick with that approach. That's way beyond the scope of this column, though — and what we say here is no substitute for what your professional legal and financial advisers who know the details of your business circumstances can tell you.)

Section 179 allows you to take the full deduction in year one for that \$100,000 truck. By the way, you can take it no matter whether you're paying for the truck in full when you buy it or whether you finance the purchase so you're paying for it over several years. On the tax forms, the Section 179 deduction, if you take it, is for the full \$100,000.

That \$100,000 comes off the total taxable income of your business — or your own taxable income if your business, like most smaller firms, is organized as an S corporation of a limited liability corporation, with the income passing straight through to the owner.

"It takes your income down dollar for dollar," Hintz says. "The actual effect to your taxes depends on what bracket you're in."

To someone for whom the marginal tax bracket is 30 percent, "an additional \$100,000 deduction will reduce your tax bill by \$30,000," she explains.

LIMITS AND COMPLICATIONS

If you spend more than \$2 million a year on equipment that qualifies for the Section 179 treatment, the tax break starts to phase out.

And the provision only applies to equipment; other kinds of expenses — such as real estate — don't qualify for the immediate deduction it offers.

There are some other wrinkles. First, you don't have to take the Section 179 deduction for the entire cost; if it's to your financial advantage to take only part of it and depreciate the rest of the cost over the next several years, you have that choice. Second, you can't benefit from the full deduction if your business reports a net loss for the

year — or would if the full deduction was counted. But you can carry forward the deduction to future years so long as you claim it to start with.

But complexities like those are yet another reason you must work with your professional adviser before making any decision of this sort. (And if

“What is the return on investment and payback period of the asset to be purchased? ... There may be a startup period where the machine is slowly eased into service over a period of months. As more clients discover your new equipment is available, the more the equipment will earn its keep.”

Randall Turner

(continued)

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STRATEGIC THINKING

With or without Section 179, there's another important lesson: Having the robust benefit can unquestionably provide a great help to your bottom line, but it's never the reason to make that purchase. You really need to take stock of what the purchase is going to be worth to your business, says Randall Turner, a financial consultant based in Bradford, Pennsylvania, with extensive experience in equipment-heavy industries.

Business owners will — and should — weigh several factors before buying a large asset, Turner explains: what they need vs. what they want, whether to buy new or used, how much they can afford, how they'll pay for it and whether it's the best use of their money.

But then there's "the most unexplored question that really should be the first question," he adds: "What is the return on investment and payback period of the asset to be purchased?"

That requires carefully considering what the real revenue of the new machinery will be — and what it really costs to run it.

"There may be a startup period where the machine is slowly eased into service over a period of months," Turner says. "As more clients discover your new equipment is available, the more the equipment will earn its keep." Or on the flip side, the equipment might go into use at a time of rapidly expanding demand and get put to use overtime right away — only to suddenly go unused after the initial burst of excitement, once pent-up demand is exhausted.

So consider the full cost over time — payments, fuel and maintenance, and labor to operate the machine — in your ROI calculation.

"Then the simple test is to compare the expected ROI with how much return you'd expect to get in an alternative investment with similar risk," Turner says. You need to consider the cash-flow payback over time to see when you start breaking even.

Subtracting costs from the annual revenue, then multiplying by 100, will give you an ROI as a percentage. And you'll need to chart that year to year to determine when you'll break even and start profiting from the machine.

CHANGING TIMES

The world is changing too fast to simply assume a perpetual status quo, Turner points out. "Everyone thinks the world's going to stay like it is," says Turner. "How stable is your market?"

He's seeing banks close their fists now — "looking for excuses not to loan money." That means any purchase should be accompanied by a solid financial prospectus for the acquisition.

And for that reason, even just relying on a standard replacement cycle isn't necessarily the right move. Instead of planning a replacement cycle of five or seven years, "I would look at it every year because every year your environment changes," Turner says.

So where does that leave you? The bottom line is you now have a reliable, robust tax break to count on when buying new equipment. But more than ever, changing circumstances will require you to undertake a careful analysis of equipment needs and your ability to support the purchase for the long term.

And that will be worth a lot more than any tax break, no matter how generous. ■



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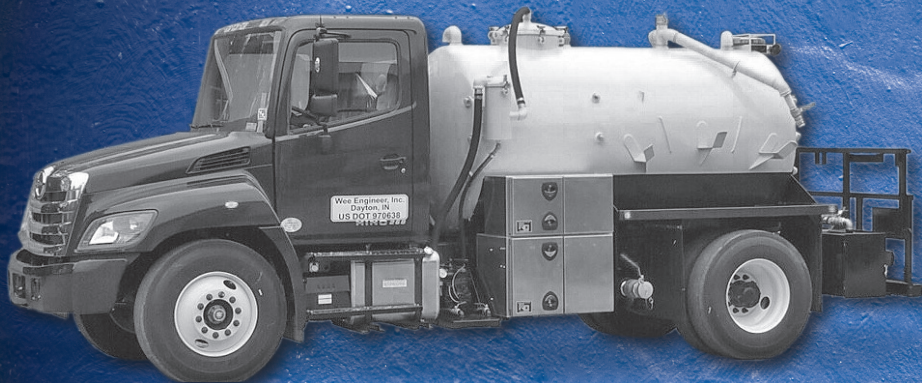
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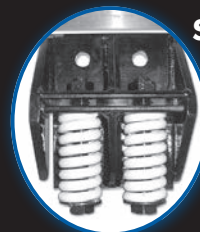
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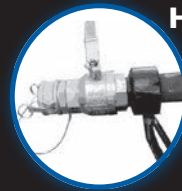


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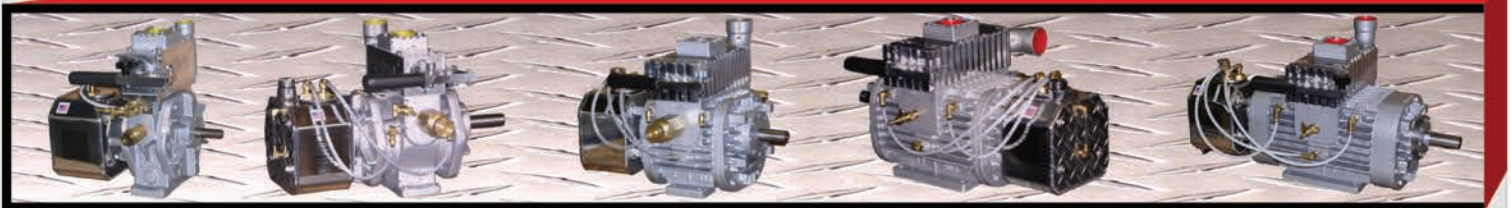


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NAWT Conducts Training, Holds National Meetings at the 2016 WWETT Show

By Dhru Bhatt

Vacuum truck training course

The National Association of Wastewater Technicians conducted a vacuum truck training course at the 2016 WWETT Show in Indianapolis. At the conclusion of this session, participants should be able to recognize trucks and their associated equipment, understand the equipment's function, understand the vocabulary of pumping, how to apply safety principles, how to operate the equipment safely, recognize materials they will encounter and some they may have to avoid, recognize how their job is regulated by government, and how to speak to customers with confidence. The course was conducted by Bruce Fox. A remarkable 328 attendees participated in the educational session.

NAWT Educational Day sessions

Along with the vacuum truck training course, NAWT also participated in Educational Day at the WWETT Show. The first two sessions were presented by Tom Cianci of Alderon Industries. His first session was on the basic operation of electrical panels and was attended by 110 individuals. His second presentation was on using the information available from the panels to troubleshoot systems and was attended by 130 people.

The third session was presented by Claude Goguen of the National Precast Concrete Association, covering what to look for when inspecting concrete tanks. It was attended by 190 people.

The fourth session was presented by Bob Wright, of Alles Taylor & Duke, consisting of an exercise on troubleshooting septic systems. This session was attended by 239 people.

The fifth session was presented by Frank Parker, of Parker Wastewater Consulting, covering the basics of inspecting drip systems. It was attended by 151 people.

The final session of the day was an "ask the experts" panel discussion, which was presented by all of the speakers of the day and was attended by 35 people.

2016 NAWT Hapchuck Memorial Scholarship

A number of applications were submitted for the 2016 NAWT Hapchuck Memorial Scholarship. The assignment was to either build a short story about a homeowner meeting with a septic professional to discuss why his system is not working properly as indicated by a floating manhole rise. The story needed to explain why the system may have gotten that way and



Members of the NAWT board of directors gathered at the WWETT Show. They are, from left, Jeff Rachlin, treasurer; Jamie Miller, vice president; Kim Seipp, education coordinator; Gene Bassett, president; and Tom Ferrero, secretary. (Photo by Jim Kneiszel)

what will need to be done to fix it. The other option was to create a short video or cartoon that could serve as a public service announcement directed at homeowners on how to avoid having this problem.

This year's scholarship recipient was Jeb Von Crissman. Jeb is an undergraduate currently attending North Carolina State University majoring in business and finance. NAWT was proud to announce Jeb as the winner of the coveted Hapchuck scholarship. The ceremony was held at the State Association Breakfast at the WWETT Show.

2016 Ralph Macchio Lifetime Achievement Award recipient

Each year, COLE Publishing presents a worthy candidate with the Ralph Macchio Lifetime Achievement Award, considered the major annual award in the liquid waste industry. The award was presented at NAWT's Association Breakfast Meeting at the WWETT Show. The award was presented by COLE Publishing founder Bob Kendall.

This year's recipient was Hank Vanderveen. He is Amthor International's National Vacuum Tank product manager. He has been in the industry for more than 45 years and has seen many advancements in the business. When Hank began working in the industry in the 1970s, vacuum truck technology



COLE Publishing founder Bob Kendall presents the Ralph Macchio Lifetime Achievement Award to Hank Vanderveen at the WWETT Show. (Photo by Jim Kneiszel)

was not dependable. Today, vacuum tanks are lighter, carry bigger payloads and are reliable. Hank has seen vacuum tanks grow from 1,600-gallon capacity to today's typical 4,000-gallon capacity.

Hank has been with Amthor International since 2007. He says his keys to a successful career include educating the customer, providing the customer with products that fit their business and plans, and building relationships based on trust and confidence.

"Building sound relationships takes time," Hank said. "But the relationships I have built over the years have lasted a long time and this is an important key to success." Hank added that the years working for Amthor International have been his best working years.

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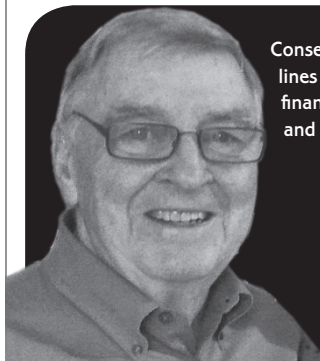
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Experiment in Hyper-Recycling May Solve Wastewater Woes

A University of Miami student apartment project utilizes decentralized wastewater system components to reuse water and limit outflow to the environment **By David Steinkraus**

James D. Englehardt sees no reason why southeastern Florida needs to draw a half billion gallons of water from the Everglades every day and then discharge treated wastewater into the ocean and saltwater aquifers. That water could easily be reused, he says, because wastewater coming out of south Florida treatment plants already meets 87 of the 93 numeric federal standards for drinking water. As a professor of environmental engineering at the University of Miami, Englehardt was in a position to make his thought a reality. With support from the National Science Foundation and the cooperation of the university and regulators, he led a project to create a net-zero dormitory — a building that does not import or export a significant amount of water.

Pumper: How did the project start?

Englehardt: Originally, we proposed retrofitting a 20-bed residence hall unit to create a net-zero-water building. The project was approved, but the estimate for equipment installation by the university was more than \$1 million, so we negotiated to retrofit a four-bedroom residence hall apartment, which in any case better represents a typical single-family dwelling.

Before writing the proposal, I presented the plan to the regulators who would have to approve it. I explained that in order to study the complex chemistry and microbiology of the recycled water, this basic research had to be conducted at an occupied apartment, though the students would be supplied with city water for drinking. I was expecting resistance, but instead found a high level of support.

Pumper: How much did the project cost?

Englehardt: Even after downsizing, the cost of installation was still about \$500,000 because we had to open walls and floors to install additional piping, and we excavated to put treatment equipment in the courtyard. Research expenses, including treatment equipment, study of psychological aspects and initial development of real-time water-quality monitoring technology, totaled \$2 million.

Pumper: What equipment did you use, and how does the system operate?



Contact James D. Englehardt at 305/284-5557 or jenglehardt@miami.edu.

Englehardt: Wastewater flowed first to a septic tank that settled solids and provided primary treatment. Liquid then flowed to a membrane bioreactor from Bio-Microbics. Next in the process was a metal-mediated aeration reactor that we developed and constructed. It used a small electrical current to push aluminum into the water from electrodes in the presence of aeration. This precipitated several minerals, including phosphate and coagulated impurities. The water was flocculated and passed through an ultrafiltration membrane operating at less than 5 psi vacuum. We then injected hydrogen peroxide and passed the water through a UV light reactor to mineralize residual organics and kill remaining pathogens. Spartan Environmental Technologies provided that equipment. Finally, we introduced a small amount of chlorine to protect water quality in the storage tank. The system treated an average of 260 gpd over a two-year period.

Pumper: How is the water quality coming out of the system?

Englehardt: The effluent complied with all 115 Florida drinking water standards. In collaboration with Florida International University, we also scanned for 1,006 chemicals. All but five were either not detected or were removed more than 90 percent. Even though it was beyond the scope of the project, we also sent water samples to the (U.S.) Environmental Protection Agency to be analyzed for viruses, and no viable pathogens were found in the treated water in those initial tests.

“ Right now there are only three net-zero water recycling systems in existence. One is ours. One is a composting toilet-based system at the Bullitt Center in Seattle. The third is on the International Space Station. ”

– James D. Englehardt

The total dissolved solids in the treated water were approximately 500 mg/L after 1 1/2 years of operation. That's a secondary standard for drinking water, but a low value for a mineral water. As an indication of the quality of the water, when I lived there for a couple of weeks one summer, I was able to detect only a faint residual mineral film in the sink. In order to maintain this level of minerals, the system disposed of 10 to 15 percent of the treated drinking water and replaced it with 10 to 15 percent rainwater.

(continued)



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Pumper: Where can systems like these be used?

Englehardt: Our economic analysis found that total costs for systems serving 100 to 10,000 households are approximately the same as conventional water and wastewater treatment technologies. The systems would be significantly more expensive for a single home.

Another advantage of small systems is thermal energy conservation. Conventional technology discharges treated wastewater to the environment along with all the thermal energy added by household water heaters. Our system conserves that heat so we don't have to reheat the water much for use as hot water. In fact, a small portion may need to be cooled for drinking because in our system the temperature ran about 30 C (86 F).

Moreover, the energy saved by this system is projected to be several times the amount needed to run the treatment system. To our knowledge this is the first energy-positive water management system to be designed.

Pumper: Can these systems recycle 100 percent of water?

Englehardt: No known system can exceed 90 percent. There will always be some water loss, at least to prevent minerals from building up. In reverse osmosis systems perhaps 25 percent of the water that goes in comes out as a concentrate with minerals and other substances, and that has to be disposed of. In addition, the treated water is so devoid of minerals that it is corrosive and so must be chemically conditioned or blended with another water stream. Those systems typically recycle about 20 percent of the wastewater stream.

Pumper: How long would it take to put systems like these in place?

Englehardt: I think five to 10 years is a fair estimate for this country.

Other countries may likely leapfrog us because they aren't as heavily invested in centralized infrastructure, and their regulatory environments are less restrictive. In fact, a project like ours has just been proposed in India. What we need here in this country is more small demonstration projects to collect the data that regulators need to write rules.

Pumper: Where do you take this idea next?

Englehardt: I would like to apply for funding to restart our project. Right now there are only three net-zero water recycling systems in existence. One is ours. One is a composting toilet-based system at the Bullitt Center in Seattle. The third is on the International Space Station. Our system is the first to offer the prospect of energy-positive, net-zero-water municipal water management. Part of our continuing research is the development of a net-zero-water system that can be dropped into a remote area to provide running water at an Ebola treatment unit. A net-zero system can greatly reduce the need for imported water at an emergency site anywhere.

With systems like ours, Miami would withdraw those half billion gallons of water once instead of every day. Reductions in pumping (water from wells) would alleviate the intrusion of salt water from the ocean to groundwater aquifers, which is already happening, and the need for energy-intensive desalination. We are nearing the point now where the challenges to net-zero water use are more psychological than technological. ■



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

Is Interpreting Soil Loading Rates a Slippery Slope?

There can be room for differing opinions on soil design loading rates, but extensive research is available on the topic **By Jim Anderson, Ph.D.**

A pumper/installer/designer I've worked with for years posed a question to me about the design loading rate for sandy clay loam soils. I answered his question at the time, but thought the topic should be shared with a larger audience because I am sure he is not the only person who has wondered about loading rates for what I will term the clay loam soils.

Here's the situation I was asked about: The contractor's state code used a design loading rate of 0.5 gallons per day per square foot (gpd/sq ft) for sandy clay loam soils, and he wondered if that was what I would use for a design number. He also indicated for clay soils their design rate is 0.2 gpd/sq ft.

Here is the answer I gave him:

Whenever the clay content in the soil gets above 20 percent, the clay properties begin to take over the overall soil characteristics. So my answer is that the sandy clay loam soil should be sized at .24 gpd/sq ft or less. People get confused because when they feel the soil to determine its texture, they note a lot of grittiness, which is due to the sand. But the clay percentage is high enough that it drives the infiltration characteristics of the soil.

During soil evaluation in Minnesota and Wisconsin, if the sandy clay loam soil has moderate to strong structure and is friable or very friable, a 0.45 gpd/sq ft loading rate is allowed. The friable consistence usually would occur only at the surface and would become firm or very firm as you get deeper in the soil, which would result in a loading rate of 0.24 gpd/sq ft. This is probably a nuance that only an experienced site evaluator or soil scientist would easily identify. So at most I would use 0.2 gpd/sq ft, and if I knew it was highly shrink swell, I may drop it to 0.12 gpd/sq ft.

NEED TO ELABORATE

I thought it would be good to discuss in some detail where these numbers came from and make a few comments on their use. The numbers go back to the original research done at the University of Wisconsin in the late 1960s and early 1970s. They first showed up in research reports and then in a classic paper by my early mentor and colleague, Professor Johan Bouma. As the Small Scale Waste Program at Wisconsin continued to research, the numbers were expanded and refined through the work of a number of people, but they are most often associated with Johan's successor Jerry Tyler. Most design tables with design loading rates based on soil description follow closely the numbers Jerry provided in a series of research papers in the 1990s.

In Johan's original paper, he already began separating soils into different categories based on soil texture using a method he devised for testing undisturbed soils in the field. I won't bore everyone with the details but the method involved carving out a soil column and then using a gypsum-water mixture, applying to the soil surface at the desired depth. The mixture hardened and the rate of water movement was measured through the "crust." The

It appears the state requirements are in line with the accepted numbers. ... How the designer chooses to look at the numbers, though, will have an impact on the longevity and success of the system.

moisture condition of the soil underneath was compared with values measured beneath operating drainfields. From the experience of doing a number of these tests, I can tell you it is not a trivial operation!

With these results, soils seemed to fall out into several different categories. Since the research studies used the metric system to measure the rates of acceptance, they were characterized in centimeters/day (cm/d) of infiltration. A flow rate of 1 cm/d is equivalent to 0.24 gpd/sq ft. and this rate corresponded with clay, sandy clay and silty clay. For clay loam, sandy clay loam and silty clay loam textures, the rate was about 2 cm/d or about 0.48 gpd/sq ft. But it was also noticed that for some of those soils, the rate was faster and it seemed to be related to structure. This led to additional research and the refinement of the numbers based on soil structure that are in use today. The research also showed a lot of variability, which makes prediction of the flow rate difficult for even the most experienced.

NUMBERS LINE UP

The original 0.24 gpd/sq ft (1 cm/d) rate represented the lowest number measured and was at a soil moisture content very close to saturation. This means that the rate is controlled by the soil and not by application method or how clean the effluent is. So taking reductions in treatment area for soils with increasing clay contents does not make sense, because this is what the soil will accept. Does this mean we should not have as clean an effluent as possible? No; but what it does mean is the area necessary for treatment and acceptance should not be reduced.

From the perspective of my colleague's question, it appears the state requirements are in line with the accepted numbers; 0.2 gpd/sq ft is rounded down from 0.24 and 0.5 is rounded up slightly from 0.48 gpd/sq ft. How the designer chooses to look at the numbers, though, will have an impact on the longevity and success of the system.

In my answer, I took a conservative approach based on knowledge of soils in the area in question and recognition of the soil variability. I am sure a number of you would point out that use of 0.5 gpd/sq ft would be appropriate to fit the regulatory requirement and you would be correct. It just highlights that design decisions are often not as clear as people assume they are. ■

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VOLVO CONSTRUCTION EQUIPMENT H-SERIES

H-series wheel loaders from **Volvo Construction Equipment** come with Torque Parallel linkage, delivering high breakout torque and parallel movement throughout the entire lifting range. They have an intelligent load-sensing hydraulic system that drives power to the hydraulic functions according to demand, for fast response,

shorter cycle times and reduced fuel consumption. An optional boom suspension system absorbs shock and reduces bouncing and bucket spillage. Heavy-duty planetary axles ensure long life in tough conditions, and the front and rear 100 percent differential locks have a dog clutch design to improve grip and maintain maximum traction on all terrain. The certified ROPS/FOPS cab has ergonomically placed controls, climate control system, all-around visibility and low internal noise levels. **828/650-2000; www.volvo.com/constructionequipment.**

LEAK/UTILITY LOCATORS

BRIGHT DYES CONCENTRATED LEAK INSPECTION DYES

Concentrated leak inspection dyes from **BRIGHT DYES** dissolve rapidly in water and provide a vivid fluorescent color detectable in murky water, sewage or effluent. They can be used to identify leaks, infiltration and exfiltration in plumbing connections, validate sanitary and septic hookups and perform septic inspections to identify leachfield issues as well as sources of contamination in wells. They are safe, nontoxic, biodegradable and certified by NSF International to ANSI/NSF Standard 60 for use in and around drinking water. They are available in fluorescent yellow/green, red and orange and nonfluorescent blue, in tablet, liquid or powder form. **800/394-0678; www.brightdyes.com.**



RADIODETECTION CORPORATION RD7100

The **RD7100** from **Radiodetection Corporation** has an arrangement of five antennas with optional integrated GPS and usage logging, keeping users on the right line while enabling them to demonstrate safe working practices and validate quality of work. It has integrated, automatic GPS and usage-logging options. By analyzing usage patterns, users and management can assess individual locating operations to ensure compliance with best practices or to identify training needs. Additionally, the data can be used for internal audits or shared with customers as evidence of completed tasks. **877/247-3797; www.radiodetection.com.**



SUBSURFACE INSTRUMENTS AML PRO AND AML+ SERIES

AML PRO and **AML+ Series** all-material locators from **SubSurface Instruments** use ultra-high radio frequencies to find differences in subsurface densities for locating PVC and PE pipes and nearly any other subsurface object that has an edge.

They are designed to locate subsurface materials indiscriminately, including plastic, metal, wood, cable or pipe, and work in clay, wet soil, snow or even standing water, according to the manufacturer. They have a durable ABS housing, advanced microprocessor, USB and headphone connectivity, and a variety of sensitivity levels. **855/422-6346; www.ssilocators.com.**



SUBSURFACE LOCATORS LD-18

The **LD-18** digital water leak detector from **SubSurface Locators** is designed to reduce ambient, intermittent noises from dogs barking, cars passing by, footsteps and people talking. Its digital electronics sample the sounds every few thousandths of a second, and if it detects an intermittent sound, it suppresses it instantly. Water leak sounds are almost always continuous noises, and the unit can identify continuous leak sounds even in difficult conditions, like busy streets. **775/298-2701; www.subsurfaceleak.com.**



SUPERIOR SIGNAL COMPANY 5E ELECTRIC SMOKER

The **5E Electric Smoker** from **Superior Signal Company** easily connects to any septic clean-out or inspection port to smoke test the entire system in just a few minutes. Smoke testing can help find sources of odors and many other faults throughout building plumbing, the septic system and even the leachfield. It gently pushes smoke throughout the system to find cracks, leaks and quickly identify problems. It comes with 8 feet of industrial-grade flex hose. Used with smoke candles with up to 40,000 cubic feet of smoke output, it helps locate hard-to-find odors, leaks and other faults in residential and commercial facilities. **800/945-8378; www.superiorsignal.com.**



PRESSURE WASHERS/SPRAYERS

JENNY PRODUCTS STEAM JENNY

Steam Jenny electric cold pressure washers from **Jenny Products** allow operation in enclosed areas where gas-powered machines can't be used. They are powered by Marathon or Baldor electric motors, range from 1.5 to 10 hp and are available with either single-phase GFCI or three-phase power. They have industrial-grade triplex ceramic plunger pumps, and are available with pressure ratings between 1,000 and 4,000 psi and flow rates between 1.5 and 4.8 gpm. They have a 7-gauge steel chassis, heavy-duty unloader valve, safety relief valve, thermal relief valve, high-capacity inlet, inline water strainer, an insulated trigger gun, 50-foot hose with quick coupling and a series of 0- to 40-degree-angle color-coded nozzles. All incorporate flat-free pneumatic tires with ball-bearing hubs and a handle that can be positioned at either the front or back of the unit. **814/445-3400; www.steamjenny.com.**



WATER CANNON KOHLER-SH265

The **Kohler-SH265** pressure washer from **Water Cannon** offers 3,300 psi and a 4PPX Series CAT triplex plunger pump. This unit comes with a hose, trigger gun, wand, chemical injector and color-coded quick-connect nozzles. It is available with a 25- or 50-foot hose kit. A front handle is designed for easy maneuverability. **800/333-9274; www.watercannon.com.**

PUSH CAMERAS

CUES MPLUS+ XL

The **MPlus+ XL** push system from **CUES** includes a coiler configuration designed for larger pipeline applications up to 500 feet. It integrates swappable camera heads, a pan-and-tilt camera with 360-degree rotation and pan, video observation coding, observation coding interface and digital recording into an easy-to-use and intuitive package. This lightweight system includes large, durable wheels for easy portability and a balanced footprint for stability. The control unit can be removed quickly to be used separately for off-road or remote job sites or to accommodate compact storage. **800/327-7791; www.cuesinc.com.**



FORBEST PRODUCTS FB-PIC3188SD-65/100/130

The **FB-PIC3188SD-65/100/130** full-function portable inspection camera system from **Forbest Products** has an easy-to-carry compact design. The portable camera, in one package, comes with either 65, 100 or 130 feet of fiberglass cable on a reel. The high-resolution 1-inch waterproof metal color camera head is available with an optional built-in 512 Hz sonde transmitter and is designed for 1 1/2-inch or larger sewer and drainline. The heavy-duty waterproof control box includes a bright 7-inch LCD color screen and a built-in SD card reader to record photos and videos that can be played on the computer. The built-in rechargeable battery lasts about four hours. **877/369-1199; www.forbestusa.net.**



MYTANA MFG. COMPANY MS11-NG

The **MS11-NG** midsize video inspection system from **MyTana Mfg. Company** can be used to inspect 3- to 4-inch lines with up to 150 feet of range. It has a 1 1/2-inch color self-leveling camera head, built-in 512 Hz transmitter allowing a technician to locate during the inspection, and a daylight-readable 6.4-inch monitor. Record or upload an inspection using the MyTana viewer app, available for iPhone, iPad and Android. Built-in Wi-Fi allows multiple viewers.



Inspection records can be uploaded to YouTube or still photos emailed to customers. Media connects through RCA jacks on the front of the unit. **800/328-8170; www.mytana.com.**

R.S. TECHNICAL SERVICES QUICK PEEK

The **Quick Peek** all-in-one, fully portable video inspection system from **R.S. Technical Services** is a compact, lightweight unit for drainline condition assessment in lines 2 to 10 inches in diameter up to 300 feet in length. The unit has a 7-inch bright LCD handle-mounted monitor equipped with a sun shield/screen protector that can be positioned for a comfortable viewing angle. Easily accessible monitor controls include power mode, aspect ratio (screen size) and menu, plus set buttons for color, brightness, contrast, tint and volume. The side-mounted AC/DC power source houses controls for all camera functions and provides a camera test terminal, AC/DC input, video/audio output, keyboard input and a condenser microphone with on/off switch. Options include battery power, a self-leveling camera, 512 Hz receiver, roller skids, laptop interface, SD card reader and Wi-Fi interface. **800/767-1974; www.rstechserv.com.**



(continued)

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PUSH CAMERAS

RATECH ELITE SD WI-FI

The **Elite SD Wi-Fi** pipeline inspection system from **Ratech Electronics** records pipe inspections wirelessly to an iOS or Android device, and takes live video and digital still photos that can be uploaded immediately to YouTube, meaning no more recording to USB thumb drives, SD cards or DVD discs. Download an app to your iPhone or iPad and stream the video wirelessly. The Wi-Fi interface is available on any current Ratech product or existing Ratech systems in the field, and is available with a sun-readable 10-inch LCD monitor and either a self-leveling camera, small ultra-micro camera or pan-and-tilt push camera. Systems come in cable lengths from 100 to 400 feet. **800/461-9200; www.ratech-electronics.com.**



VIVAX-METROTECH VCAMMX

The **vCamMX** all-in-one inspection camera from **Vivax-Metrotech** has an 8-inch daylight-viewable LCD, two-frequency locatable sonde, locatable pushrod, internal microphone, distance counter and a six-hour battery life through the rechargeable battery. The system is AC/DC powered so it can be run by AC wall sockets or via a vehicle charging lead. It has a choice of two high-resolution cameras — a 1-inch D26 self-leveling or a 3/4-inch D18. Both are changeable in the field by the user. It records direct to USB drives (up to 128GB) and can use up to a 64GB SD card for backing up the USB drive. This SD card backup allows the user to give the USB drive to a customer while retaining a copy. **800/446-3392; www.vivax-metrotech.com.**



RIDGID SEESNAKE RM200

The **SeeSnake rM200** camera system paired with the CS65 digital reporting monitor from **RIDGID** provides a solution for drainline inspections. The rM200 is capable of inspecting lines up to 200 feet long and 1 1/2 to 6 inches in diameter. It comes with a choice

of two drums that each feature different push-cable lengths, diameters, stiffness and springs for on-the-job flexibility. It has an integrated transport system for easy portability. The CS65 digital reporting monitor can be docked to the rM200 for on-site reporting. It has one-touch image recording for fast, efficient documentation of inspections. Its ITB internal hard drive provides ample storage for multiple jobs. PhotoTalk pairs audio commentary with an image in an email-ready file. Its built-in, water-resistant keyboard allows for the easy addition of on-screen titles and annotation of captured media. **800/769-7743; www.ridgid.com.**

SPARTAN TOOL SPARVISION 200

At 25 pounds, the **Sparvision 200** pipe inspection camera from **Spartan Tool** is self-contained and designed for easy on-the-job maneuverability. Outfitted with iPad or Samsung Galaxy S10 technology, it is intuitive to use and includes features such as drawing on the screen to highlight problems, Wi-Fi for freedom of movement and simple emailing of video, and a full on-screen QWERTY keyboard. It includes 200 feet of ultra-slick pushrod and a self-leveling color camera. It offers instant snapshots and has a 512 Hz locating beacon and distance counter. **800/435-3866; www.spartantool.com.**



SLUDGE SAMPLING



SIM/TECH FILTER TRUCORE

The **TruCore** sludge sampler from **Sim/Tech Filter** is a large-diameter, user-friendly tool designed for thicker sludge common to septic tanks. It allows samples to be taken quickly without creating excessive turbulence, because there are no restrictions caused by valves, stoppers or flaps. With an inside diameter of 1 3/8 inches, the capacity per foot is almost 10 ounces. The straight-through design allows the sample to be quickly and effortlessly returned to the tank. The unit is made of a polycarbonate sampling tube (clearly marked every foot) and PVC fittings. It comes as a single-piece 8-foot unit or as two 4-foot sections that slip together. Custom sizes and configurations are available. A customizable extension kit for deeply buried tanks is also available. **888/999-3290; www.simtechfilter.com.**

TOOLBOX/PORTABLE JETTERS

AMAZING MACHINERY BRUTEJET MAX

The **BruteJet Max** skid-mounted jetter from **Amazing Machinery** is fully self-contained and can be mounted in many applications. It is 65 inches long and 30 inches wide, and comes with a 12-volt electric hose reel (with no outside power needed), 200 feet of jetter hose, two nozzles, foot pedal and a complete set of washdown accessories. The 6-gallon fuel tank allows for an extended runtime and quick disconnects from the unit for offsite refueling. The power plant, reel and fuel tank are mounted to an all-aircraft-aluminum skid. It offers pressures between 2,000 and 4,000 psi, and flow rates up to 11 gpm. **800/504-7435; www.amazingmachinery.com.**



TOOLBOX/PORTABLE JETTERS

CAM SPRAY RCJ SERIES

RCJ Series skid-mounted jetters from **Cam Spray** are offered in flows and pressures of 8 gpm at 3,500 psi and 7 gpm at 4,000 psi. A three-plunger industrial pump with pulse is powered by a 688 cc Honda engine. Its 200 feet of jetter hose can be used to supply an optional 200DS4 portable reel cart available with 200 feet of 3/8-inch jet hose. It comes with a 35-gallon buffer water tank with float control, powder-coated heavy tube frame, washdown gun and a four-nozzle set. It easily mounts in the side door of a cargo van, on a truck bed or inside a service truck. A root-cutting nozzle enables residential root cutting. **800/648-5011; www.camspray.com.**



**HOT JET USA
HOTJET III**

The **HotJet III** from **Hot Jet USA** offers an output of 20 gpm at 3,850 psi (with an option to run at 35 or 70 hp with either hot or cold water), cutting roots with either a custom root-cutting tool or a Warthog nozzle in pipes up to 24 inches. It provides the option to run 300 feet of 3/8-inch line or 500 feet of 1/2-inch line, depending on the size of line the operator is cleaning. The 3/8-inch line is effective in cleaning 12-inch maximum size pipes and the 1/2-inch line is effective in cleaning up to 24-inch pipes. **800/213-3272; www.hotjetusa.com. ■**



**GENERAL
PIPE CLEANERS
JM-1000 MINI-JET**

The compact, lightweight **JM-1000 Mini-Jet** from **General Pipe Cleaners** is designed to help clear small lines, clogged sinks and laundry drains from 1 1/2 to 3 inches with 1,500 psi of power. It hits the

stoppage with high-pressure, wall-to-wall water spray, with pulse to help slide the hose around tight bends and farther down lines. At 22 pounds, the portable package measures 24 by 11 by 11 inches. The pump and motor assembly are safely contained in a diamond-plate metal case. To protect the unit from damage, a sensor automatically stops the motor if water stops flowing through the pump. The unit includes Super-Flex high-pressure jet hose, a four-piece nozzle set, water supply hose, universal faucet adapter and spray wand assembly. It has a three-wire GFCI for safety. **800/245-6200; www.drainbrain.com.**

**HI-VAC CORPORATION
O'BRIEN 7000 SERIES**

The **O'Brien 7000 Series** trailer-mounted jetter from **Hi-Vac Corporation** comes with water tanks and a sediment pump for easier cleaning and longer life. The trailer has the muffler and air cleaner mounted inside the enclosure for improved sight lines, electric reel control for smoother rotation and easier operation, and hydraulic and water gauges mounted in the main control panel for easier viewing. **800/752-2400; www.hi-vac.com.**



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**USER-FRIENDLY
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in the
SPOTLIGHT
By Luke LeNoble

The **TG Series** power take-off (PTO) from **Muncie Products** can be configured to meet the speed, torque and horsepower requirements of most applications.

"It takes off power from the engine through the transmission and into the gearbox, and then that gearbox can drive other components like vacuum pumps or hydraulic pumps," says Rick Wallace, product manager at Muncie Power Products.

It is available with 10 speed ratios, 19 shift types, 19 output shaft options and 78 input gears for all popular transmissions. It also features an electric/hydraulic-shift option, eliminating the need for shift cables.

"It's a mechanically shifted gearbox, which means that you have to stop the gear from spinning to engage the unit," Wallace says. "It has a gear that runs against the transmission gear that is specially designed for each transmission that's used out there."

Its constant mesh input gear isolates the transmission from engagement errors, and the compact size minimizes mounting interference with rotatable hydraulic flanges for maximum pump clearance. The die-cast aluminum housing reduces weight and noise, and aids in heat dissipation. The PTO features a six- or eight-bolt housing and modular design for simplified installation and flexibility for easier repair.

"You don't have to adapt it to go from a six-bolt to an eight-bolt," Wallace says.

"People also like the PTO because it's easy to install and it's lighter weight than a lot of other power take-offs. To the operator, it's pretty straightforward."

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

COXREELS SPRING MOTORS

Factory-tuned spring motors from COXREELS are designed for safe and efficient reel retraction. More than 150 types of spring motors are available, including six varieties of spring thickness and three spring widths. There is no joint or attached hook connection so the joints will never fail during retraction. The spring cans are also available as preassembled replacement parts for easy removal and installation. **800/269-7335; www.coxreels.com.**



**SCREENCO SYSTEMS
MINI SCREENS**

Mini screens from Screenco Systems feature a dual-screen design and all-aluminum construction. Features include gravity off-load at up to 500 gpm through the telescoping dump hose assembly to the inlet fan spreader. Up to 99 percent of trash can be removed to a collection drain tray with a 3-foot folding trash chute. Gapped screens (3/8 inch) meet 503 regulations and 16 square feet of screening area allows for use with portable TLT trucks and large septic trucks. Forklift skids integrated into the unit allow for convenient transport. The 825-pound mini screen allows either a 4- or 6-inch cam hookup with a 6-inch cam outlet. **208/790-8770; www.screencosystems.com.**



**MILWAUKEE TOOL
HIGH-TENSION
HACKSAW**

The 12-inch high-tension hacksaw from Milwaukee Electric Tool Corp. is designed for making fast, accurate cuts. A reinforced metal frame provides extra durability. A high-leverage tension knob at the top of the frame enables the user to tighten the blade to the highest tension needed. The saw features six-blade storage capacity and 45-degree blade position for a better angle on flush cuts. **800/729-3878; www.milwaukeetool.com.**

XYLEM DEWATERING PUMP

The Flygt 2190 submersible dewatering pump from Xylem is built to handle abrasive liquids. The midsized pump is available with two impeller options: The Dura-Spin safeguards against wear by sweeping abrasive particles away from the impeller neck, while the semi-open impeller increases run-time by preventing fibrous solids from obstructing the pump. **704/409-9700; www.xylem.com.**



**HYUNDAI CONSTRUCTION EQUIPMENT
AMERICAS HYDRAULIC EXCAVATORS**

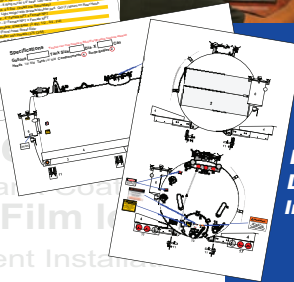
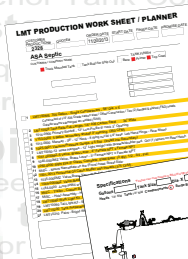


HX Series hydraulic excavators from Hyundai Construction Equipment Americas provide better fuel economy than previous models. The 13-metric-ton HX140L is powered by a Perkins 1204F Tier 4 Final engine rated at 116 hp. The excavator has a 39.4-inch-wide digging bucket, achieves a maximum digging depth of 22 feet 1 inch and has a maximum digging reach of 32 feet 9 inches. The 24-metric-ton HX235LCR excavator is powered by a Cummins QSB6.7 Tier 4 Final engine rated at 183 hp. It has a 39.4-inch bucket, maximum digging depth of 22 feet and maximum digging reach of 32 feet 6 inches. **877/509-2254; www.hceamericas.com.**

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DITCH WITCH MUD RECYCLER

The MR90 mud recycler from Ditch Witch can be transported full of fluid and features a 24.8 hp Kubota Tier 4 engine. A 110-gallon clean tank and 340-gallon first-pass mud

tank have 3-inch ports for vacuuming out mud. A 300-gallon freshwater tank provides extra drilling fluid capacity and support for equipment cleanup. A rear onboard spoils hopper catches screened spoils. An integral mixer allows drying additives to be mixed into the spoils and discharged. A Flomax pump controls fluid flow for mixing, cleaning and transfer. Automatic pit pump control prevents overflow. A commercial-grade trailer (14,000 GVWR) with standard LED lights is optional. **800/654-6481; www.ditchwitch.com.**

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The Oil Eater cleaner/degreaser from Kafko International is formulated to eliminate the need for multiple cleaners. It dissolves grease, grime and dirt from storage tanks, power equipment, engines and tools. It is also effective in parts cleaning and pressure-washing systems. The eco-friendly cleaner is biodegradable, noncorrosive, nontoxic and nonflammable. It contains no acids, abrasives or petroleum solvents. The low-VOC cleaner quickly and safely encapsulates grease into a solution that rinses off easily, leaves no residue and will not harm the skin. It is available in 1-, 5-, 30- and 55-gallon containers and a 275-gallon tote for high-volume users. **800/528-0334; www.oileater.com. ■**



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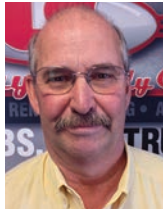
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Curry Supply adds regional sales manager

Curry Supply Company named Rick Romney regional sales manager. Based in Sacramento, California, he'll be responsible for sales in 13 Western states while working closely with the engineering and production departments to expedite product manufacturing and delivery.



Rick Romney

JCB North America celebrates production milestone

JCB North America celebrated production of its 100,000th compact excavator. The company's first compact excavator was manufactured in 1989.

J&J Truck Bodies & Trailers appoints regional sales manager

J&J Truck Bodies & Trailers named Tim Davis regional sales manager. He will be responsible for sales and brand awareness in western Pennsylvania; west of Rochester, New York; Ohio; and West Virginia.



Tim Davis

Isuzu sets truck, parts sales record

Isuzu Commercial Truck of America set records in 2015 for sales of Isuzu commercial trucks and parts. Dealers in the United States sold 20,725 Isuzu trucks in 2015, a 10.5 percent gain in Isuzu N-Series sales over 2014. The company also sold 5.5 percent more parts in the U.S. in 2015 over 2014.

Vac-Con saves \$150,000 on sales tax exemption

Vac-Con, in the midst of an \$11 million plant expansion, saved more than \$150,000 through Florida's sales tax exemption on manufacturing equipment. Vac-Con hosted Gov. Rick Scott at a stop on his Million Miles for a Million Jobs Tour. Vac-Con plans to hire about 60 employees as a result of the expansion.



Federal Signal opens FS Solutions facility

Federal Signal's Environmental Solutions Group opened an FS Solutions service center in Midland, Texas, as part of the group's expansion of FS Solutions locations and service offerings in key areas throughout North America. Centers offer parts and accessories for Federal Signal's Guzzler vacuum trucks and Vactor hydroexcavators, as well as other makes and models.



Paul Schuitt

JWC Environmental names regional sales manager

Paul Schuitt joined JWC Environmental as western regional sales manager for the municipal wastewater market. Schuitt has more than 31 years of operations and maintenance experience in the water and wastewater industry.

Grundfos Pumps regional managing director to leave company

Duncan Cooper, regional managing director for Grundfos Pumps and group senior vice president for Grundfos Americas, will leave this summer. Cooper has been instrumental in improving company performance, most significantly in the area of financial stability, since arriving in 2013, according to a press release.



Duncan Cooper

Vactor Manufacturing, US Jetting forge marketing agreement

Vactor Manufacturing will market and distribute US Jetting trailer- and skid-mounted jetters under the Vactor name to customers in North America.

Franklin Electric supports military vet with home water system solutions

Franklin Electric was one of several manufacturers that teamed with the national television series *Military Makeover* to provide retired military veteran Kevin Parke and his family with multiple water system solutions for their home in Crestview, Florida. Franklin Electric's pumping solutions included Inline 400 pressure boosting system, Koi pond water feature, Little Giant WRS Series compact water removal system, Little Giant VCMX-20 Series condensate pump and a Little Giant disappearing fountain feature. ■



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<ul style="list-style-type: none"> • 2016 Ford F-550, 900 Waste, 300 Fresh, Gas.....\$65,000 	<ul style="list-style-type: none"> • 2016 Dodge 5500, 950 Waste, 300 Fresh\$76,000 4x4\$81,500 	<ul style="list-style-type: none"> • 2016 Ford F-550, 950 Waste, 300 Fresh, Diesel\$75,500 Diesel 4x4\$80,000 	

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Arkansas

Arkansas Onsite Wastewater Association
www.arkowa.com

California

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

Colorado

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Florida

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Georgia

Georgia Onsite Wastewater Association
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Georgia F.O.G. Alliance
www.georgiafog.com

Idaho

Onsite Wastewater Association of Idaho
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Illinois

Onsite Wastewater Professionals of Illinois
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Indiana

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Iowa

Iowa Onsite Waste Water Association
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Kansas

Kansas Small Flows Association
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Kentucky

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Maine

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Michigan

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Michigan Septic Tank Association
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Minnesota

Minnesota Onsite Wastewater Association
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Missouri

Missouri Smallflows Organization
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Nebraska

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New Hampshire

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Granite State Designers and Installers Association
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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

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NATIONAL

Water Environment Federation
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National Association of Wastewater Technicians
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CANADA

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www.mowma.org; 877/489-7471

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P05



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P05

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P05

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Western Equipment Finance, a bank-owned direct lender, is committed to continuing to help you prosper. All equipment types, new or used; we have the best rates and terms you deserve. App-Only Financing and credit decisions within an hour. Call the team you can trust, Jim Stekl at Western Equipment Finance 701-665-1647. jim.stekl@westernequipmentfinance.com (PBM)

ABC LEASING & FINANCING - Fast, E-Z Financing, ONE-page application, \$10-250,000 — Vehicles, equipment, portable toilets. Since 1979. Call Gerry @ 518-857-5206 (P06)

North Star Commercial Credit: Commercial loans for trucks or equipment, flexible purchase programs to fit your budget, 21 years in the industry. Contact **Tom Myers, 877-804-2274.** (PBM)

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)

80 blue PolyPortables, majority wash and use. \$250 each. These are good units. 850-653-6745 cell. (P05)

100+ toilets for sale. Older units, suitable for construction use. Mixture of Tuff Jons, PolyJohns and PolyPortables. Priced from \$75-\$125, in lots exceeding 10 units. Two free units, of like kind purchased, included for free with each group of 10. Located in Lexington, KY. 859-255-6605 (P05)

PORTABLE RESTROOM TANKS

10-year-old, 400 waste/200 fresh aluminum vacuum tank. 5.5hp Honda engine - electric start. Conde vacuum pump. Self-contained unit manufactured by Robinson Inc. (Bellefonte, PA) \$3,500 OBO. Unit weighs approx. 1,000 lbs. See pictures at <http://binghamton.craigslist.org/hvo/5526907642.html?lang=en&cc=us>. Call/text 607-725-3963 (P05)

PORTABLE RESTROOM TRAILERS

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)

2015 Jag Mobile Solutions Urban 10-Stall: 200 fresh, 1,000 waste tank. Urban interior w/black and stainless valances, LED lights, 2 ACs w/heat strips, hot water, stereo/CD player with aux. input. Outlets & cords for future forced-air heat. Aluminum rims w/spare tire. Group 24 battery backup. \$38,900. 904-315-7027 (P05)

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

PORTABLE RESTROOM TRUCKS



2007 International 4100 - 180,000 miles; **2008 Isuzu NRR** - 173,000 miles. Automatic transmissions, Crescent tanks (750 waste/350 fresh), Masport vacuum, both sides service, flatbeds w/Thieman liftgates carry 6 toilets, large storage boxes both sides. Great running trucks! \$22,800 each

Call/text Leo at 717-693-6984 P05
leonelg@waltersservicesinc.com



2008 Ford F550: 4x4, 6.4 diesel, automatic. Satellite Module, 650 waste/300 fresh, hydraulic-driven Conde pump, 247,000 total miles, 62,000 on new engine. Original owner. \$28,000

Call 719-580-3007, CO P05

Two (2) portable toilet trucks available: 2007 Chevrolets C5500, Duramax, Allison, 1,500-gallon aluminum tank by Progress (400 fresh/1,100 waste) Masport HXL4DE, two-unit hauler, wash-down pump, new rubber. 313,500 and 286,000 miles. Well maintained. \$19,000 and \$21,000. For pictures contact info@dakotaportabletoilets.com (P05)

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)



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 P05



2012 Ford F550, 6.7 diesel/auto., 1,100-gallon Dyna-Vac steel tank, 72,000 miles w/warranty to 150k, \$44,000. **2011 Ford F550**, 6.7 diesel/auto., 1,100-gallon Crescent tank, 107,000 miles, \$46,000. For additional photos, contact

Mike 216-990-6658
tom@arisrentals.com P05

2005 Ford F550: Extended cab 4x4 with galvanized Vacutru tank, 400-gallon sewage, 200-gallon freshwater. Hydraulically-driven Wallenstein vacuum pump, pressure washer and water pump. 6L diesel engine needs work. 338,000 km. Asking \$22,000 OBO. 705-466-2929 (P05)

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)

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www.pumper.com

2012 Ram 5500: 84,000+ miles, flatbed, 2-year-old Progressive slide-in 995 with 9hp Honda/Conde pump. \$42,000. 218-391-8882 (P05)

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)

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)

Portable Restroom trucks for sale, various types; www.portalogix.com/used-trucks or call 585-484-7009. (P05)

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)

PORTABLE SHOWER TRAILERS

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

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

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Water-cooled Masport H400W vacuum pump for sale. Approximately 5 yrs. old. Was being used on truck when it got totaled. Located in Cincinnati, OH. Asking \$2,500. 513-623-9975. (P05)

Moro PM80T vacuum/pressure pump. Excellent condition. 3" connections, fan-cooled, suggested tank size 1,000 - 4,000 gallons. \$2,500 OBO. Call/text 928-920-4471 for pictures/details. (P05)

Buy & Sell all makes and models, new & used vacuum pumps & high pressure water pumps, and good used replacement parts. Call for an inventory sheet and save. **www.VacuumSalesinc.com, (888) VAC-UNIT (822-8648)** (PBM)

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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 TANK FORMS

Two (2) 1,000-gallon one-piece septic tank molds - \$4,000 ea.; four (4) 1,000-gallon two-piece molds - \$2,500 ea.; four (4) 850-gallon one-piece molds - \$2,000 ea. Package pricing available. Tools and fittings also available. Also available -- New 4" supply/transfer hose for dry cement. Central KY. Call 270-498-4286 leave message. (P05)

SEPTIC TRUCKS



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
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www.texlaservices.com P05



2003 Sterling Acterra: Mercedes 906 series diesel with Allison 6-speed automatic transmission. Keith Huber 2,600-gallon tank. Becker DKW4F vacuum pump. 466k miles. .. \$19,850 OBO
Peter 727-386-0070, FL P05



2010 Freightliner M2: Aluminum tank, 5-speed manual transmission. Rear lockers, heated collars, NYE Challenger 367 pump, 138k miles, new front tires. Looks and runs great. Located in Mason, MI. \$52,000 OBO
Call 517-204-7536 P06

1997 Ford Aeromax. 3,600-gallon Progress tank. 400,000 mile on truck - runs good. Tank in great condition. \$35,000 OBO. Please call for more info: 503-436-9759 (P05)

2000 GMC 6500 vacuum truck: Single axle, 2009 WEE Engineering 1,500-gallon tank and a 2009 Battioni MEC 5000 pump. Great condition, well maintained. \$29,500. 973-875-8000. Located in Sussex County, NJ (P05)



2007 Sterling L9500: Mercedes 460hp, 402,000 miles, Jake brake, 10-speed manual. New 4,000-gallon vacuum tank, new Juroop LC580 577cfm vacuum pump, all new tires, new aluminum rims! 100 ft. of new vacuum hose, 10 ft. of new discharge hose, reducer 4 to 3 included. \$85,000

Central Truck Sales
305-586-2838 P05



2007 Sterling: 5,000-gallon tank, 20k front, 46k rears, 20k tag. New tires and brakes. Works every day.
Call Randy 920-621-6437 P05



Freightliner M2 Series Pump Trucks: (1) 2012 and (2) 2013. Detroit diesel 450hp, 5,000-gallon Imperial aluminum tanks, 800cfm/NVE pumps, 3rd drop axle. All three trucks are in excellent condition. \$144,000 each
334-799-0575, AL P06

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

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. Kenneth 865-577-1157. (P06)

2009 Sterling truck: Automatic transmission, Abernathy tank, air valves, 400cfm pump. \$72,000 OBO. Call 336-613-2444. (P05)

4,000-gallon tank (steel). Ready to set on pumping truck. \$8,500. 770-382-4477 or 404-379-8912 (P05)



2012 Peterbilt 388: Cummins ISX 15 motor, 400hp, Eaton-Fuller 18-speed transmission, tri-axle, 311,000 miles. 4,600-gallon steel tank, Juroop 500cfm pump, heated valves on rear. Excellent condition, excellent service records. We bought truck new. \$65,000

800-241-0941, PA P05



1997 International 4900 with DT466 motor. It only has 50,000 miles and truck runs great. It has a new 2,300-gallon Pacmac vacuum tank with new Juroop R260 pump, 6-inch dump, 4-inch intake, and a 5-year warranty on the tank. Asking \$42,500

Call for more information
850-398-7722, FL P05



1999 Freightliner FL70: 230hp, 8.3 Cummins, 6-speed manual transmission, 224,000+/- miles, with a 2006 (Yr.) 2,600-gallon tank & Masport water-cooled pump. Heated valves, toolbox, newer tires, recent DOT Insp., maintenance records available, as is/where is. \$32,500. Call for photos and more information

240-344-9660, MA P05

2000 Sterling pump truck: 575,000 miles, 3,250-gallon tank, R260 Juroop pump, C-12 CAT, 10-speed. Excellent condition, used daily. \$30,000. Call for pictures. Kevin 303-882-1986 (P05)

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)

SEPTIC TRUCKS



2005 Kenworth T-800: ISX Cummins, 450 horsepower, 95,000 miles on new Crate engine (installed in 2013). 10-speed transmission, a/c, cruise, 46,000 rears, 14,600 front, jake brake. Brand-new clutch, brakes and drums. New: 3,800-gallon tank, stainless steel hose trays, Juroop LC429 vacuum pump, tires, aluminum wheels and heated valves. Beautiful truck. \$78,000
740-961-7431, OH P05



2001 Freightliner FL112: 3,600-gallon tank, 290,000 miles, CAT-C12, stainless hose trays and heated collars. Truck in great shape. \$49,995
716-474-7013, NY P06



2007 Kenworth: 3,600-gallon aluminum Progress tank, 300hp, 10-speed, 332,000 miles, Challenger pump, jetter system. \$72,500
832-777-7540, TX P05

2006 Kenworth T800 quad-axle cab & chassis with a 2001 Somerset 4,500 U.S. gallon, full-opening rear door, vacuum tank and Robushci Series 65 vacuum blower. (Stock# 8893C) **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)** (PBM)

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



2013 International 5900i: Eagle interior, MaxxForce 550hp with Eaton-Fuller 18-speed transmission. 4,000-gallon aluminum tank, Masport 400cfm pump, heated valves on rear. ALL NEW fuel pump, starter, air compressor, main wiring harness, alternator, brakes. 66,000 GVW, good rubber. Excellent condition. All service records. 149,044 miles. Bought new. \$79,900
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2001 Freightliner: 6-speed manual, 2,500-gallon tank w/rear dump, heated valves, Battioni 8000 vacuum pump. Ready for work. \$30,000 OBO
724-837-6084, PA PBM



1982 International: 2,000-gallon tank, DT466, automatic. Engine and transmission recently rebuilt. Great starter or backup truck. \$10,000
Call 719-580-3007, CO P05

New 4,000 U.S. gallon aluminum vacuum-pressure 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)



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 OBO
Dustin 978-473-4510, MA P07

New 4,000 U.S. gallon aluminum vacuum-pressure 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)

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

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

NEW 2015 International 7300: w/warranties, MF-DT engine, 230hp, 6-speed, new 1,850-gallon vacuum tank, new WV75 Masport pump. **www.pumpertrucksales.com**. Call JR. @ 720-253-8014, CO. (PBM)

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)

Eight great older pump trucks - \$35,000 each. Big power. Jake brakes. 3,365-gallon vacuum tanks, Masport pumps. All makes & models. **www.pumper-truck.com**. Call JR @ 720-253-8014, CO. (PBM)

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

SLUDGE APPLICATORS

1986 Field Gymmy Truck: Blue, 427 automatic. 2,000-gallon stainless steel tank, newer Moro pump. Floater tires. Extra set of new tires. 1976 GMC parts truck included. Good shape. \$15,000. 802-477-2716, VT (P05)

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. \$32,500. 802-477-2716, VT (P05)

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You won't be disappointed with Ravo sweepers. Pure vacuum, compact sweepers that will outperform any machine on the US market. Features include: PM10 certified, stainless 6.5-yard hopper, extreme maneuverability at 17 feet (curb-curb). Many late model machines available at competitive prices. For pricing, availability, pictures, please contact Tim at alliedequipmentservices@gmail.com. (P05)

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303-424-1710 P05

Vacuum Tanks: 3,000-gallon aluminum \$9,500 OBO; 500/1,500-gallon lined steel \$5,500 OBO; 750-gallon steel \$1,500 OBO. Call/text 928-920-4471 for pictures/details. (P05)

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950/300-gallon	\$11,500
1,100/400-gallon	\$12,500
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1,500/500-gallon w/work stations	\$18,500
1,900/400-gallon	\$19,500
2,600/200-gallon	\$23,000

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2,800-gallon	\$22,000
3,600-gallon, no rings	\$25,500
3,600-gallon w/rings, 4 manways	\$27,000
4,000-gallon, no rings	\$25,000
4,200-gallon w/rings	\$28,000

Call Rodney Lane P05
270-832-3793

New Aluminum Tanks – LOWEST PRICE AROUND. Without work stations/two-compartment: 1,250-gallon \$12,500. 1,500-gallon \$14,000. 2,000-gallon \$20,100. 2,300-gallon \$21,200. Single compartment: 2,000-gallon \$17,300. 2,300-gallon \$20,300. 2,500-gallon \$22,500. 2,800-gallon \$23,000. 3,600-gallon \$24,300. 3,600-gallon w/rings \$26,300. 4,000-gallon \$26,700. 4,200-gallon \$27,700. 5,000-gallon \$31,500. Additional options: Work stations. Stainless steel tanks. Call Chad Walsh with Advanced Services, Inc. 218-391-8882. (P05)

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2012 Presvac 4,620-gallon, 400cfm Masport pump, heated valve collars, heavy-duty rear bumper, pto/gearbox. Complete vac system. \$16,995

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10 ready to be mounted 4,900-gallon aluminum vacuum tanks with PTO-driven Rover pumps. Email for pictures nwllc1@gmail.com. (P05)

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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 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)

TRAILERS- VACUUM/TANKER



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

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2010 Acro 6,000-gallon aluminum vacuum trailer. 35' long. \$50,000 OBO

631-566-4209, NY P05

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

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2002 Ford E-450, Night Owl Series camera, fleet maintained, one owner. \$37,950

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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)

2001 Ford F550 Vacmaster VNDS3000, 7.3 diesel, 94,000 miles, 6-speed, a/c, nice tires, 15' bed, John Deere engine - 87 hrs. 120-gallon water tank. www.ShumateTruckCenter.com for 38 photos or call 813-877-6638 (P07)



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VACUUM LOADERS



1997 Ford Louisville Guzzler vacuum excavator: Totally refurbished, designed for Big Dig Project. 27" blower, CAT engine, auto remote. Special noise-suppression equipment. Tri-axle. Slurry, gravel, sludge, liquids. Ready to work. \$125,000

617-212-0162, MA P05



1999 International Guzzler vacuum excavator: Totally refurbished, designed for Big Dig Project. 27" blower, CAT engine, auto remote. Special noise-suppression equipment. Tri-axle. Slurry, gravel, sludge, liquids. High-pressure wash-down system - 300-gallon water tank. Ready to work. \$135,000

617-212-0162, MA P05

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)

WANTED

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

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