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ON THE COVER:



Northern Rock Septic in Rhinelander, Wisconsin, is in its second year of its successful business launch. Owners Bob and Michelle Kuhn are shown with their 2011 Mack Granite Series rig formerly used in oilfield service and carrying an NVE pump. It was purchased from Mid-State Truck Service. (Photo by Cory Dellenbach)



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

Jim Kneiszel Editor

Do You Have a Lone Worker Safety Policy?

It's a good time to talk with technicians about best communication practices and the risk of violence when confronting customers in remote locations

By Jim Kneiszel

easoned pumpers may recall the "good old days" of going out on service calls, heading out to a rural location with an address scrawled on a slip of paper and very little additional customer information. If you'd visited this isolated location before, you might recall if the homeowner was going to be around during the day, whether there would be big dogs on the loose, or the condition of the driveway to support your vacuum truck. Or you'd be going in blind.

Being a lone worker 40 years ago was truly lonely. Pumpers faced workplace dangers at every turn during a call from irate customers and protective hounds to potential injury while digging up tanks and horsing around concrete manhole covers to equipment failure that could leave you stranded. And when something bad happened, there was often no way to let the crew back at the office know about it.

So much has changed for one worker/one truck septic service technicians over the years with radio communications, cellphone and computer technology that has made the work safer and more efficient. But there is still a lot to be done to harness available technologies to further reduce the likelihood of workplace injury or death. Communication needs to be more reliable, faster and right at hand for pumpers who still often work alone in the field.

And August, at the height of the busy season, is a great time to review how pumpers can best utilize the latest technologies to measure safety risks and report emergencies quicker to reduce preventable injuries when running a service route.

ELIMINATE FATALITIES

The nonprofit National Safety Council, through its Work to Zero initiative, is educating employers about how to bring more technology into your trucks and to carry with you on the job site. The group is also recommending companies large and small implement a lone worker safety policy to slow the number of preventable worker injuries and deaths. Its goal is to eliminate workplace fatalities by 2050 through use of emerging technologies.

Consider these statistics from the NSC:

- Preventable injury is the fourth leading cause of death. Preventable deaths increased 16% in 2020, for a total of 200,995.
- · An American is accidentally injured every second, and killed every three

Customer-on-worker violence does happen and what the evidence points to is that the risk is highest for workers when they need to confront a customer about something more difficult, ... when they have to say 'no.'

- Kenna Carlsen

 $minutes \ by \ a \ preventable \ death, including \ any \ number \ of \ workplace \ mishaps.$

- An average of 552 people die daily after suffering preventable injuries.
- 23% of all workplace homicides between 2011 and 2020 involved lone workers.

"A lot of risks lone workers face are going to happen to people doing similar roles or have similar responsibilities. The difference is that working alone increases the chance of severity of workplace accidents," says Kenna Carlsen, a Work to Zero research associate for the NSC. "Because there isn't another colleague around or a supervisor, they may not be able to reach help, or if they can there is going to be that sort of delayed response."

That's where keeping up with communications technology for lone workers comes into play.

Carlsen says that at minimum these workers should be provided with a cellphone or another push-to-talk device and a plan for constant checkins with others at the company. But you have to make sure to make sure any communication device is going to work when it's needed most. "I know there are a lot of locations where these remote workers are in dead zones for cellphones and they may not have reception," Carlsen says.

MANY CHOICES

"One of the benefits of lone worker technologies is that it can be as simple or complex as an employer needs. For employers seeking low-cost options, even applications on their phones can serve as a lone worker monitoring device," she continues.

(continued)

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Cummins ISX (450 HP), Allison Automatic, 192K Miles, New 5000 Gallon Tank, New Jurop LC-420 (425 CFM) Vacuum Pump \$155,000













But there are is a greater array of more sophisticated monitoring devices pumpers might want to consider for fieldworkers. Carlsen mentions wearable panic buttons for uniforms so workers are always in reach of an emergency warning device. Personal GPS devices can give a constant location of every worker in the field. Other digital devices can track a worker's vital signs such as heart rate, monitor exposure to toxic gases while working in confined spaces, or track risk of heat stress for those working outdoors in the summer.

"If they're interested in these types of technologies, it's about assessing what resources they have available and really looking into some of these capabilities," Carlsen says. "It's really about doing a thorough risk assessment of what lone workers are facing in the field and then tailoring your resources and needs to that."

We know there are many job site risks for pumpers. Hauling hose and lids, jumping up and down from the truck can result in back injury. Slips, trips and falls are common on work sites. You have to keep your head on a swivel at all times



when working around excavation equipment. In addition Carlsen points to workplace violence as a rising danger to lone workers.

"Customer-on-worker violence does happen and what the evidence points to is that the risk is highest for workers when they need to confront a customer about something more difficult, ... when they have to say 'no.' If a customer has made multiple complaints, that can increase the risk of a situation getting out of hand," she says. "We recommend in that case that workers go through some sort of de-escalation training so they can remove themselves from that situation."

GUN POLICIES

When talking about violence in the workplace these days, it's important to discuss the role firearms may play. Carlsen said the topic of lone workers carrying firearms for protection is controversial, but every company should determine if they need a policy to cover this possibility. Some pumpers concealed carry on the job, and the NSC says the decision to allow that practice should be left up to the company and state laws.

That said, the NSC position/policy statement on firearms stresses the risk of workplace homicides rises when companies allow workers to keep firearms. That comes from a study in the *American Journal of Public Health*, which says company policies prohibiting open and concealed carry can help prevent injury and death. The statement also says that right-to-carry laws are associated with a 29% higher rate of firearm workplace homicide.

Additionally, the position statement recognizes the potential benefits of allowing workers to carry firearms. It says that national surveys "suggest that defensive gun uses by victims are at least as common as offensive uses by criminals. ... Defensive uses of guns have consistently lower injury rates among gun-using crime victims compared with victims who used other self-protection strategies.

"NSC takes the position that it is the employer's right to decide, but what is important to note is that if an employer does not allow concealed carry they

make sure they are clearly communicating that," Carlsen says. "Make sure they're mindful of their state laws surrounding concealed carry and that what they're telling their lone workers aligns with the company policy."

YOUR LONE WORKER POLICY

In addition to being clear on the policy with lone workers, Carlsen says companies must post clear signage at all entry points if they don't allow firearms at the premises. This is just one part of a comprehensive lone worker safety policy. A policy should include a list of responsibilities for all personnel including:

Employees must:

- Notify a designated person when they will be working alone.
- Provide information on their location, when they expect work to be completed and where they will go after completing work.
- Assess risks before beginning to work alone and coordinate this assessment with supervisors.
- Wear personal connected safety devices at all times.
- Inform supervisors or managers of changes in these devices, phone numbers or personal emergency contacts.

Managers/supervisors must:

- Name a person or team of people responsible for ensuring connected safety devices are charged after each shift and remain in good working order
- Coordinate schedules for regular contact with lone workers.
- Ensure cellphones and personal connected safety devices are issued to appropriate workers.
- Review monthly device usage to make sure lone workers are adhering to policies.
- Investigate when a lone worker does not sign out as expected and verify the safety of the employee.

Some of the lone worker safety procedures to cover in the policy are: routinely assessing for new hazards, summoning assistance in case of emergency, evacuating a hazardous environment, required safety technology and personal protective equipment, or PPE.

It's important to stress that lone worker communication needs to be top-of-mind.

"I think a big part of that is communicating with the employees so they understand why they now need to carry that extra device," Carlsen says. "When employees understand the purpose behind it, they are more likely to use the devices correctly."

OTHER BENEFITS

There are a few additional benefits to implementing a lone worker safety policy. The effort can help reduce liability issues for employers in case of accidents or violence. Carlsen says while there are no specific regulations around lone workers, the OSHA general duty clause can be used to cite employers who fail to protect lone workers. And some insurance companies work with companies that support initiatives.

And there is another overarching advantage.

"In a way, it shows (employers) care about the safety of their employees," Carlsen says. "And when employers show they care, they can see improved morale, increased productivity, lower costs and fewer injuries."



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Racial Bias, Hate Graffiti, and Competition for Construction Workers:

A Solution for Consideration

by David Gibson





The construction industry has seen an increase in acts of racial bias, hate graffiti, and other forms of vandalism in recent months. In addition, staffing construction crews have been increasingly tricky, with some industry publications stating a shortage of approximately 650,000 workers this year. These factors present a situation where a solution is needed to deter negative behavior, monitor actions, maintain workplace compliance, and attract qualified construction workers. A solution for consideration is a User Accountability Restroom with access control and surveillance measures.

In an October 2022 issue of Construction Dive, the CEO of Turner Construction Company, Peter Davoren, gets personally involved when a bias-motivated event occurs. He has instituted zero tolerance for hate, and many examples support this. That could be a factor in Turner Construction Company being the largest construction company in the USA

Racial bias cannot be tolerated in society, especially on construction sites. Racial discrimination presents low productivity, heightened anxiety, elevated violence, retaliation, and other actions that are counterproductive to construction progress while violating human rights. The outward signs of bias in forms, such as graffiti, result in some outcomes. Graffiti also costs the construction company and worksite since it is a form of property destruction.



Six (6) CEOs are leading the way by drawing a line on hate. The CEOs of Turner Construction Company, Mortenson, Gilbane Building, DPR Construction, McCarthy Building Companies, and Clark Construction Group are the founding sponsors of this initiative. Industry data states that these six companies employ over 213,000 workers (employees & trade partners) and represent over \$42B in revenue (2020). They are making a difference and leading the way so their construction sites can be places of "Dignity and Respect."

The shortage of construction workers is a fundamental problem for successful construction companies. Historically, companies competed for quality tradespeople and talent by increasing compensation. That philosophy has shifted to becoming the employer of choice. One avenue of becoming the employer of choice is providing a safe, respectful, and enjoyable workplace. To this end, one area of concentration is the restroom space. Many acts of hate and violence have been witnessed in these areas.

A solution to deter this negative behavior and assist in becoming the employer of choice is to implement access-controlled restrooms. Portable Solutions Group has addressed these problems by designing, manufacturing, and making a state-of-the-art "User Accountability Restroom" (patent pending) available. These units provide these features and benefits to the worker and company on their construction site.

- ✓ Modular fabrication & construction
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- ✓ Hot and cold potable water
- ✓ Individual registers for heating and cooling, personal comfort
- ✓ Individual exhaust fans
- ✓ Automatic photos of the restroom before use to monitor pre/post-condition.
- ✓ Integrated music

This solution for consideration does address the issues of racial bias, hate graffiti, and provides a safe, enjoyable place to work. We must provide a haven for construction workers to work that gives them peace of mind without fearing ridicule or being targeted. This solution offers a viable option to mitigate negative behaviors while attracting qualified tradesmen to your job site.

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Helping veterans and contributing to his community are values dear to Steve Melton's heart. He and his wife Robin are the owners of Melton's Septic Pumping Service in Summit, Mississippi. One way he shows support for veterans is by giving them discounted services.

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JUST **STARTING** OUT

In Just Starting Out, we explore the challenges faced by new pumping company owners. In the future, we'll return to our new pumpers and find out if they met their goals and what they learned about the wastewater industry along their journey. If you know someone who has recently started or purchased a septic service company and you want to suggest them for this occasional feature, send contact information to editor@pumper.com.

THEY'RE GOING PLACES

Upstart mom-and-pop operator Northern Rock Septic plans for a bright future in Wisconsin's Northwoods cottage country

By Kyle Rogers

The Northern Rock Septic crew includes, from left, Jeff Duncan, Bob and Michelle Kuhn, Carlee Kadubek and Brady Schreiber.

Jeff Darrin is not pictured. (Photos by Cory Dellenbach)

t took only 48 days for Bob and Michelle Kuhn to get their new septic pumping company up and running after officially leaving their previous employer in March 2022.

They got their finances in order, filed the proper paperwork with the DNR, found a used vacuum truck in a less-than-ideal equipment-buying environment, and had a successful first year in business as Northern Rock Septic, based in Rhinelander, Wisconsin. Now into Year 2, they're looking to continue the upward trajectory.

"It's a good industry to be in. It will provide for a family year in and year out," Bob Kuhn says. "But you have to be willing to put in the hours. It takes a lot of work. It's not just getting in a septic truck and going out to pump a tank. There's so much involved in regards to your responsibilities as a business owner — paperwork, DNR certifications, keeping up on credentials, truck maintenance, the logistics of the work. There are so many facets you have to have knowledge in and be willing to work at and figure out in order to have a successful, smooth-running septic company."

A FRESH START

Kuhn owned a construction company in the Chicago area, largely doing work for apartment complexes, before he and his wife decided they needed a change of pace and moved with their three children to northern Wisconsin a decade ago.

Kuhn eventually found his way into the septic business, initially as an installer for a company in the region. By fall 2018, he was heading up the daily operations of the company, and later Michelle ended up working for the business as well running the office. The couple was on track to purchase the company, but it ultimately didn't pan out. So they decided to start their own venture.

"It was easier for us to start our own business rather than go out and find another company to purchase," Kuhn says. "We decided to just go ahead and find our own truck, and I would drive until we got enough work to hire another driver."

But finding the right service truck wasn't the easiest task in spring 2022. "Used trucks at that time had gone up in value about 30%. They were just skyrocketing," Kuhn says. "We looked hard for three weeks every day. We were calling dealerships all over the U.S. We had a couple trucks we had our eyes on that we went to pursue, and suddenly they were already sold."

They eventually found a good truck, at a reasonable price. As a bonus, it was at Mid-State Truck Service in Wausau, Wisconsin, just an hour south of their home base. The 2011 Mack Granite Series truck features a 4,650-gallon steel tank and a National Vacuum Equipment Challenger pump. It had been custom-built for oil field work originally, but Green Valley Septic out of Wausau retrofitted it into a septic truck and ran it for five years until trading it into Mid-State to upgrade to a new truck.

"The owner had just traded it in, and my salesman down there gave me the heads up on it," Kuhn says. "I had a mechanic give it the once over and he gave it the thumbs up so we made the deal. We were fortunate to find it."

Another fortunate turn of events was that minimal work was needed to get it ready for Northern Rock. The overall color scheme was white and green, which happened to be the colors of Rhinelander and its school sports teams

"We did a partial paint job on it because there was some rust," Kuhn says. "We ended up painting the back of the truck and the bed rails, changing



Northern Rock Septic

Rhinelander, Wisconsin

OWNER: Bob and Michelle Kuhn

FOUNDED: 2022 **EMPLOYEES:** 3

SERVICE AREA: Northern Wisconsin, from Rhinelander to the Upper

Peninsula of Michigan border

SERVICES: Septic pumping, landscaping and snow removal

WEBSITE: www.northernrockwi.com

THE SEPTIC BUSINESS, WITHIN REASON, IS RECESSION-PROOF.
WITH OTHER SERVICE BUSINESSES, PEOPLE CAN SAY MAYBE WE DON'T WANT THAT SERVICE THIS YEAR BECAUSE WE CAN'T QUITE AFFORD IT. BUT WHEN A TANK IS FULL, IT HAS TO GET PUMPED.

BOB KUHN





Jeff Darrin and Jeff Duncan talk about a job they just wrapped up before heading out on another service call.

Darrin holds a bucket to catch any waste that might escape when he removes the cap from the suction valve to start a pumping job.

the color scheme a little bit. Then we re-lettered it, added our graphics, gave it a good washing and waxing, and put it on the road."

MODEST GOALS

Kuhn says he and Michelle kept their expectations in check for their first year of business.

"We had hoped to just cover our overhead for the first summer seeing as we had to move so quickly," Kuhn says. "A lot of companies flood the market with advertising a year or so before they actually open. We didn't have any time. Our advertising went out as we were opening so we were at a definite disadvantage. But as things went along, we started picking up steam."

They did some radio and TV spots and sent out direct mailers. A key source for customers has been vacation homes. Northern Rock Septic's service area extends from Rhinelander north to Wisconsin's border with the Upper Peninsula of Michigan, a region filled with second homes on lakes. That paired with the state requirement for a septic tank pumpout every three years has helped business.

"A lot of local people may stick with the same septic company they've always gone with, but people from out of town may not have that sort of loyalty," says Michelle, who handles the office duties. "They get our direct mailer and then they get their septic service notice, so they say, 'Let's try this company."

Wisconsin's three-year septic pumpout rule in general has been good for all septic companies. Oneida County, where Rhinelander is located, sends out a list every year of addresses that are due for a pumpout. Companies can then target those addresses with direct mailers. Kuhn says the Onei-



da County list has roughly 7,000 to 9,000 addresses every year. About 50% of Northern Rock Septic's revenue comes from residential pumping, and about 80% of those service calls are prompted by three-year notices, Kuhn says.

"It is quite a few considering how many septic companies there are in the area," Kuhn says. "It seems like there are a lot of septic companies, but there really aren't for how many pumpouts need to be done. Every year is different.

(continued)

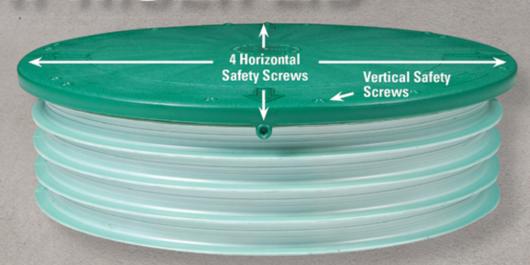


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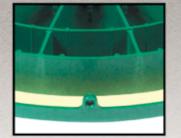
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Injection molded T-Baffle™.

- · Injection molded
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- · Simple to install
- . May also be used as Outlet Tee with Solids Deflector











Some years you get a lot, others not as many. That's just the way it is."

Being a new, smaller company can be beneficial in certain ways. Kuhn says because Northern Rock Septic has less overhead than bigger companies at the moment, it can offer a lower service price to customers. Even a slight discount can mean a lot to some customers, Kuhn says.

"A \$5 or \$10 difference can make a huge difference for some people, like certain elderly people that may be on a fixed income," Kuhn says. "They're more willing to schedule with us if we're \$10 cheaper than the next guy. And \$10 isn't going to break us."

Northern Rock Septic also is willing to give customers a payment plan option where they can pay for their service in three installments. Or discounts if a cluster of neighbors can coordinate their pumpouts concurrently.

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888-878-2296
www.crustbusters.com
Ad on page 49

Mid-State Truck Service, Inc.
800-236-2044
www.midstatetruck.com

National Vacuum Equipment
800-253-5500

"We try to accommodate people and help them out if we can," Kuhn says. "That helps bring in some of the work because people talk. When you help one person out, they are more willing to spread the word."

VAULTING AHEAD

Even with the pumping notices producing a decent amount of work, residential service work can

still be sporadic. That's why Northern Rock Septic has also focused heavily on acquiring contract work. Much of that current work is for private youth camps and state campgrounds and public vault toilets in the region maintained by the Wisconsin Department of Natural Resources.

"We will do as much residential pumping as we get, but there's no guarantee how much it's going to be each year," Kuhn says. "If you can fill your schedule with a certain amount of contract work, then you know every year you'll be doing a set amount of work. Focus on the contracts and then fill in with the residential pumping."

The privately owned camps sometimes have decades-old septic tanks and the current owners don't always know exactly what's going on with their system underground. Prior to starting Northern Rock Septic, Kuhn says he had put in a lot of time with some of these campgrounds, locating tanks and helping customers figure out a schedule for system maintenance.

For the region's campgrounds and other public vault toilets maintained by the DNR, Northern Rock Septic has to bid for the contract every year. But it's the type of work that often doesn't attract much competition.

"It's typically the dirtiest of the dirty work in the septic business," Kuhn says. "You deal with a lot of trash." For its first year of operation, Northern Rock Septic was awarded the state contract.

"There's a certain amount of pride that comes with serving the community and providing a service to people who enjoy the outdoors, but it also gives you a perspective on humanity," Kuhn says. "Some people don't have any consideration for the guy who has to clean these toilets out and if

(continued)

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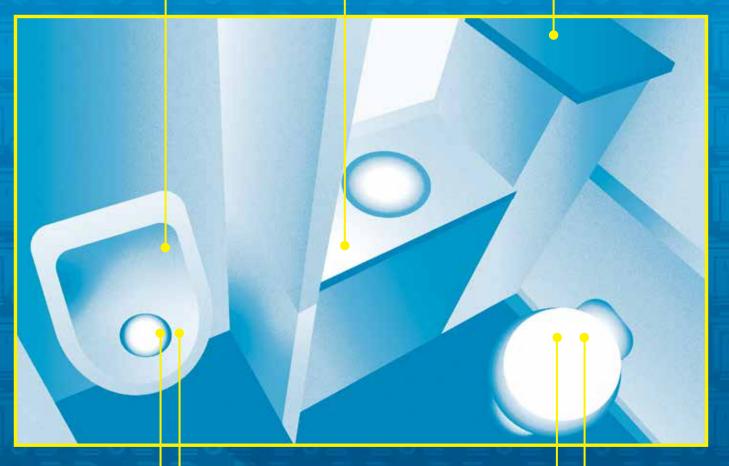
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> Pumper PROFILE

they just once had to clean it themselves they might really think twice about throwing their garbage in the hole. It's not a job you're eager to do, but it pays well and someone has to do it."

MOVING FORWARD

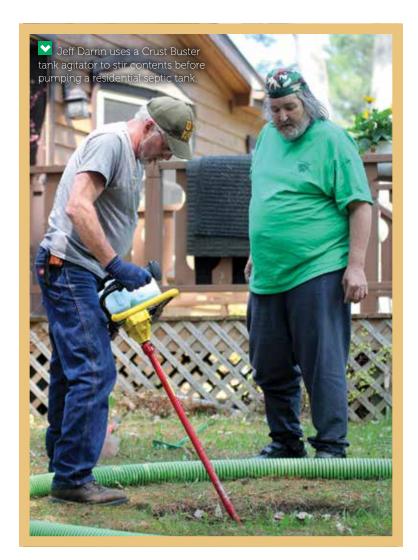
The first year of business went well enough that Northern Rock Septic was able to hire an employee, Jeff Darrin, this year to drive the vacuum truck. That has allowed Kuhn to spend more time looking for new clients. The Kuhns have a few more part-time helpers borrowed from a related land-scaping operation.

"We need to expand, and I found that going out there and meeting customers is very key," he says. "I was able to pick up a lot of work by just going out and meeting with customers, talking with them. It takes the initial call, but I've found that the service you provide after that initial call really greatly increases your chances of gaining that person as a permanent customer."

Kuhn's goal is to gain enough work to warrant the purchase of a second service truck.

"At that point we'll have a decision to make whether I drive that truck part time or we hire another employee," he says. "We'll just take it as it comes. The goal is to expand the business as much as we possibly can."

Another long-term goal is to help establish an industrial waste treatment center in northern Wisconsin.



Darrin replaces a concrete tank access lid after a pumping job.

"The septic business, within reason, is recession-proof," Kuhn says. "With other service businesses, people can say maybe we don't want that service this year because we can't quite afford it. But when a tank is full, it has to get pumped.

"It's a business where you're always going to have work," he continues. "People are very thankful for what you do. That's the most rewarding part of the job."





The dream of an industrial waste treatment center

Where to haul and offload septage? For pumpers in northern Wisconsin, that can be a quandary sometimes.

Northern Rock Septic, based in Rhinelander, Wisconsin, ran into that problem during its first year of business. For the waste collected from public vault toilets on a DNR contract, owner Bob Kuhn says plans fell through at the initial treatment plant where he was going to dump. Shortage of funds kept the facility from being able to complete a necessary upgrade, and it wasn't able to accept the waste.

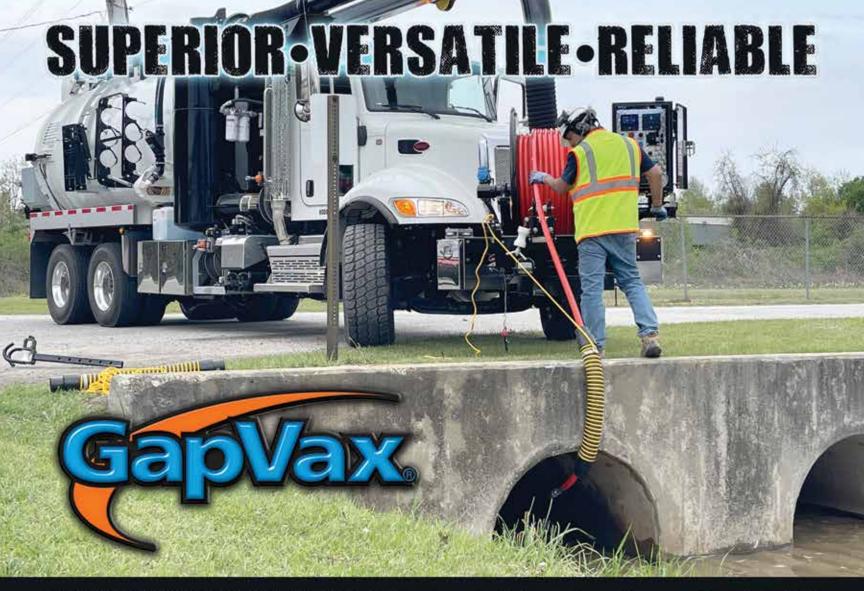
Kuhn had already bid the contract for a certain amount of disposal costs, and it hurt a little financially when he suddenly had to drive farther to a different treatment plant that also charged higher disposal rates. That treatment plant accepted all of the waste, but another challenge was that offloading had to be spread out.

"They get so much volume because they're the only treatment center in the area that's upgraded and willing to take a lot of capacity," Kuhn says. "A lot of haulers come there and the treatment center can only take so much of it at one time."

It required some extra planning on Kuhn's part, in addition to paying the higher cost. That's why a long-term goal of Kuhn's is to help establish an industrial waste treatment center for the northern Wisconsin region.

"It's always in the back of your mind, every day you have the struggle of where to take your septage," Kuhn says. "We need a waste treatment center in northern Wisconsin that can handle industrial waste, grease traps, holding and septic tanks. The treatment plants around here have a problem being able to accept high volumes of waste and there's a lot of demand for it.

"There are also a lot of restaurants and bars that have grease traps and the treatment centers won't take it. They don't want the grease. They just can't handle it. You have to call a service farther south to come up here and haul it and it costs you two or three times more than what it should. Ultimately that's the long-term goal to facilitate in any way I can to get an industrial waste treatment center built up here."



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Sara Heger, Ph.D., is a researcher and instructor with the Onsite Sewage Treatment Program in the Water Resources Center at the University of Minnesota. She is also a certified septic system designer and service provider. Send questions for Sara to editor@pumper.com

Tools and Techniques for Measuring Sludge and Scum

We review the array of wastewater measurement tools for the septic tank and the correct way to use them

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

any products are manufactured specifically to periodically measure sludge and scum accumulation — or you could make your own. These devices can be used in septic tanks, flow equalization tanks, grease traps, recirculation tanks, pump tanks and even aerobic treatment units to evaluate the buildup of sludge and scum.

In the past, a "stick test" using a white rag or towel was often recommended, but professionals today have a variety of purpose-built tools to do the job. Some of the most common propriety brands are DipStick Pro (Environmental Biotech), Sludge Judge (Nasco Whirl-Pak) and TruCore (Sim/Tech Filter). This list is not exhaustive, so you may have another one you like! The proprietary devices are made using clear PVC pipe typically with a marking every foot. The pipe takes a core of the tank liquid profile and you can then calculate the levels of sludge and scum.

A DEEPER DIVE

The devices operate differently, so when deciding which one to purchase it is good to understand what type of systems you typically need to evaluate.

- The Sludge Judge comes in several diameters and lengths and has a ball that lifts up as liquid and solids enter the tube. When you retrieve the core, the ball sits at the bottom, trapping the effluent inside; you need to be sure that the foot valve seats before pulling it out. With very thick sludge, the ball may have issues letting the sludge into the tube. The larger diameter model (1 ¼ verses ¾-inch) seems to have less of an issue with this, but I have still plugged ours with very dirty tanks. It typically comes with three sections for a total of 15 feet, which is nice if you deal with deeper and larger tanks. Cleaning can be challenging with the ball blocking flow at the bottom.
- The DipStick has an open bottom and a ball valve that you close after filling the tube. There is a T-handle and an arm lever to operate the ball. The larger-diameter opening is nice (1 ¼ inches). It comes as a 6-foot section, but you can add 4- or 6-foot extensions. Over time we have had issues with the ball on valve easily opening and closing but a lubricant such as WD-40 can help with that. Due to the open bottom it is less likely to plug with heavy solids. The device is easy to clean.
- The TruCore has an open bottom with a gasket and plug, which is pulled

In the future we may have electronic devices to measure sludge and scum depths that can be connected to wireless technology to indicate when septic tanks need cleaning.

tight when the pipe is full. The opening at the bottom has a diameter of 1 3/8 inches. With the open bottom it is less likely to clog and you can easily measure thick sludge as fluid is allowed to flow freely into the sampling tube. The device is easy to clean.

All these devices are challenged by a thick, heavy scum layer. You need to open a pathway (typically with a shovel) before inserting these tools. Always be sure to drain the device back into the tank.

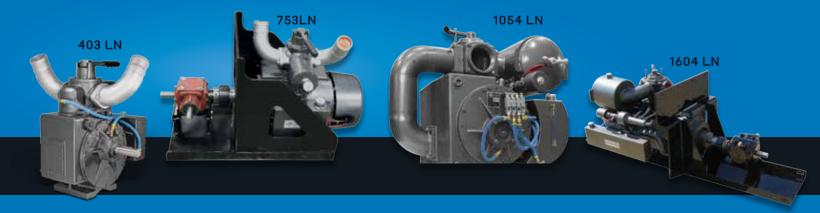
You will want to check the levels in each tank or compartment. We normally expect the first tank/compartment to have the most sludge and scum, but with heavy water users, sludge and scum may have pushed to downstream components. Tanks or compartments should be cleaned out when the middle/outlet side of the tank when more than 25% of the tank liquid capacity is storing sludge and scum.

You do also want to check at the inlet side of the first tank, as there are some commercial facilities that may accumulate sludge at the front end of the first tank. Letting these systems go too (continued)



Sara Heger uses a Sludge Judge to produce a core sample.

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(at a rate of approximately 1 foot per second), and when the measurements were taken by the same person. Despite the adoption of this protocol, sludge measurements still varied significantly within a manhole; as a result, several sludge measurements are recommended.

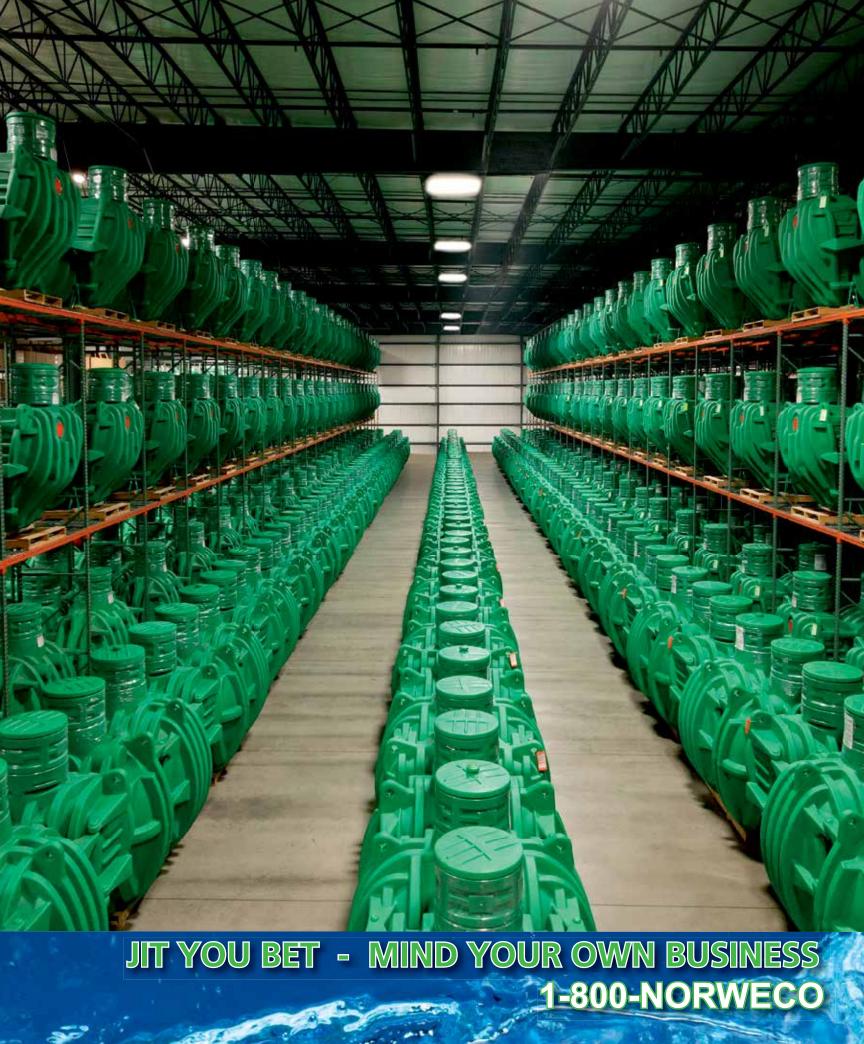
Once you have a liquid profile of the tank, we need to evaluate how the tank is performing and if maintenance is needed.

SCUM - The scum layer should be present but not excessively thick with at least a 3-inch zone between the bottom of the sludge and the outlet baffle/ screen. A missing scum layer can be the result of a loss of the outlet baffle or chemicals being added to the tank. A thick scum layer is typically the result of fat, oil and grease and excessive soap usage. It can also contain debris that is lighter than water and should not be flushed. If a particularly thick scum layer contains a considerable proportion of undigested food, there is usually a problem in the house, either with excessive garbage disposal use or a medical problem related to food digestion or bulimia.

CLEAR ZONE - The clear zone should be at least 75% of the tank depth. The appearance of flocculent (small floating solids) will also speak to tank operation. A clear zone with little flocculent means the tank is working well. An absent clear zone (where tank profile is uniform) is the result of an antibacterial addition that has significantly impacted bacterial action.

SLUDGE - The sludge accumulation should not reach to within 12 inches of the bottom of the outlet. A thick sludge layer in a short period of time may relate to heavy use of a garbage disposal, particularly if the home is adding difficult-to-decompose materials such as coffee grounds, tea bags, bones or citrus fruit peels. The more people living in a home, the more sludge will be produced.

In the future we may have electronic devices to measure sludge and scum depths that can be connected to wireless technology to indicate when septic tanks need cleaning. But until then, every service provider should have a sludge measuring device.



PUMPER INTERVIEW



We Need More Widespread Financial Assistance For Septic System Repairs

Report finds decentralized wastewater is having a hard time competing with municipal sewers for government infrastructure dollars

By David Steinkraus

umper often carries news about grants that help people pay for septic system repairs, and while many wastewater professionals know in their bones that money is lacking, now there's evidence to back up those feelings.

Last year the Environmental Policy Innovation Center published *Investing in America's Onsite Wastewater Treatment Systems for Equity and Sustainability,* a report outlining what governments should do to improve onsite treatment. The report is available here: www.policyinnovation.org/publications/investing-in-americas-onsite-wastewater-treatment-systems-for-equity-and-sustainability.

To learn more, *Pumper* talked to Maureen Cunningham, chief strategy officer and director of water for the organization.

Pumper: What would you like people to get out of your report?

Cunningham: I think one of the things is that when we started the research, we didn't know what kind of funding was out there for onsite systems. We know it's a little bit more challenging than funding for centralized systems in a lot of ways because it depends so much on the homeowner

There are funding mechanisms out there, and they're potentially underutilized, and maybe not as accessible as they could be.

Pumper: What started you looking at onsite?

Cunningham: Our focus on our water program is really on water equity, and I think onsite wastewater treatment systems really highlight some of the inequities that exist. We know from the data that onsite users tend to be low-income. There's not a lot of conclusive data on racial disparity, but the data points to potential racial imbalance in access to plumbing.

Pumper: Your report recommends collecting more information. What kind of information do we need?

Cunningham: Having an inventory of systems per state would be really helpful. According to one article we found in the Washington Post, only

Georgia has an inventory. Beyond that, I don't think a lot of communities have an inventory. I live in the town of Bethlehem, New York, I actually am a town council member, and I don't know how many septic users we have even in our town.

The next line of information we need to gather is where septic systems are potentially failing. At Canandaigua Lake (Finger Lakes region of upstate New York) they take a watershed approach, and it becomes a water quality issue to inspect septic systems.

This is about the human right to sanitation, but that involves a collective responsibility of local, state and federal governments. ... If the goal is water quality and protecting water, in the end failing onsite systems are everybody's problem.

- Maureen Cunningham

Pumper: Are there two or three main things you'd like to see happen?

Cunningham: For the federal government it would be collecting more data and encouraging the use of the State Revolving Fund programs, and maybe more education and outreach about those programs. The U.S. Department of Agriculture rural water program, with a few tweaks, could be even more accessible. The program is limited to homeowners, not renters. There's also an age limit of 62 and older, so that should be made more available to low-income younger people.

More states need to use third-party intermediaries. With 22 million households with onsite systems, the process of getting contracts and funds out is a challenge. At the state level there are a lot of examples of

(continued)



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great programs. Ohio EPA distributes the principal-forgiveness loans to county health departments, and then county health departments can get the money out much easier than they could at the state level. Oregon and Washington are using community development financial institutions as the intermediary.

Pumper: We've heard from pumpers for years about how hard it is to get people to pay attention to what's buried in the yard. Do you have any good ideas about that?

Cunningham: That's a really good question. The Canandaigua Lake program is a good example of a local program that's very hands-on. I think local governments are key to outreach.

Pumper: A surprising item in your report was the graph showing states that regularly receive money from the Clean Water State Revolving Funds. Massachusetts was on top with \$128.8 million, or 27.5% of the total. What do you think?

Cunningham: Massachusetts may not represent the greatest need. They may be more effective at getting the money. I talked to the fund administrators both there and in Minnesota (second with \$95.7 million), and I was very impressed. Revolving fund programs are administered at the state level, and while there is guidance that comes from EPA, we see a lot of difference in how those programs are administered and how effectively they get dollars out.

That's really our takeaway: The SRF program is underutilized for onsite wastewater treatment systems.

Pumper: What kind of response did you have to your report because we didn't find much?

Cunningham: I'd like to think maybe that reflects the amount of attention to onsite wastewater treatment systems, which is very low in some ways compared to centralized systems.

We did get some attention and questions at the executive level of government and had some follow-up with a group of EPA folks who work on onsite wastewater treatment systems and asked us to present.

Someone from the White House responded to the batch email that announced the report. As policy folks, that's who we want. If the White House and the EPA are responding, we're happy.

Pumper: Any final thoughts?

Cunningham: Onsite issues aren't isolated. This is about the human right to sanitation, but that involves a collective responsibility of local, state and federal governments. It also means looking not just at decentralized wastewater treatment but at the whole issue of clean water. If the goal is water quality and protecting water, in the end failing onsite systems are everybody's problem. **P**



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BUILDING THE BUSINESS





Ken Wysocky is a freelance writer and editor who resides in suburban Milwaukee, Wisconsin.

You Have a Negative Nellie on Your Team. What Now?

Follow these action steps to get your problem pumper back on track make those around him or her happy campers

By Ken Wysocky

ew workplaces are total negativity-free zones. Even the best places to work can suffer from the occasional corrosive effects generated by drama queens, whiners, gossipers and bullies.

But all too often, managers go into denial mode when they encounter such behavior. They either don't know how to confront the problem or figure that it's just impossible to change peoples' behavior and thus soldier on, which only makes other employees resentful about the lack of action. Or perhaps the problem employee is, ironically enough, a top performer, which gives the manager little motivation to confront the issues at hand.

The end result? Good employees leave, unable to bear the toxic environment created by a problem employee. Morale sinks. Productivity declines. And word gets around, which can derail employee recruiting efforts.

"Negativity is counterproductive in almost every way," says Marie G. McIntyre, a nationally known management consultant, employee coach (www. yourofficecoach.com) and the author of *Secrets to Winning at Office Politics: How to Achieve Your Goals and Increase Your Influence at Work.* "The shame of it is that the employees that leave usually aren't the negative ones. So the irony is that by not acting on the problem, you end up keeping just the complainers and whiners."

WHAT'S A PUMPER TO DO?

One of the biggest culprits in this vicious circle is managers ill-equipped to handle problem employees for lack of training, or that are so weak-willed that they'd rather just avoid confrontation. "There are just too many wimpy managers out there," McIntyre asserts. "They're usually nice people, but they're afraid to use the authority conferred by their position when they need to."

Some small business owners or managers even inadvertently encourage further bad behavior. As evidence, McIntyre recalls a manager who complained that she often had to do the work of an employee who was a total on-the-job slacker; she was also upset because she couldn't convince her boss that there was a problem. "Of course she couldn't — all the work was still getting done," McIntyre says. In another instance, a manager told her that he actually let a problem employee vehemently complain about various and sundry issues for 1 1/2 hours.

"That only encourages someone to complain even more," she points out. "You should always listen to your employees, but once you get tired of hearing them complain, you've probably been listening to them too long. You've got to figure out a better way to have a conversation."

The shame of it is that the employees that leave usually aren't the negative ones. So the irony is that by not acting on the problem, you end up keeping just the complainers and whiners.

Marie McIntyre

To deal with negative employees, McIntyre suggests adopting six strategies aimed at changing behaviors and creating a more positive workplace for other employees:

- Stop rewarding behavior you don't want. See examples above.
- Address problems as they arise. If you don't, odds are they'll turn
 into something even worse. And failure to deal decisively with problem
 employees only weakens other employees' faith in your managerial skills.
- Be a coach, not a critic. "Coaching is one of the most important skills
 a manager needs," McIntyre says. "You're responsible for getting results
 from employees, just as the coach of a sports team is responsible for
 getting results from players. But few people are born to do this it usually
 requires training."
- Describe problem behaviors specifically. Just telling someone that they're
 negative is too general; they may not know what that means, which prevents
 them from doing anything about the problem at hand. As such, it's critical to
 provide specific examples as well as the resulting negative side effects.
- Focus on the business angle. Don't center the discussion on personalities; that's a no-win proposition. Instead, point out how certain behaviors may damage relationships with customers, for example, or curtail teamwork and collaboration with others on your crew.
- Keep your cool. If you get angry or upset during a meeting, you're acting
 like a child, too. "You need to snip the wires to your hot buttons," McIntyre
 suggests. "You need to act like an adult and deal with things in an adult
 manner. If they push your buttons and you react, you've lost control of the
 situation."



WORK TOGETHER

Most of these strategies can be employed during what's known as a twoway problem-solving discussion. "It's not a forum for criticizing or lecturing," McIntyre explains. "It's about sharing observations about what you've noticed and putting them in the context of business issues — don't make it personal."

The meeting should include an explanation of what things have to change; setting clear expectations is critical. Then develop some strategies that can be used to make things different going forward. It's also essential for you and the problem employee to agree on these action steps as well as arrange follow-up meetings where you can discuss how things are progressing.

"Follow-up is critical," McIntyre says. "Too many managers view these coaching sessions as one-and-done things. But people just don't change their behaviors that easily or quickly, so follow-up is essential." Furthermore, a lack of follow-up may prompt the employee to think you don't take the issue seriously, which removes any incentive to change.

What if this strategy doesn't work? Even closer supervision and more frequent coaching sessions may be required. And if things don't improve after that, and the issues are serious enough that the person can't get the job done and hampers others in your company from doing so, too, more drastic action is required. "Maybe they're just not a good fit for the job," McIntyre says.

Sewer System Cleaning and Inspection

By Craig Mandli

CABLE DRAIN CLEANING MACHINES



Duracable DM30

The **DM30** cable drain cleaning machine from **Duracable** can be used to clean residential mainlines running from the house to the septic tank or from the tank to the distribution box. Suited to 2-to-6-inch lines in residential and light commercial settings, the durable machine provides flexibility

with cable diameter and length. Machine packages come with 100 feet of DuraFlex 5/8-inch hollow-core cable, and it is easy to swap between 19-and 21-inch reels. It is a mid-range sled-style drain machine, powered by a 1/2 hp 200 rpm motor and onboard power cable feed and return. Getting it on site is no problem with its telescoping handle and wide wheels, which give it extra ground clearance and mobility to fit through a narrow 26-inch doorway. 800-247-4081; www.duracable.com

General Pipe Cleaners Flexi-Rooter 100

The **Flexi-Rooter 100** high-speed, flexible-shaft drain cleaner from **General Pipe Cleaners** has a shaft that spins more than 10 times faster than cable drum machines to quickly grind up stoppages and scour pipe walls. Its strong, stiff shaft is flexible



enough to navigate 2-inch pipes, yet cuts roots in 4-inch drainlines up to 75 feet long. The variable-speed motor has adjustable shaft speed from 0 to 2,200 rpm. Foot pedal control frees hands to guide the flexible shaft into the line. It can be used simultaneously with a sewer camera system to pinpoint pipe troubles and instantly inspect results. Its cleaning array features ClogChopper cutters combined with carbide chain cutters. The shaft is field-repairable. **800-245-6200**; www.drainbrain.com

COATINGS/LININGS/SEALANTS



CUES Easy Grout

The **CUES Easy Grout** system offers a computerized graphical user interface that intuitively leads the user through the grouting process. The software includes help files, tool tip descriptions and recommended settings

to assist operators throughout the grouting process. The space-saving system is designed to consolidate all the valves and electrical controls into a single instrumentation cabinet that can be mounted in any location. **800-327-7791; www.cuesinc.com**

Oatey Hercules Megaloc

Hercules Megaloc thread sealant from Oatey has an odorless formula that contains Dupont Kevlar. It withstands temperatures from -50 to 400 degrees F without hardening or cracking. The sealant can be used on steel, stainless steel, brass, copper, aluminum, plastics and is safe for use on drinking waterlines. The sealant easily wipes from hands and clothes. It is available in seven variations. 800-321-9532; www.oatey.com



DRAINLINE INSPECTION CAMERAS

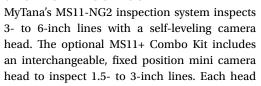


Milwaukee Tool 100-foot Flexible Pipeline Inspection Camera

Milwaukee Tool's 100-foot Flexible Pipeline Inspection Camera is part of the M18 Modular Pipeline Inspection System. The unit has a flexible push cable built to navigate tight bends and traps in 1.5- to 4-inch lines, up to 100 feet. The compact and lightweight design is optimized for high traffic or confined areas

and offers portability for easy storage and transport. As the first flexible reel added to the system, it joins the 120- and 200-foot Mid-Stiff, and 200- and 325-foot Stiff reels to provide versatility to fit any situation. The system is built around the M18 500 GB Control Hub, which powers and allows for easy swaps between reels. **800-729-3878**; www.milwaukeetool.com

MyTana MS11-NG2 and MS11+ Combo Kit





has a 512Hz transmitter built in. The high-clarity 6.4-inch daylight-readable monitor is integrated on the reel frame for convenience. Save footage to internal or removable drives, or stream video wirelessly to a mobile device. The 45-pound system with 200 feet of durable pushrod takes up little room on the truck. The pushrod can be replaced in the shop. **800-328-8170**; www.mytana.com



Ratech Electronics Plumber's Helper Jr.

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

spectrum, 1.375-inch, self-leveling color camera; a standard color camera; or any of the company's three micro camera heads — 5/8-, 3/4- or 1-inch diameter. **905-660-7072**; www.ratech-electronics.com

RIDGID SeeSnake Mini Pro

The **RIDGID SeeSnake Mini Pro** inspection camera with TruSense Technology provides digital self-leveling without mechanical rotation,

PRODUCT FOCUS



inspecting up to 200 feet of 1 1/2- to 8-inch pipe with its mid-flex push cable that can navigate hard 90-degree bends. Its 25 mm digital self-leveling camera keeps the in-pipe image upright and, when paired with a TruSense enabled monitor, delivers an in-pipe image with clarity, detail and fewer blown-out areas

and sections of the pipe too dark to see. Digital zoom/pan provides the ability to focus on a single point of interest, while the TiltSense Inclinometer measures the camera's angle and displays the degree of tilt on the monitor, giving a useful indicator of the pitch of the camera in-pipe. It pairs with the RIDGIDConnect Online Business Tool for seamless customer reporting. **800-474-3443**; www.ridgid.com

ELECTRONIC UTILITY LOCATORS

Subsite Electronics UtiliGuard 2 RTK

The **UtiliGuard 2 RTK** receiver from **Subsite Electronics** was designed as a simple, easy-to-operate utility locating tool for operators locating, mapping and capturing underground utilities. It utilizes survey-grade technology and features dualband antennas to provide operators with reliable positioning data with centimeter-grade accuracy. Its



precision helps when locating abandoned and untracked utilities that are difficult to pinpoint. By quickly verifying the utilities installed, operators efficiently tailor bids to match a job site needs, as well as gain insight into the underground infrastructure to avoid cross bores during future projects. The receiver provides locate crews with integrated data capture, GPS positioning and an intuitive user interface to improve work quality and maximize locate awareness. By downloading the MyUtiliGuard application, operators simplify and streamline how they capture, map and share data. 800-846-2713; www.subsite.com



Vivax-Metrotech vLoc3 RTK-Pro

The **vLoc3 RTK-Pro** receiver from **Vivax-Metrotech** adds RTK GNSS accuracy to a utility locator. Using the internal cellular module with 4G LTE capabilities, the operator can connect to an NTRIP RTK (Real-Time Kinematic) caster that provides RTCM 3 corrections. By utilizing these corrections, the operator can

collect both utility location data and the utility's geographical location with survey-grade accuracy. It is designed for all operator levels, utilizing user-friendly and intuitive locate screens. Operators confirm the utility data with the press of a button and align the electronic spirit level to store data. All field data is sent to the cloud and retained in the receiver's onboard storage for review and exporting to mapping programs. 800-446-3392; www.vxmt.com

HIGH-PRESSURE HOSE

Kuriyama of America Piranha

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



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

HIGH-PRESSURE NOZZLES

Non-market

Hydra-Flex Revolution

The **Revolution** sewer jetting nozzle from **Hydra-Flex** offers a triple-threat attack in 6- to 36-inch pipes. The nozzle's tip creates a 0-degree straight-water stream that rotates at a 30-degree cone of coverage to break through roots, grease, and tough blockages. Next, the 10-degree back-jets offer a smooth ride for the nozzle to glide through the pipe as the front bursts out water at a pressure range of 1,000 to 2,500 psi. The last attack is the 360-degree rotating sub-head, which works to completely

clean and descale pipe walls. The subhead speed remains consistent and controlled throughout its life to output maximum power. Premium materials — stainless steel housing and tungsten carbide wear surfaces — make it durable and capable of withstanding harsh environments. **952-808-3640**; www.hydraflexinc.com

Warthog Nozzles by StoneAge WT-1/2

The WT-1/2 nozzle from Warthog Nozzles by StoneAge has a 1/2-inch inlet option and an R24 head engineered to increase the flow range up to 21 gpm. This configuration enables maximum use of higher-flow pumps



for more powerful cleaning, while maintaining the small form factor of the WT for navigating pipe bends, according to the maker. The high flow capacity paired with the company's WT 040-R24-C head allows use of full pump power to tackle the toughest jobs and achieve a higher rate of cleaning. The small form factor is optimized for cleaning 3- to 6-inch pipes with elbows. The nozzle's slow, controlled rotation combined with high flow delivers cleaning power for cutting roots or clearing tough deposits. **866-795-1586**; www.warthog-nozzles.com



HOSE REELS

COXREELS 1125 Series

The 1125 Series from COXREELS is available with two upgraded swivel options. The medium-pressure (up to 4,000 psi) and high-pressure (up to 5,000 psi) can be factory installed. The medium-pressure swivel is precision-machined from solid brass and features upgraded wall



thickness, as well as upgraded seals and backup rings. The high-pressure swivel is machined from high-strength steel and nickel plated for corrosion resistance. This ball bearing swivel features maximum flow and enhanced load-bearing capabilities. **800-269-7335**; www.coxreels.com



Hannay Reels 6200 Power Rewind Reel

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

supported at 3,000 psi, making it suitable for large jobs. The "A" assembly roller on the front of the frame allows for proper storage and easy dispensing on truck or trailer mounts. Optional upgrades include 5,000 psi working pressure, roller assembly, direct drive hydraulic motor rewind and a hose package, allowing for a wide range of customizations to suit every need. **518-797-3791; www.hannay.com**

PIPE PLUGS

Cherne Single-Size Plumbing Test-Ball Plugs

Cherne Single-Size Plumbing Test-Ball Plugs are designed to test drain, vent and waste systems in every type of pipe. They can be inserted through a test tee to seal out-of-round pipe. The plugs have a natural rubber body that



provides expansion and a great seal in round and out-of-round pipes. Their inflatable design can fit through test-tees, sanitary tees, floor drains and other hard-to-access pipe openings. This product is ideal for testing drainwaste-vent plumbing systems at pressures up to 13 psi or with 30 feet of head pressure, while also utilizing a standard tire air fitting for easy connections. The ring and chain assembly help prevent the plug from being drawn into DWV systems during tests. They come in nine variations or sizes, ranging from 3/4- to 6-inch plugs. **800-843-7584; www.cherneind.com**

PORTABLE JETTERS

Jetters Northwest Drain Invader and Drain Invader-X

The **Drain Invader** and **Drain Invader-X** from **Jetters Northwest** are lightweight 115-volt electric jetters for cleaning small septic lines and indoor/

outdoor drains up to 3 inches. They are compact (about the size of hand-carry generator), and easy to carry. The Drain Invader is capable of 2,050 psi and 1.4 gpm and runs off a 15-amp outlet. The Drain Invader-X has a more substantial brushless induction motor for up to 2,300 psi and 1.5 gpm. Automatic start/stop means the motor/



pump only runs when the jetting valve is open. Hose size options include 50 feet of 1/8-inch poly hose, or UltraFlex 3/16-inch stainless steel jetting hose in 25-, 50-, 75- or 100-foot lengths, with an optional reel. They include three jetting nozzles with a Pelican case, pressure-wash kit, a 25-foot power cord w/GFI plug, two faucet-adapters, and snap-connects for an included two-wheel mobile-cart with built-in hose hanger. An optional snap-connect wall-mount kit is available. **877-901-1936**; **shop.jettersnorthwest.com**

PRESSURE WASHERS AND SPRAYERS/ACCESSORIES



Cat Pumps Portable Pressure Wash Pumps

Cat Pumps teams portable **4SP** and **4DX Series** high-pressure pumps with premium DC electric motors pressure wash power. These systems serve various applications, including portable restroom cleaning, air conditioning fan cleaning,

and equipment and surface washdown. The pump and motor assemblies provide up to 3 gpm at pressures from 400 to 1,000 psi and operate on a standard DC source. The auto start/stop control runs the pressure washer only when there is demand, increasing pump and motor life. Convenient, reliable, and easy-to-service integrated unloaders accurately set and maintain system pressure while diverting water flow during bypass, reducing the pump and motor load and increasing system life. Crankcase oil is prefilled, so pumps are ready to use. Multiple build-to-order configurations are available. **763-780-5440**; www.catpumps.com

Jenny Products Steam Jenny Direct-Drive Cold Pressure Washers

Jenny Products offers four compact models of **Steam Jenny** direct-drive cold pressure washers designed for maximum durability and portability. The pressure washers are powered by 9 or 13 hp Honda GX Series engines, and all models feature



a triplex ceramic plunger pump, which provides years of service while requiring little maintenance, according to the maker. They are available with pressure ratings between 3,000 and 4,000 psi, and flow rates vary between 3 and 4 gpm. Features include thermal pump protection, an unloader valve and a high-pressure relief valve to prevent damage to the pump. To protect the engine, the unit will automatically shut down if low oil levels are detected. The chassis is made with powder-coated, 7-gauge steel. **814-445-3400**; www.steamjenny.com

ROOT CONTROL CHEMICALS

Lenzyme Trap-Cleer foaming root control

Foaming root control from **Lenzyme Trap-Cleer** has double the active ingredient, dichlobenil, compared to previous solutions, along with a latex







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base designed to help it stick to roots longer. It is easy to apply and provides a slower foaming action to coat the entire pipeline and eliminate fast foam-over messes. **800-223-3083**; www.lenzyme.com

RootX

RootX comes in 2- and 4-pound containers. A 2-pound container is designed to treat 50 feet of 4-inch sewer line and a 4-pound container is designed to treat 100 feet of 4-inch or 75 feet of 6-inch sewer line. With the funnel/applicator it is easy to apply.



Simply attach the funnel and cap to the top of the jar and shake back and forth for approximately a minute. Remove the cap and pour it into the toilet or cleanout and immediately follow it with the appropriate amount of water for the application. Restrict water usage for a minimum of 4 hours. Annual treatments are recommended. Septic tanks can also be treated by using 8 pounds per 1,000-gallon tank. Pump the liquid down just low enough to expose the roots. Apply the RootX to the root-infested area and add water to activate the foam. **800-844-4974**; www.rootx.com

ROOT CUTTER



Arthur Products Cnt-r-KUT G2 EMAX2

The Cnt-r-KUT G2 EMAX2 from Arthur Products is an interchangeable cutter nozzle to clear roots and debris. The centering devices can be modified for custom applications. They help operators tackle tough jobs, including when using drain cleaning

nozzles in tight spaces in damaged sewers. Technicians can expect to achieve maximum cleaning spread in drains and other pipes, according to the maker. **800-322-0510**; www.arthurproducts.com

SLUDGE SAMPLING EQUIPMENT

Sim/Tech Filter TruCore

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





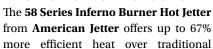
Superior Signal 5E Electric Smoker

The **5E Electric Smoker** from **Superior Signal** offers an efficient solution to find difficult leaks and odors in residential and commercial plumbing systems or septic tanks, according to the maker. Connect the blower to any plumbing clean-out or

vent with the appropriate-size smoke candle to force smoke through faults and cracks, easily identifying sources of odor and hard-to-find leaks. Smoke candles produce a highly visible, nontoxic smoke and are biodegradable. They are manufactured with zero-waste stream and include labels printed with vegetable-based ink on recycled paper as well as biodegradable, recycled paperboard tubes. The unit does not generate harmful exhaust gases and handles all residential and commercial smoketesting applications. The unit comes with an 8-foot, industrial-grade flex hose, weighs 8 pounds and requires no maintenance. 800-945-8378; www.superiorsignal.com

TRUCK/TRAILER JETTERS

American Jetter 58 Series Inferno Burner Hot Jetter





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



Cam Spray 3012H Compact Skid Mount Jetter

The **3012H Compact Skid Mount Jetter** from **Cam Spray** is designed for a high cube van or pickup bed and takes up as little space as possible while providing 12 gpm at 3,000 psi. Features include a Honda iGX800 fuel-injected gasoline engine with oil alert and hour meter, powering a gearbox-driven plunger pump with

ceramic plungers, stainless steel valves, pressure gauge and 80-mesh water filter. The pump is protected by an unloader valve and secondary pop-off. A power pulse feature is used for navigating longer runs and elbows. The 100-gallon tank includes low water shut-off and a float valve to manage filling. An industrial-coated skid platform and frame allows transfer between vans, trucks and trailers, while mounting flanges and D-rings allow the machine to be fastened or tied down. The machine measures 52 inches long by 41.5 inches wide by 50 inches tall. **800-648-5011**; www.camspray.com

(continued)



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GapVax G7 Jetter

The **G7 Jetter** from **GapVax** is built on a heavy-duty, contractor-grade NATM-certified trailer. Several engine choices, including Cummins diesel, are certified and



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



Hi-Vac O'Brien 7000 Series

O'Brien 7000 Series hydrojetters from **Hi-Vac** offer flow ranges from 18 to 65 gpm, pressure up to 4,000 psi, and a 700-gallon water capacity. The most powerful engine-

pump combinations, heavy-duty construction and longer jetting time on a single tank handle the toughest jobs. A 190-degree rotating hose reel provides easy access no matter how the trailer is parked. The 7000-T series offers the versatility of our 7000 series trailer-mounted units custom mounted to a chassis for the all-in-one convenience. The 7000-T series is specifically engineered for professional daily sewer line cleaning. **800-752-2400**; www.obrienmfg.com

HotJet USA Drain Line Cleaning Business Package

For drainline cleaning professionals starting or expanding a jetter division, the **HotJet USA Drain Line Cleaning Business Package** includes the HotJet II jetter offering 10 gpm at



4,000 psi with a 35 hp engine. Including everything needed to clean drains from 2 to 12 inches with hot or cold water, the package is the complete setup with a choice of a hand-held or roll-around electric jetter, inspection camera and locator. A cold water drain line cleaning business package is also available. 800-624-8186; www.hotjetusa.com



Spartan Tool Warrior

With fiberglass casing to protect and silence the entire machine, **Spartan Tool's Warrior** trailer jetter provides 4,000 psi at 18 gpm to clear almost any line, according to the manufacturer. The 180-degree pivoting

hose reel and optional four-function remote control allow technicians to handle the tightest spots. With pulsation and a full antifreeze system, it is designed to remove tough clogs in any weather. Its design includes room to customize it with a company logo and colors, and it provides a 300-gallon towing capacity. **800-435-3866**; www.spartantool.com

Super Products SuperJet

The **SuperJet** truck-mounted jetter from **Super Products** is used to blast debris to clear blockages and maintain sewer lines



when vacuuming extraction is not required. It uses a strong and smooth single-piston water pump to create consistently high water pressure. Units come standard with rotationally molded polyethylene water tanks in a modular design to accommodate water capacities ranging from 1,080 to 3,240 gallons. They offer standard curbside and street-side fill. The hose reel has 1,000 feet of 1-inch-diameter sewer hose, 200-degree rotation and a digital monitor. This allows operators to work efficiently while positioned out of traffic and away from other hazards. The monitor displays a hose footage count, offers 20 saved settings for hose reel payout and is designed with LED panel lights to enable readability in a variety of environments. 800-837-9711; www.superproducts.com

Since the second

Vac-Con VJ Series

The **VJ Series** of jetters from **Vac-Con** are designed to provide operators with an economical, portable and powerful system in two configurations. The VJ375 offers

a 375-gallon water capacity on a single-axle trailer, while the VJ750 offers 750-gallon water capacity on a tandem-axle trailer. Standard features include Tier 4 diesel engine, cold-weather recirculation and air purge system, hydraulically driven hose reel and a reel-mounted, weatherproof electronic control panel. Units are available in multiple water pump pressure and flow configurations. Optional features include gas engine, wireless remote and an antifreeze tank system for cold-weather use. **904-284-4200**; **www.vac-con.com**

Vactor Ramjet

The truck-mounted **Vactor Ramjet** is equipped with a Jet Rodder water pump to break up blockages in sanitary lines and flush out debris. With up to 3,000 gallons of water in a stainless steel tank, it delivers flows of up to 100 gpm or up to 3,000 psi. The water pump



is a single-piston, hydraulically driven, dual-acting unit that delivers a jack-hammer action water flow to break through line blockages and scour the toughest caked-on debris from pipe walls. It can be configured with either a front- or rear-mounted hose reel. **800-508-3381**; www.vactor.com



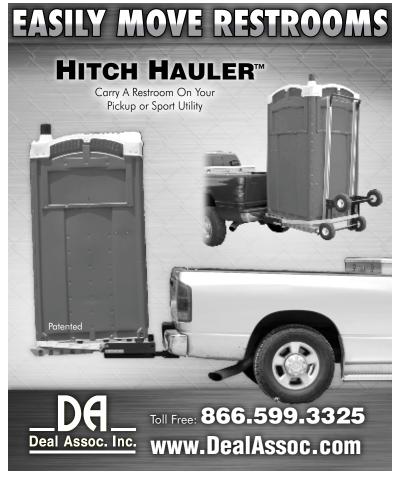
Vermeer JTV PTO

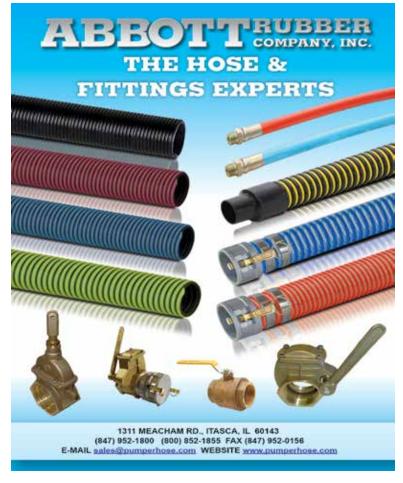
The **Vermeer JTV PTO** vacuum excavator/jetter is equipped with an 800-gallon debris and 400-gallon water tank. The PTO of the truck drives the positive displacement vacuum blowers that produce 1,000 cfm. The truck's

jetter is capable of producing 15 gpm at 3,000 psi and comes with 425 feet of 1/2-inch hose on an electric self-retracting hose reel. All components are controlled from the truck, eliminating the extra weight, space, and cost of the pony motor. The rear hydraulic claw door has an over-center locking mechanism for a no-fuss positive lock and unlock. An optional hydraulic boom is available with full sixway function, wireless remote with vacuum valve operation, 330-degree rotation, remote water jet for ease of clean-out, and a 5-inch hose with quick connect to 4-inch tooling. It is built on a Ford chassis. **352-728-2222; www.vermeer.com**

(continued)









CASE STUDY



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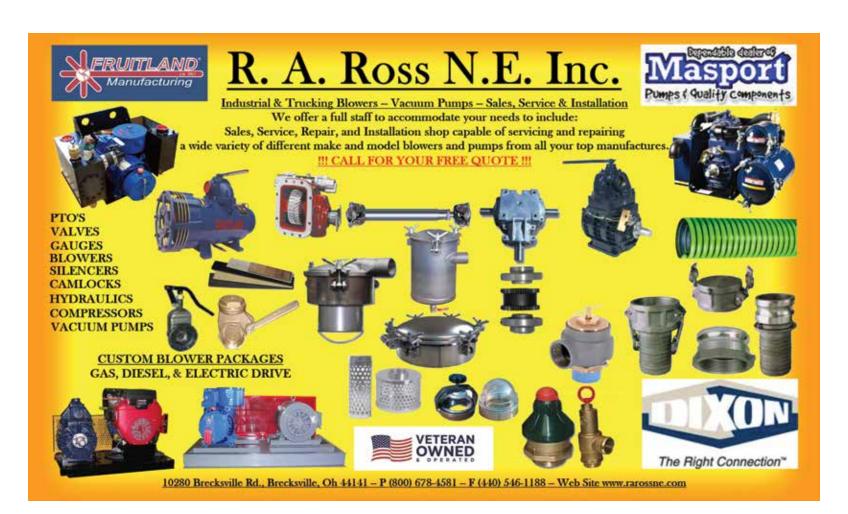


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In Minnesota, Recruiting and Retaining Workers Is Job No. 1

In a tight job market for skilled trades, it's critical to find young talent and take care of your team

Compiled by Betty Dageforde

In Snapshot, we talk to a member of a state, provincial or national trade association in the decentralized wastewater industry. This time we visit a member of the Minnesota Onsite Wastewater Association.



Jake Bell with a 2001 Peterbilt 379 dump truck with an 18 foot J-Craft dump body.

Name and title or job description: Jake Bell, owneroperator along with my father Jon Bell and my uncle Chad Bell, the founders

Business name and location: Bell Excavating, Inc.,
Stillwater, Minnesota

Services we offer: We do septic installations, design and repair, as well as camera work and line cleaning. We also provide private utility locating. We don't provide pumping services but we network with a few good pumpers. We refer them and they refer us for installations and repair, which works out well.

Age: 36

Years in the industry: 24. I started helping out in the summers and after school.

Association involvement: I've been a member of the Minnesota Onsite Wastewater Association for about eight years. I'm now on the board of directors, going into my second year. I got involved in 2015 when our company bought out Bill Wolfe Excavating, which had been a member for 20 years.

Benefits of belonging to the association: The big thing for us is networking with other contractors, not only in our area but across the state. We enjoy getting to know these guys, being on a first-name basis with them and having the opportunity to call them with questions. The other main benefit is being able to voice our opinions and be involved in the state rule-making processes.

Biggest issue facing your association right now: We're doing well right now but we recently had a few rocky years in between executive directors. The last couple years we've had a really good team so we're regrouping and getting our feet back under us. We're focusing on recruitment and retention. We are also trying to show companies across the state the training and networking benefits we can bring to them.

Our crew includes: My mom Renae Bell does all the office work. Chris Rigney has been with us for 13 years and is our go-to guy for everything. He's reliable and knowledgeable, wears a lot of different hats and can pretty much do anything. My cousin Zach Bell is our newbie. He graduated from high school, got his CDL and last year came to work for us. It's been nice to have that breath-of-fresh-air younger guy getting into it because you don't get a lot of that and we're all getting older.

Typical day on the job: I take care of getting all the supplies ready for the jobs. I make sure the truck is loaded and ready. Then I'm out with the crew doing installations. If I need to help with a design, look at a job or meet with customers I'll break free and do that, as my dad prefers to be out in the field running equipment.

The job I'll never forget: We were putting in a new system for a house on the St. Croix River and they wanted to add sewer for their boathouse. We had to directional-drill down to the boathouse. The only way to get the pipe back up was to float it out into the water so we could get it all strung out. We had 2-inch pipe that was coiled and then we had other pipes so we could pull back the sewer line up to the house. As we got back up the hillside the head on the drill broke so we ended up having to go over a little bit of cliff and dig it up and finish bringing the pipe up manually into the house. But it was a cool job.

My favorite piece of equipment: Our Caterpillar 308 excavator is a jack of all trades. We have various attachments for it and can get it into every job, big or small. I also like our vLocPro3 utility locator (Vivax-Metrotech). It makes our life a lot easier.

Most challenging site I've worked on: A couple years ago we worked on a very tight site built into a hill. Everything from the tank to the mound was on a slope. To set the tanks we had to load all the dirt onto a dump truck, haul it offsite, then bring it back for the backfill. The mound was 150 yards up a hill so everything had to get pushed up the hill with a dozer. It was a job that you'd think would take two or three days but it ended up taking us five. Everything we thought would be okay, just wasn't. Looking back, there are a few things I would have done differently. It was just one of those learning experiences we'll never forget.

(continued)



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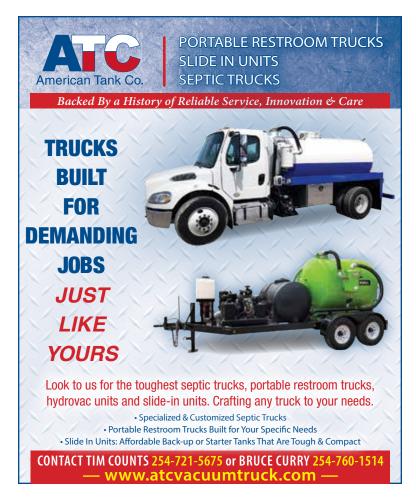


SNAPSHOT



The Bell Family, from left, Jon, Jake, Zach, Chris, Chad, with a Caterpillar 320CL excavator

Oops, I wish I could take this one back: We had a job for a big equine barn and an adjacent site with a house. We were trying to meet deadlines but with a record amount of rain that year we spent a lot of time waiting for things to dry out. Originally we were the septic contractor but they ended up hiring us to do all the site work and, looking back, I don't know that a company our size should have taken on the extra work. It would have been fine had the weather cooperated but trying to keep this project on track took



us away from everything else we had scheduled and we had to put all our resources into it. It was one we probably should have walked away from.

The craziest question I've been asked by a customer: Last year I had a customer who was adamant that when I grade their mound out I make a bear shape out of it. I didn't even attempt it. I knew it was an impossibility and would be hard to maintain with the rain and everything. And I didn't think the inspector would like it.

If I could change one industry regulation, it would be: The biggest thing I've been working on, especially with our association, is our mentorship program. I feel there's something broken. You go to school, do your orientation, take a test, find a licensed contractor to be a mentor, and then do 15 installations under the mentor. Some of these experienced guys might do that in a month but somebody new with minimal knowledge of soils, different loading rates, time dosing and alarms, advanced treatment systems, just doesn't get enough knowledge in that short amount of time, in my opinion. But it's hard because people are saying we need more people in the industry. I agree, but they do need to be educated and trained properly to do a good job because our wastewater needs to be treated properly.



Jake and Chris Bell and county inspectors Pete Ganzel and Alex Pepin looking at a pressurized mound installation. Risers are from Orenco Systems, tanks and lids from Wieser Concrete Products.

Best piece of small business advice I've heard: When I was 18 and getting started, my dad hired me out to another company. It was a little bigger, 25 guys. The guy I was working for asked me if I planned on taking over someday, and I said I'd like to. He said, "Make sure you take care of your employees, I don't care how big you get, because your guys are everything. You think you can do it all but you can't. And keep a good image." We strive for that. We take care of our guys because without them we wouldn't be where we are. And we focus on image — show up with clean, tidy equipment that looks good and is well-maintained, along with yourself, because customers definitely notice.

If I wasn't working in the wastewater industry, I would: I was a full-time fireman for three years because I just had to try something else, having done septic work since I was a kid. So, if I didn't have this, I'd probably pursue that again.

Crystal ball time – This is my outlook for the wastewater industry: It's only going to get busier because there are more developments being put in. Moving forward, it's going to be a good industry to be in, especially with the technology coming up. We have great systems in place and they only seem to be getting better. And it's a safe industry to be in. Hopefully we can get more people into it so we can continue to provide good service to customers.





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RULES & REGS

Michigan legislators make another push for statewide onsite code

By David Steinkraus

emocrats in the Michigan Legislature followed up on a promise and introduced four bills that together would create a statewide septic code. Michigan is the only state that lacks such a code.

Sponsors of the bills say their goal is to reduce bacterial contamination in the state's waterways. "We have a patchwork of local ordinances that aren't even covering the majority of septics," Rep. Phil Skaggs, a Democrat from East Grand Rapids and a lead sponsor of the bills, told the news site *MLive*.

"Everyone knows that we have to do something," said Sen. Sam Singh, D-East Lansing, according to the news service *Bridge Michigan*. "It's shameful that we're the only state in the country that doesn't have a statewide system."

Last year legislators introduced a bill to require system inspections at the time of sale. That failed. It was opposed by the Michigan Realtors, a trade group.

"It was a statewide point-of-sale inspection mandate. That's all it was. It had no structure behind it, no teeth in it, nothing like that," Brad Ward, vice president of public policy at Michigan Realtors, told *MLive*. He said the current bills look good.

Environmental groups are also on board.

A pair of bills are in both the House and Senate. One bill in each set (HB 4479 and SB 299) amends the public health code to: define what onsite systems are; specify what the duties of local health departments will be; require system inspections at least every five years; forbids installation of a proprietary treatment product after Jan. 1, 2026, unless it has been registered with the state and a permit has been issued; and require counties to phase out or repeal any time-of-sale inspection law.

The companion bill (HB 4480 and SB 300) creates a technical advisory committee in the state Department of Environment, Great Lakes and Energy to make recommendations about the standards, technologies and qualifications of people who would inspect and manage onsite systems. The 17-member committee would consist of representatives of the five regional health departments — each appointed by a top state political leader — and various specialists appointed by the governor including professional engineers, an installer, an onsite product manufacturer, an onsite service provider, and someone representing onsite system users.

The bill also creates an onsite fund for administrative costs, for grants to local health departments to carry out their duties, and for grants to lower-income people who need to upgrade their onsite systems.

Bills are subject to amendment in committee, but the initial versions of HB 4479 and SB 299 state that because onsite systems are subject to failure, which

risks public health, there should be a connection to a public sewer system as early as possible.

Florida

The House passed a bill containing new rules for onsite systems. New septic tanks would be banned in areas covered by management plans for the Banana River Lagoon, Central Indian River Lagoon, North Indian River Lagoon and Mosquito Lagoon.

Onsite systems would be allowed if a municipal sewer connection isn't possible, but any onsite technology would have to remove at least 65% of nitrogen. Existing developments would have to move to a centralized system by 2030, but again, if that's not possible, onsite technology with a 65% nitrogen reduction would be required, reported *Florida Politics*.

A similar bill in the Senate was heading for a floor vote.

Washington, D.C.

The Rural Decentralized Water Systems Reauthorization Act, introduced in Congress in April, would increase support for low- and moderate-income households to upgrade wells and onsite systems, said a press release from two of the bill's sponsors, Sen. Cory Booker, D-New Jersey, and Sen. Shelley Moore Capito, R-West Virginia.

The act would reauthorize the Rural Decentralized Water Systems Grant Program through 2028, would increase the maximum loan or grant to \$20,000, and would focus money on people earning 60% or less of the nonmetropolitan household income for an area.

Alabama

After an 18-month investigation into environmental justice in Lowndes County, the U.S. Justice Department reached an agreement with the state and a county health department.

The state will stop imposing fines, penalties, and threats of liens on people who cannot afford functional onsite systems, Assistant Attorney General Kristen Clarke said in prepared remarks. In addition, the state promised to collect data about onsite systems in Lowndes County, examine public health risks, and develop a long-term sanitation plan.

News reports noted that the county's dense black soil is incompatible with standard septic systems. As a result, county residents used straight pipes to move wastewater away from their homes and into ditches or low spots.

(continued)









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> RULES & REGS

"Onsite septics are failing across the country, but Lowndes County is the only place I've seen where it's dealt with in a punitive manner," Catherine Coleman Flowers told the *New York Times*. Flowers won a MacArthur Fellowship, or "genius grant," in 2020 for her work to raise public awareness of rural sanitation.

Indiana

Legislators approved a bill that would change oversight of onsite systems. House Bill 1402 would transfer authority over onsite systems from the state Health Department to a technical review panel composed of state officials, scientists, academics and onsite professionals, reported the *Indiana Capital Chronicle*.

The panel could amend state rules and approve new technologies. Any local ordinances stricter than state rules would be invalid unless approved by the panel.

Also in the bill is language from a separate bill that would allow property owners to override local health department decisions about onsite systems as long as the owners have a consultant who agrees.

New York

The state Legislature has approved a special wastewater management district in Suffolk County and also approved a 0.12-cent sales tax for a water quality restoration fund.

Implementing the sales tax addition will require approval in a mandatory referendum, reported *Riverhead Local*. The tax would generate an estimated \$3.1 billion from 2024 through 2060 for projects to protect and rehabilitate groundwater and surface water.

For several years the county has worked to counter the effects of nitrogen pollution from the estimated 360,000-plus cesspools used for wastewater treatment. The county covers the eastern end of Long Island, and the county and several municipalities enacted laws requiring advanced nitrogen-reducing onsite systems for new construction and some building expansions.

The county government must now establish the wastewater district in local law, authorize rates and taxes, and create a 17-member board to manage the district.

North Carolina

A bill in the state Senate would change the qualifications for onsite inspectors.

Under current law, environmental health specialists do onsite system permit inspections, and they must hold a four-year degree in environmental health sciences and have special training, reported *The Dispatch of Lexington*, North Carolina.

In SB 616, Sen. Steve Jarvis, R-Lexington, proposes that someone with an associate's degree in health sciences could become an environmental health associate authorized to do some inspections, including of Type II and Type III onsite systems. Jarvis said an associate would be supervised by a specialist and would need six to nine months of special training.

Lillian Koontz, director of the Davidson County Health Department, which is in Jarvis' district, said changes proposed in the bill would help local health departments deal with the sharp decrease in the number of applicants qualified to be health specialists.

Minnesota

Winona County is using funds from the American Rescue Plan Act to help people upgrade or replace failing septic systems. The county program can provide up to \$15,000, or 75%, of the cost of a new system, reported the *La Crosse Tribune*. Money is available for residential or commercial systems that are failing to protect groundwater or are an imminent threat to public health.



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ATTENTION:

IMPORTANT DATE: Date Change on the Hapchuck Scholarship Application

The Hapchuck Scholarship application submission date has changed for the 2024 scholarship. Due to the 2024 date of the WWETT show moving to January 24th-27th, applications must be submitted by November 1st, 2023.

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PRODUCT NEWS



Superior Signal 5E FLEX battery-powered smoke blower

Superior Signal's new 5E FLEX battery-powered smoke blower is specifically designed for smoke testing building plumbing and sewer laterals. The 5E FLEX is compatible with leading 18- to 20- volt tool batteries and, utilizing a high-quality power adapter, the blower integrates

seamlessly with an existing electric tool set. Additionally, it can also run off any 12-24-volt power source — such as a car or truck battery — using the DC clips power adaptor. The 5E FLEX gently pushes smoke through the system in just a few minutes and takes only seconds to see results. Smoke testing is a cost-effective solution ideal for hard-to-find odors, leaks and other faults in commercial, residential and municipal facilities. While the 5E Blower is popular for a variety of plumbing applications, it is also particularly useful in testing sewer laterals, and can clearly illustrate where a fault or leak may occur on private property. USA-made, the 5E FLEX comes with an 8-foot industrial grade hose. Used with Superior's 1A or 2B smoke candles, it creates 4,000 or 8,000 cubic feet of smoke, respectively. Superior's smoke candles are also sold in convenient SealPac cans which extend shelf life. **732-251-0800**; www.superiorsignal.com/pflex

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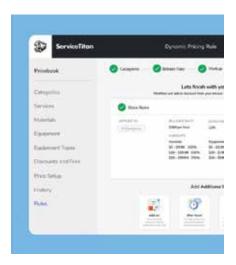
the HX120 helps contractors work more efficiently with maximized legal load weights, quicker debris loading and unloading time, and the capacity to take on larger jobs without load weight concerns. Real-time measurement of water and overall truck weight enables operators to make quick, informed decisions, which reduces the risk of damage or overweight penalties. The new unit features a 28-foot boom reach with 340-degree rotation. **866-427-2638; www.brandt.ca**



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SOFTWARE PLATFORM ALLOWS BUSINESSES TO STAY AHEAD OF PRICING FLUX

Factors such as material costs, labor rates and fuel prices are in constant flux, potentially cutting into profitability. ServiceTitan is attempting to make those hits easier with the launch of its Pricing Builder feature.

The suite of ServiceTitan features allows contractors to automate pricing for material costs and labor rates directly through the ServiceTitan platform. With these dynamic pricing tools, home and commercial service providers can potentially drive more sales, save time, and protect their cost margins with confidence they're charging the right price for the job, according to Vahe Kuzoyan, president and co-founder of ServiceTitan.

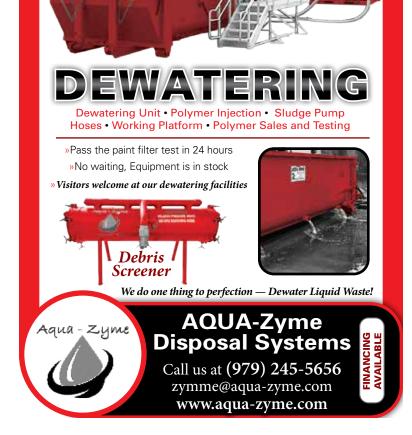
"As contractors everywhere face economic uncertainty and rising inflation, ServiceTitan is focused on equipping our customers with the tools they need to succeed in the market of today and the market of tomorrow," says Kuzoyan. "Pricing Builder gives our customers peace of mind that they're offering fair and competitive pricing to their clients in real time. Instead of spending hours manually updating pricing to account for changes in material costs or labor rates, contractors can dedicate more resources to growing their business and providing an exceptional level of service."

Pricing Builder enables contractors to automate price book maintenance, so in just a few steps they can create rules that update pricing when material costs and labor rates change. Pricing Builder also applies any pricing changes automatically, including after-hours job rates, service add-ons, and customer discounts. The tool includes time and material business models for commercial contractors to assign specific pricing for different clients.

"As a small business owner, I'm always looking for ways to protect our margins and make price book maintenance less of a tedious process," says Rusty Baker, vice president of Baker & Son's Plumbing of Marion, Illinois. "With Pricing Builder, I can rest easy knowing our technicians are charging a fair price while keeping our rates competitive, allowing our leadership team to focus on customer service and driving business growth. Since we started using Pricing Builder about a year ago, we've already seen our profit margins per job increase, and estimate we're saving dozens of hours each week by utilizing these new features." 855-899-0970; www.servicetitan.com







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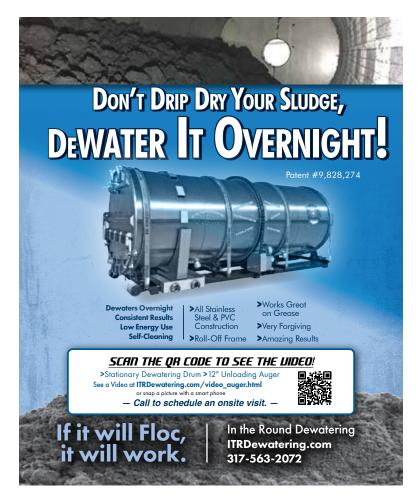
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www.nowwa.org; 402-476-0162

New England

Yankee Onsite Wastewater Assoc. (Massachusetts, Connecticut, Maine, New Hampshire, Rhode Island and Vermont) www.yankeeonsite.org;

781-939-5710

New Hampshire

New Hampshire Assoc. of Septage Haulers www.nhash.com; 603-831-8670

Granite State Onsite Wastewater Assoc. www.gsdia.org; 603-228-1231

New Mexico

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

New York

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

North Carolina

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

North Dakota

North Dakota Onsite Wastewater Recycling Assoc. 701-650-8792

Ohio

Ohio Onsite Wastewater Assoc. www.ohioonsite.org; 740-828-3000

Oklahoma

Oklahoma Onsite Wastewater Assoc. 918-727-7113

Oregon

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

Pennsylvania

Pennsylvania Assoc. of Sewage Enforcement Officers www.pa-seo.org; 717-761-8648

Pennsylvania Land Improvement Contractors of America www.pennsylvanialica.com 724-866-1082

Pennsylvania Onsite Wastewater Recycling Assoc. www.powra.org

Pennsylvania Septage Mgmt. Assoc. www.psma.net; 717-763-7762

Tennessee

Tennessee Onsite Wastewater Assoc. www.tnonsite.org.

Texas

Texas On-Site Wastewater Assoc. www.txowa.org; 409-718-0645

Education 4 Onsite Wastewater Management www.e4owm.com; 713-774-6694

lltah

Utah Onsite Wastewater Assoc. www.utahonsite.org; 385-501-9580

Virginia

Virginia Onsite Wastewater Recycling Assoc. www.vowra.org; 540-377-9830

Washington

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

Wisconsin

Wisconsin Onsite Water Recycling Assoc. www.wowra.com; 888-782-6815

Wisconsin Liquid Waste Carriers Assoc.

www.wlwca.com; 888-782-6815

NATIONAL

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

National Onsite Wastewater Recycling Assoc. www.nowra.org; 978-496-1800

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

CANADA

Alberta

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

British Columbia

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

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

Manitoba

Manitoba Onsite Wastewater Management Assoc. www.mowma.org; 877-489-7471 Onsite Wastewater Systems Installers of Manitoba, Inc. www.owsim.com; 204-771-0455

New Brunswick

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

Nova Scotia

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

Ontario

Ontario Onsite Wastewater Assoc. www.oowa.org; 855-905-6692

Ontario Assoc. of Sewage Industry Services www.oasisontario.on.ca 877-202-0082

Saskatchewan

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

Canadian Regional

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



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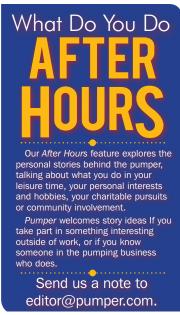


















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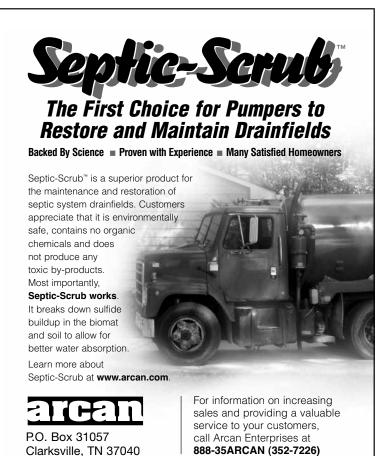
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J&J Portable Sanitation Products acquires Sansom Industries

J&J Portable Sanitation Products has acquired the assets of Sansom Industries. The acquisition includes all the assets of Sansom Industries excluding the company name and brand Sansom Industries. According to a press release, J&J will be working to incorporate several changes into the product line before releasing it to the industry later this year, and all the products will be part of the J&J Portable Sanitation brand.

Imperial Industries opens new plant, names two new repair shops

Imperial Industries announced it opened a new assembly plant in Parsons, Kansas. The expansion will allow for production of more tank-mounted trucks. The company also named new dealer partners that are certified repair shops: Erickson Tank and Pump based in Quincy, Washington; and Vacuum Sales based in Lindenwold, New Jersey.

NVE announces investments in factory

National Vacuum Equipment announced further investment in its Traverse City, Michigan, factory to increase production capabilities and enhance customer service. The investment will involve the purchase and implementation of advanced machinery, increasing manufacturing capacity. The new machines are designed to optimize the manufacturing process, allowing for streamlined production cycles. The improvements will translate into shorter lead times, improved product availability and a heightened ability to respond promptly to customer demands, according to NVE.

Anua completes acquisition of Sim/Tech

Anua International has acquired all assets of GAG Sim/Tech Filters. Sim/Tech will continue to operate as usual in Boyne City, Michigan. All current staff are being retained, including Operations Manager Darrell Maves and Plant Manager Chris Jones. Sim/Tech Filter manufacturing will be under the direction of Chief Operating Officer Marcelo Cassani.

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For Sale: Thriving Family owned and operated Portable Toilet Rental. Located in Southern Colorado in the heart of the rocky mountain. Serving 5 County in the San Luis valley. 175 units 3 double trailers 3 single trailer 5 stand alone wash stations. 3500 GMC, 3500 Dodge. Stable customer base. Asking gross income \$250,000.719-480-5301 (P08)

Selling Profitable Portable Toilet Company Located in Palatka, FL (Putnam County). Includes: Four (4) newer (2019-2022) Izuzu NPR- 1200 Gallon Service Trucks and two (2) older Izuzu NPR Trucks, over 800 units. Portable toilets, Handicap Units, Hand Washing Stations and Holding Tanks. Four (4) trailers for hauling units and much more. If interested please contact us at Gotttago2009@att.net (make sure to put 3 t's in gottago) or call (386) 328-6454. (P08)

For Sale: Thriving Family owned and operated Portable Toilet Rental and Septic Tank Cleaning Company. Located in Atascosa County, Texas. 9 years of excellent service brings a large and stable customer base. \$250,000 + in annual sales. Septic truck, two portable toilet tank trucks, holding tanks, portable toilets, toilets on mobile trailers, hand washing stations, hauling trailer. Everything you need to start making money. Contact Michael @ 830-200-9202 for additional details. (P08)

52 year Family owned Septic pumping and repair business on beautiful Cape Cod. Turn key operation, runs daily, owners looking to retire. Good reputation, a lot of residential and commercial accounts, May require a second truck to be place on the road. revenue to substantiate asking price \$850k. Email Capecodsepticdoc@gmail.com. Serious inquiries only. (P08)

Portable Toilet Business for sale in the Charlotte NC Area. 200 portable toilets, Delivery Truck,holding tanks,handwashing stations, specialty toilets, customers already in place,Call Allen 336-345-4392. (P08)

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Business for sale in Siskiyou county CA. Plumbing, drain cleaning, septic and chemical toilet rental business. Operating for over 30 years. In the heart of fire country.1 acre of property w/ security fence, 3 buildings, 300 units, 4 compliant trucks-2 of them new. Serious inquiries only. Very motivated seller. 1.2 million. duane@sisqtel.net Text or leave voicemail 530-598-1457 (P08)

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HAZARDOUS WASTE UNITS

Presvac 2,300 U.S. gallon, Carbon Steel with a Masport H15W vacuum pump installed on a 1993 Chevy Kodiak cab and chassis. Stock# 6615C www.VacuumSalesInc.com, (888) VAC-UNIT (822-8648). (PBM)

2024 Peterbilt 548 cab & Description (CAS), DOT, full open rear door, dump type unit with A Presvac PV750 pump (Coming in July) Stock# 14116

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

2024 Freightliner 108SD cab & Dr, chassis with 3,200 Gallon, C/S, DOT, full open rear door, dump type Unit with a Presvac PV750 pump (coming in July) Stock# 14093 www.VacuumSalesInc.com, (888) VAC-UNIT (822-8648). (PBM)

1997 Ford with Cusco 3,200-gallon DOT certified dump and door liquid vacuum truck. Cat engine with Moro M9 vacuum pump. Runs and pumps excellent. \$29,500. KLM Companies 617-909-9044 (PBM)

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800-624-8186; sales@hotjetusa.com; www.hotjetusa.com (PBM)

1999 Harben 4016-300 Jet Trailer (Stock #200SC) (**888)VAC-UNIT (822-8648)** www.vsirentalslic.com. (**PBM**)



Model 747 SECA trailer jet. LOW hours, excellent shape! \$19,000. Call Kelly for more details. 608-835-7767. (PBM)

JETTERS – TRUCK



1998 Mack RD688S Triplex OPI 500AWS Frac Pump Truck. 500HP power rating, Detroit 12 cylinder diesel engine, Alison 750 5-speed transmission, T/A carrier, spring suspension. OPI pump, 3 1/2 plunger, 10,000 PSI max, 300 GPM max. Mileage 18,491. \$30,000. 412-384-9327 or Hydrotech@comcast.net. (P09)



1985 Mack DM685S Triplex OilWell SA640-5 Frac Pump Truck. 500hp power rating, Detroit 12 cylinder diesel engine, Alison 750 5-speed transmission, T/A carrier, spring suspension. OIL-WELL MAX 8,000 PSI, MAX 450 GPM, 4" plunger. Mileage 56,844. \$30,000. 412-384-9327, 412-384-9324 or Hydrotech@comcast.net. (P09)

JET VACS

2023 International HV513 with a VacAll AJV1215; 12 yard debris body, 1500 gallons water, Combination vacuum / Jetting unit. Stock# 14130

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

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PORTABLE RESTROOM



2006 IH Pumper Truck and 58 Portable toilets-both handicap and single units. Some singles have lift hooks for construction site hi-rise applications. Package Deal \$21,000.00 buys the whole package- Units are located 10 miles South of DC in Southern Maryland. Court Ordered sale Call Court **Appointed Sales Agent for District** of Maryland N. T. Arrington at 703-966-8422 (P08)



150 Satellite Hi-Tech orange/gray portable toilets for sale. All are in perfect, rentable condition. These are the STRONGEST units ever built and we've sold over 700 in the last 6 months to customers across the US at a very below value price of only \$150 per unit. **Customer is responsible for pick**up or for setting up shipping from NY. Call 1-800-634-2085. (P09)



200 brown and tan Satellite Tufway Portable Toilets, all in rentable condition. Take advantage of these used units while they're still available. \$175 per unit. Customer is responsible for pick-up from N.Y. **Call 1-800-634-2085 (P09)**

PORTABLE RESTROOM TANKS



2009 Best Enterprises Built Stainless Steel Tank with Skirting and Conde SDS series pump. Tank in perfect condition and ready to mount. 1050 total gallons, 750 waste and 300 water. This set up brand new costs \$36,000. We have SIX of them for sale for \$19,900. Contact us at 1-800-634-2085 in New York. (P08)

PORTABLE RESTROOM TRAILERS



2008 Comforts of Home (Wide Body 8x20) 6-Station Restroom Trailer. Hands Free Faucets, sloan waterless urinals, porcelain toilets, solid oak wainscoating and doors. asking \$17,000 located in **Northern California. Call** 530-570-9061 (P08)

PORTABLE RESTROOM TRUCKS



2005 International, DT466, 435k miles, auto trans, 1600 gal tank (1250/350), Masport 75 vac pump, good tires, clean southern truck ready to work. Finance and delivery available, \$39,000.00 Hull's Truck Bodies LLC 740-820-5338 (P08)



2007 HINO 185 Best Enterprises stainless steel pump truck. Tank is 1050 gallons. 700 waste, 350 water. 96 toilet paper roll tool box. Conde SDS series. PTO driven pump. \$39,000.00, 1-800-634-2085 (P09)



2007 International asking \$5000.00 for truck without tank or \$10,000,00 for truck with tank. Truck has not been started in awhile. Tank is 1300 waste and 500 fresh. Mike or Jose 305-444-7681. (P08)



2006 Peterbilt, C7 Cat, 81k miles, 3000 series Allison auto, AC, cruise, airbrakes, 1,750-gal stainless steel tank, 350/1000/400, Garden Denver Blower, new tires, alum wheels and paint. Very nice truck. Finance and delivery available \$55,000. Hulls Truck Bodies LLC 740-820-5338. (P08)



Selling this 2006 International 4300 Portable Toilet/Septic Truck. Very well maintained with a 1.600-gal-Ion aluminum vac tank, BELOW CDL, DT466 with an automatic transmission. approximately 289k, 350 fresh, 1250 waste, hose reel, like-new tires, ice cold air, ready to work. Delivery possible for a fee. \$44,900 OBO. Call Don 608-558-0870. (P08)



2014 Ram 5500. 1,000-gal waste/400 fresh. Aluminum tank w/ Masport pumps. Call 720-436-3910 for more info. (PBM)



2007 International 4300, DT466, automatic, newly rebuilt Masport HXL75, newly rebuilt hydraulic pump. Best Enterprise stainless tank 1900/400, two unit rack on rear, service toilets from both sides of the truck, good tires, perfect unit to service restroom trailers and holding tanks. We sold our business and the new owner did not need this truck. \$39,750. John 601-946-0615 or johnfoxups@gmail.com. Located in MS. (P09)



2011 Isuzu NRR, 19,500 GVW - FMI 1050 portable toilet vacuum service unit, 700gal waste & 350 fresh tanks with a 4 unit lift gate carrier. 366,400 miles, new tires and fresh batteries. Located in Central Missouri. \$15.500 Call Moon @573-896-8665 (P08)



2006 HINO 185 stainless steel flatbed. Holds 8 portable toilets. Truck runs great, automatic. \$29,000.00. 1-800-634-2085, N.Y. (P09)

2016 Hino 268, 1,500 waste/500 water - Flow Mark tank. 2011 International 4400, 1100 waste/500 water - steel tank. Best Enterprise system. \$50,000. Call for pictures. Anthony Boyett 850-712-3830 email- anthonyboyett@yahoo.com. (P09)

New Imperial 1300 U.S. gallon, portable toilet service unit mounted on a 2023 Ford F550 cab and chassis with a Masport HXL4 pump package. Stock #14121.

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

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

2024 Peterbilt 536 cab & Description (1,600 waste 2,150 gallon, Two compartment (1,600 waste – 550 water) with An NVE B250 blower package, a DC10 wash down Pump, dual service, strobe package, toilet carrier, And backup camera (coming in April) Stock# 14095

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SEPTIC TANKS



2,800-gallon aluminum vacuum tank, 2020 model, never used or mounted due to not venturing in the direction it was built for. The specs are in one of the pictures. \$29,950. Located in Noel, Missouri.

Call 479-619-8226 or statelineseptic@yahoo.com. (P08)



Pick-Rite Aluminum Tank (4,800 Waste/ 500 Fresh) and NVE 4310 Blower/ secondary / silencer like new currently mounted to a Peterbilt \$70,000 for more info call John 203-272-7102 (P08)

SEPTIC TRUCKS



2024 Peterbilt 567, 565 Cummins Engine, 4500 Allison, 66kGVWR, 4400 Gallon Steel tank, 4310 Blower, 36x24x24 Toolbox, Call Hayden Evans: 501-388-9464 Ready now! (P08)



2001 Sterling septic truck. Model M7500 Acterra - CAT 7.2 L - 6 cylinders - 2500 gallon tank - Mile 172k -Please call 904-315-4315 for more info (P08)



2007 T300 Kenworth. 4,000-gallon all aluminum tank vacuum septic pumper truck for sale in northeast New Jersey. Has a 300 Cummins and an Allison 5-speed automatic transmission. 14,600 front axle and 40,000 rear axle. Mileage is 213,411. The pump is a Wittag. 175-feet of used vacuum hose is included. 4 new recap tires are also included. The AM/FM radio and the AC are working. See this truck on my eBay ad for more photos. Contact me at madblue@optonline.net or through eBay. Also have a 1986 Autocar 5,000-gallon stainless tank pumper for sale on eBay.



201-376-2058. (P09)

2011 Peterbuilt 365. C-13 Cat Motor, VIN: 1NPSLU0X8BD124557. 288,190 miles, 10 speed triaxle Wittig 150 pump, heated valves, 4,000 gallon sewage tank, 200 gallon water tank Honda jetter power washer. Behind the cab tool box. Garage kept, excellent condition. \$128,000 obo khatfield@hatfieldsequipment.com 410-984-0101 (P08)



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1983 Ford LN9000 Truck with mounted Septic Pump system. Used locally with Miami-Dade County 2022 waste sticker. Hoses included. Front and Rear New Tires, Front aluminum rims, manual transmission. Ready to work! \$23,500. Call or text 305-788-3579. dixtran@bellsouth.net (P08)



2004 Freightliner septic truck with a 3,600-gallon tank. Jurop pump. Truck has 241,100 miles on it. Comes with all the hoses. \$59,900. Located in Ontario, Oregon. Contact Jake at 208-739-2770 or email at anytimesepticservicelic@qmail.com. (P08)



2007 Dragon vacuum Trailer 5460 Gallons & 2002 CH 613 Mack 427 (508)679-2476 Price for both \$32,000 OR \$21,000-Tractor & \$12,000-trailer (P08)



2016 Kenworth T800, 102,428 miles, 8627 Hours, 4200 gallon tank, 4000 waste, 200 fresh w/ 10 gpm jetter inside insulated heated tool box. Transway body and pump, 1200 vein pump 4" intake. Hydraulic tank hoist with full rear opening door. Good condition, everything works, asking \$180,000

OBO. 802-658-6243 or email travis@pandpseptic.com (PO8)

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2020 Peterbilt 520 (4,350 miles) Pik Rite aluminum 4,800 waste/500 fresh, 430 hp, Tri Axle, Allison Trans, 214" wb, warranty (5 yr/300k mi), NVE 4310 blower belt drive, 2 SeeLevel Annihilators, Cat 3560 Jetter pump (20/25 GPM – 4000/3000 PSI). Heated valves, Epoxy coating interior of tank, Birds eye view back-up camera system, Like new ever driven in the winter. Took delivery of new truck in March of 2021 with 3,200 miles on odometer. \$250,000. Call John 203-272-7102 (orders@mckinleyoil. com). (P08)



2024 Peterbilt 548, 4200 Gallon Polished, JUROP/NVE/Masport Blowers Available, Give Me A Call For Pricing and Availability. Hayden Evans: 501-388-9464 (P09)

Bought new. One owner. 2016 International vacuum truck. 350hp. 10-spd. 230,000 miles. 12,200 hours. 80% tires. Above average inside and out. 4,000 gal aluminum tank. 6"dump valve, 4"right, 4" front intake. 4 sight glasses. Masport 400 pump. Perfect condition. Engine needs wiring harness. Pictures available. Selling as is. Make reasonable offer. Ken 865-577-1157. (P08)

2012 International WorkStar MaxxForce. 197,118 miles. Engine replaced at 169,000 miles in January 2021. NVE 866 Challenger pump. 10-speed manual transmission. 3,500-gal aluminum tank. Truck is work ready. \$95,000. Call 706-798-8080. (P08)

2018 Freightliner M2-106 cab and chassis with a 2,500 U.S. gallon, aluminum, vacuum tank with an NVE 607 vacuum pump.
Stock# 5980V www.vacuumsalesinc.
com (888)VAC-UNIT (822-8648). (PBM)

1997 Peterbilt 378 cab & chassis with a Presvac 3,000 U.S. gallon, C/S, vacuum tank & Masport HXL15WV water cooled pump. (Stock #6625C). www.vacuumsalesinc.com (888)VAC-UNIT (822-8648). (PBM)



2012 International 4300. Allison transmission. 1,600-gal aluminum tank. Masport pump. Maxxforce engine-287,102 miles. Ready to work! Nothing needed. Hoses and crust buster all go with truck. Under CDL 26000 gvw. Very good truck. Asking \$65000.00 0BO. Call Jason if interested @ 530-370-9875. (P08)



2012 Freightliner Cascadia, Wet kit, 396,252 miles, 18 speed Eaton Fuller Manual transmission 2011 Galyean 5460 gallons with Fruitland Pump. They run great and are ready to work. Josh 616-368-1894 call but Txt is better. \$75,000 O.B.O. (P09)



2012 T800 Kenworth, manual transmission, 400HP, NVE 866 pump package, 5,200-gallon aluminum tank. **\$65,000 0B0. 401-437-8942. (PBM)**

Pre owned 3,600 U.S. gallon, Aluminum vacuum tank; with a Presvac PV750 vacuum-pressure pump installed on a 2004 Peterbilt 330 cab and chassis. Stock #1693 www.VacuumSalesInc.com, (888) VAC-UNIT (822-8648). (PBM)

New 4,000 U.S. gallon, aluminum, vacuumpressure tank mounted on a 2023 Peterbilt 548 cab & chassis with NVE 4307 Blower Package. (Stock #14006).

www.VacuumSalesinc.com, (888) VAC-UNIT (822-8648).



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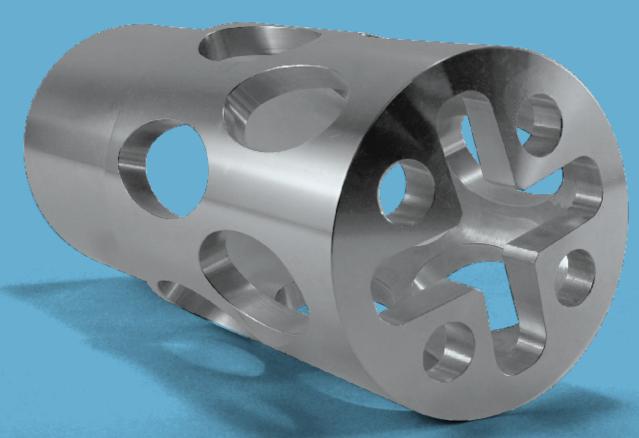
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