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Jackie Mendieta are working hard to build their business, Cisco Septic Service. They are shown with a 2022 Western Star truck built out by Imperial Industries with a 5,000-gallon aluminum tank and National Vacuum Equipment blower. (Photo by Ethan Rocke)

COMING IN AUGUST:

- CONTRACTOR PROFILE: Woman-owned pumping company in Arizona
- ANSWER MAN: Aeration and Ventilation

Pumper

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BETWEEN THE LINES



Contact Jim with

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Jim Kneiszel Editor

Do You Advertise in Church Bulletins or on Restaurant Placemats?

In the days of SEO and social media, here's how pumpers can still benefit from hyperlocal marketing that has been used for generations

By Jim Kneiszel

ay back when, I had a summer job selling newspaper advertising over the phone. I think we had push-button phones on our desks, so at least I wasn't wearing out my index finger using a rotary dial. For any of you under 40 years old, early telephones had a round disk with holes for each number and you had to spin ... oh, forget about it. It was the Stone Age and this is information you don't need to know.

Anyway, my ad sales job went like this:

Open up the daily newspaper's classified advertising section and peruse several pages of small-print advertising. Hmm, more useless information for younger readers. But yes, folks got the paper delivered every day and searched long columns of two-line alphabetically ordered ads when they wanted to buy a used car, look for employment or find an apartment.

... Then go down the list of ads in every category and call the seller, employer or landlord. When they picked up the phone (there was no caller ID in the Stone Age), I would ask if they would like to insert their ad in the series of local weekly newspapers I was working for. Then I would review with them the cost of placing the ad once, twice or three times to better reach their customers.

Is there still room for some antiquated – or maybe call them quaint – forms of advertising for small, local businesses like your pumping company? Or is your marketing plan all about ... the broad reach of social media including Facebook, Instagram and Twitter?

Believe it or not, with constant dialing and no option of letting the phone go to voicemail, I would sell about a dozen ads over a seven-hour shift. As I recall from distant memory, people were by and large cordial, patient, and they would listen to my offer and respond before we exchanged polite goodbyes. Somehow, I just don't think this marketing model would work today. We've all lost patience and politeness on the phone. We view talking to random callers as a most unpleasant activity. Also, the internet has made it far too easy to search for a needed product or service, even if you're simply looking for a local product or service.

GOLDEN OLDIES

But is there still room for some antiquated — or maybe call them *quaint* — forms of advertising for small, local businesses like your pumping company? Or is your marketing plan all about SEO, your Google listing placement, or the broad reach of social media including Facebook, Instagram and Twitter?

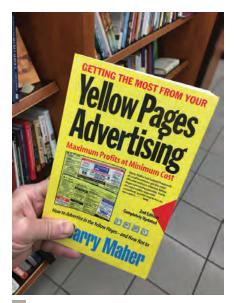
Recently, something prompted me to ponder the possibilities of seemingly obsolete marketing concepts for small business. I was browsing at a thrift store when I came upon the book *Getting the Most From Your Yellow Pages Advertising* – *Maximum Profits at Minimum Costs* by Barry Maher. I had to chuckle at how the passage of time has rendered this journal positively useless. Who would buy a book promising to explain "how to advertise in the Yellow Pages — and how not to"?

I mean, pumpers were cursing the *highway robbery* costs of Yellow Pages advertising 20 years ago. Even more than they're now complaining about Google advertising or the referral fees from online services such as Angi, formerly Angie's List, or HomeAdvisor.

Today when I talk to pumpers, their main focus isn't typically on finding more customers. They talk about being too busy. Calls are up — in some regions caused by declining competition as so many pumpers reach retirement. And there is a labor shortage — it's difficult to find employees to help meet the demand for service. As a result, many pumpers might be able to avoid expanding their advertising budget.

But they don't want to give up on marketing completely. There might be good reason for maintaining the old-fashioned, hyperlocal approaches to keeping the company name in front of the public. Don't misunderstand me. I don't think pumpers will be flocking back to the Yellow Pages. I can't remember the last time I cracked open a phone book for any reason and question the effectiveness of the online YP product.

But I still hear from pumpers who spend little amounts of money to keep in touch with their core customers. They stick with some of the old advertising



This outdated marketing manual was found in a recent thrift-store dig. Do any pumpers still advertise in the Yellow Pages? (Photo by Jim Kneiszel)

approaches, even though they don't always have a real good way of tracking their effectiveness.

TRIED AND TRUE

How much of your advertising budget do you still dedicate to marketing approaches that go back to the days of the rotary-dial telephone?

Hometown shoppers

Many communities still have a shopper publication delivered to paper boxes and front stoops across town. They remain popular in many areas and provide an inexpensive way to blanket your territory with regular invitations to have septic systems serviced.

Through a small ad you can offer coupons, run your business logo and include your contact information. You can't track shopper readership through mouse clicks, but there is still a percentage of the population accustomed to using this print medium more than reaching for an iPad.

Postcards

It's not the same as virtual target marketing, but postcard mailers are a tangible reminder you can schedule for delivery by the ZIP code, government records of homes using onsite systems or road by road beyond the municipal sewer service map. The price keeps going up for postage, but mailers can still be quite effective and, if you're lucky, homeowners will keep them as a handy reminder of the next time they need service.

Refrigerator magnets

How will the postcards be saved? Perhaps fixed to the refrigerator by a magnet. Though decidedly old-fashioned, many pumpers still purchase refrigerator magnets crafted in the shape of their vacuum truck, and carrying valuable service messages and contact information. However, today you can include a web address or a UPC symbol on the graphics giving customers more modern ways to reach out when they need you. And not many marketing tools beat a refrigerator magnet for longevity. Look at your own fridge and see how many magnets have been sending you subliminal messages for years.

Restaurant placemats

Your customers all have something in common. They eat. And they often like to gather at local cafes and supper clubs (That's what we call nicer dinner spots here in Wisconsin) for a meal. Many restaurants generate a small revenue stream by selling ads to very localized businesses to appear on paper placemats set in front of every diner. Sometimes they also include a quiz or word game, or something for the kids to draw or color. Lots of eyeballs focus on the placemat before the food arrives.

Church bulletins

What better captive audience for your advertising pitch than fellow members of your congregation sitting in the pews for an hour every week? If the Rev. Jones' sermon is rambling, you might notice some folks starting to look over the bulletin to stay awake. And what if one of them has a revelation that they need their septic tank pumped? I would call that a prayer answered. And the church-going folk are likely to be honest about flushing wipes down the toilet and you can expect them to pay on time if they see you every week in the next pew. Supporting your church and reaching your customers is a win-win.

Community bulletin boards

At my local True Value hardware store, many contractors still crowd the corkboard with their business cards. It's free, sure, but I assume they keep doing it because it works on some level. I know I glance over at the board every time I stop in for a nut or bolt. And what if that DIY plumbing or electrical project morphs into something I can no longer handle on my own? Well, I know where to find some help. How many people to you suppose go into the store for a plunger, only to find out they have a bigger problem and need a tank pumped?

Sponsoring youth sports teams

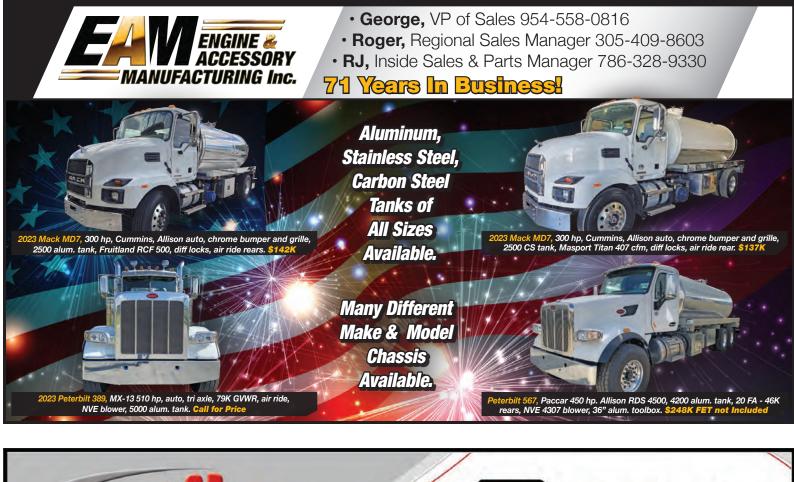
You might break even on the uniforms and team ice cream runs if a pee-wee or Little League parent hires you to pump a septic tank this summer. Sponsoring a local sports team is more about creating goodwill for your company's brand than it is about gaining direct results for your advertising dollar. I don't know any pumpers who regret helping the community in this way, and serving youth is a source of great pride for small businesses. If you're not into sports, there are many other ways to help out, such as sponsoring the high school marching band, robotics team or giving to the local Boys & Girls Club.

FINAL WORD

Some of these advertising ideas would be shunned by modern marketing professionals, who may argue they don't have great reach and results are not trackable in any way. But the old ways of local advertising have stood the test of time for many small businesses that wouldn't think of giving them up. What do you think? Please share your experience with tried-and-true local advertising by sending me a message at editor@pumper.com.



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summer heat keep your crew hydrated

In physically demanding jobs, hydration is essential not only to worker productivity but also safety. This is especially true in the summer months when the heat index in some places climbs above 100 degrees F. Here are some guidelines to keep in mind for yourself and your workers as we enter the warmweather months.

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The tools and products you use should be up to date. It is important that you have modern options for modern homeowners.

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ONSITE SYSTEM INSTALLATIONS **how to conduct a site review**

Many site features can impact the constructability of an onsite system, so it's important that the design matches the site. In this online article, Sara Heger of the Water Resources Center at the University of Minnesota discusses the process of conducting a site review after a system design has been approved.

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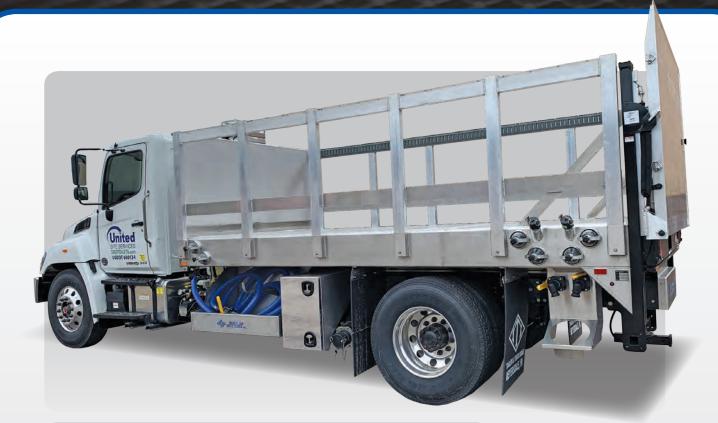
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Cisco Septic Service Adkins, Texas

OWNERS:	Frank and Jackie Mendieta
FOUNDED:	2017
EMPLOYEES:	
SERVICE AREA:	75-mile radius around San Antonio, Texas
SERVICES:	Residential and commercial septic pumping, grease trap service, real estate inspections
WEBSITE:	www.ciscoseptic.com

Texas 20-something couple had more enthusiasm than cash when they started Cisco Septic Service

[5]

By Betty Dageforde

n 2017, 23-year-old Frank Mendieta was just settling into a job working for a septic contractor in San Antonio. He never imagined that before year-end he'd own his own business.

A small business rollercoaster ride began as Frank found himself without a job when his boss developed melanoma and passed away. He had been very close to the man and wanted to continue to take care of his customers. But Frank and his wife Jackie were in no position to buy the business or work through the complications of an estate.

Jackie came up with the idea first. "I told him, 'You've met some really great people; why don't you consider opening your own business? Let's try it." They started the enterprise Nov. 13, 2017 — and it wasn't long before the phone started to ring. One year later, she was able to quit her banking job and work full time for their new business, Cisco Septic Service, located in Adkins, Texas, a small community east of San Antonio.

Given their youth, it was inevitable technology and social media would play a huge role in connecting with customers. Growth was steady and by year-end 2021, the Mendietas owned their own building, employed five people and had three vacuum trucks.



GETTING STARTED

It was one thing to enthusiastically decide to go into business for themselves, but without a lot of savings it was another to buy a vacuum truck and make it happen. This was the Mendietas' biggest hurdle, and their ages were against them. "There were so many people who told us no," Jackie Mendieta says. "They thought we were too young and not serious."

Finally a sales rep at Doggett Freightliner in Converse, Texas, did take them seriously — "His name was Chance, and he truly took a chance on us," Jackie recalls with a laugh. The couple laid out their vision for the business — and it included more than just pumping septic tanks. "We told the finance person we're here to help people," Jackie says.

Their first vacuum truck was a 2016 Freightliner M2 with a 2,500-gallon steel tank and B500 National Vacuum Equipment blower. Two years later they bought a second truck, a 2020 Western Star built out by Imperial Industries with a 4,000-gallon aluminum tank and NVE 4307 blower. And by year-end 2021, they took delivery of a third truck, a 2022 Western Star built out by Imperial with a 5,000-gallon aluminum tank and NVE 4310 blower.

They've progressively gone with bigger tanks to reduce the number of trips they make to the San Antonio treatment plant, which is sometimes 30 to 40 miles from a job.

Over the years, they've added equipment — Crust Busters tank agitators, a RIDGID sewer camera and locator, miscellaneous DeWALT tools, and VARco hoses, clamps and probes.

The Cisco Septic Service team includes, from left, Jesus Benitez, Frank and Jackie Mendieta, Mario Duron, Adam Arguijo Jr., Mark Alvarado and Dillon Ahr. The truck is from Imperial Industries and carries a National Vacuum Equipment blower. (Photos by Ethan Rocke)



FRANK IS HARD-WORKING AND DETERMINED AND WILL GO OUT OF HIS WAY TO DO THE MOST POSSIBLE. YES, WE'RE HERE TO DO A JOB BUT WE'RE ALSO HERE FOR THESE PEOPLE, TO MAKE THEIR LIVES BETTER. **5**

JACKIE MENDIETA

IN THE FIELD

Frank's team includes lead technicians Mark Alvarado and Dillon Ahr and driver Adam Arguijo. Nathaniel, their 10-year-old son, helps out when he's not in school or working in the office with mom, shredding papers, cleaning up or stocking the fridge.

The company's main service is pumping tanks for aerobic and conventional septic systems. They also install risers, perform minor repairs and pump out grease traps. About 80% of their work is for residential systems but they also do commercial lift stations, provide sewer line standby service, and pump out vault toilets at state parks.

The company is taking advantage of the hot housing market by providing real estate septic inspections. Jackie says they give a quick turnaround time to prevent closing delays and provide referrals to homeowners who need work done. "We want to offer the homeowner solutions to get to closing versus just saying, 'It failed.' We're not just going to leave them high and dry."



Frank Mendieta removes a lid as technician Adam Arguijo Jr., readies a hose for pumping.

They work within a 75-mile radius of their home base. While most of their clients are in the rural area around San Antonio, some of the older parts of the city are also on septic.

"The city sewer is definitely not keeping up with where the growth is, so septic really plays a large part in our area," Jackie says. Some of the older systems are challenging to access and may require using their Kubota miniexcavator to get to a tank after mowing the field with their Kubota shredder.

Jackie says they do carry through on their stated goal to be a help to customers.

"Frank is hardworking and determined and will go out of his way to do the most possible," she says. "Yes, we're here to do a job but we're also here for these people, to make their lives better."

AT THE OFFICE

In December 2020, the couple purchased a building in Adkins and were thrilled to finally move the operation out of their spare bedroom so they could operate more efficiently. The building sits on an acre and has a front office and a back warehouse/storage facility.

As operations manager, Jackie oversees office operations, provides scheduling and support for the field staff and attends networking functions to market the business. Her team includes account specialist Mario Duron and marketing and events manager Jesus Benitez.

Breezeworks is the company's management software. "We can schedule, collect payments, invoice, do estimates," Jackie says. "It has all of our client information going back to 2017." It's compatible with many other programs like Square and QuickBooks and time clock software. The program is on all

THE FUTURE IS TECHNOLOGY AND IF YOU DON'T MOVE WITH THE TIMES YOU'RE GOING TO GET LEFT BEHIND. ... WE'RE HUNGRY AND MOTIVATED. WE HAVE THOSE BIG DREAMS AND YEARS AHEAD OF US TO MAP IT OUT. **9**

JACKIE MENDIETA

their devices. Technicians use it for navigation and to collect payment when they finish a job. Other programs they use include Gusto for payroll, the webbased OnTheClock time-punch system and Verizon business services.

The company makes reminder calls to homeowners to advise them on the importance of regular maintenance. "And I tell them to think about the money they're not putting toward city sewer and to put that into a septic savings account," Jackie says. "That way they can be prepared for the cost of future pumpouts."

TAKING CARE OF EMPLOYEES

Jackie says the company pays a reasonable salary and offers a significant amount of overtime but is not yet in a position to offer a lot of other benefits. But she tries to make employees feel valued by providing other types of benefits.



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Getting social: a pumper's tips

Cisco Septic Service has had a presence with most of the major social media platforms since the beginning. Operations manager Jackie Mendieta says each one serves a slightly different purpose. Here's her take on the different platforms and how they use them:

"Facebook is a platform for everyone, something that everyone's comfortable with. It's a little bit aged now but they're still trying to keep up with things. So if we want to get news out or just show what we're doing and let people know what's going on with the company, it's great.

"Instagram is perfect for businesses to network and to show other businesses what you do so you can refer people to one another. "TikTok is a little bit different. It's constantly changing on how they're doing things. We have our videos on there and it helps us post those videos onto Instagram and Facebook. That's a cool part of TikTok.

"Snapchat is still real new. If we were in a service geared towards younger people, it would be something to focus on.

"LinkedIn is not something I grew up using so I don't really know the function of it."

In the future the company will use YouTube for posting videos and Twitter to post announcements. While these are all good for connecting with customers, Jackie says Google is really where it's at when it comes to marketing — and it's not because Google directs people to a website. People don't even click on the website, she says. They look at reviews, ranking, photos, hours, what people are saying, and, based on the photos, if there is any relatability.

"Then if they have more questions they'll click on a website," she says. "But even websites now are getting a little bit dated." In the beginning the couple asked customers to leave reviews, and may do so again in the future. The company has more than 100 5-star reviews.



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For example, she stocks the fridge with breakfast sandwiches, water, drinks and snacks, and puts items like snacks, phone chargers and flashlights in all the trucks.

The company also provides pants and high-visibility shirts from Service Uniform so no one has to worry about getting their own clothes dirty, she says. Every technician is given a pair of Red Wing boots after 90 days. The company is flexible when it comes to staff members taking care of personal matters or attending their children's school events. On the fun side, they have cookouts, a summer party for employees and their families (last year at a waterpark), and a Christmas party where they hand out gifts and bonuses.

Communication is key to efficient operations and employee morale, Jackie says. They hold monthly meetings to cover big issues, Monday morning meetings to prepare for the week, and lately they've incorporated a five-minute daily gathering before everyone heads out, which Jackie says is working very well for them.

The company uses the website Indeed to find employees. They are willing to look at anyone who expresses an interest.

"We don't care how old you are or anything," Jackie says. "If you tell me you're ready to work, we're going to give you the benefit of the doubt and the opportunity."

While they've had some hires where one side or the other recognized it was not a good fit, she says they currently have a great staff and want to take care of them.

"We treat them like family. We don't know what anyone's struggle is and what they're going through, so we try to be there for people as much as we can."

GOING FORWARD

Jackie says some of their current challenges include dealing with rising operational costs and figuring out how best to juggle scheduled calls with last-minute emergencies.

"Sometimes you have to know when to say no, and that's hard for us," she says. But overall the couple really enjoys what they're doing. "It is a niche industry," she says. "Not everyone will do it, but someone's got to do it, so we just have fun."

While long-term dreams include opening more locations, in the near term Jackie will be hiring an administrative assistant, Frank is working on getting his maintenance provider license, and they want to get involved with septic industry groups and trade shows — which they didn't know existed until they picked up a copy of *Pumper* magazine, she says.

Staying on top of technology will always be a high priority. "The future is technology and if you don't move with the times you're going to get left behind," she says.

Although they're young, Jackie believes their youth is an asset. "We're hungry and motivated. We have those big dreams and years ahead of us to map it out."

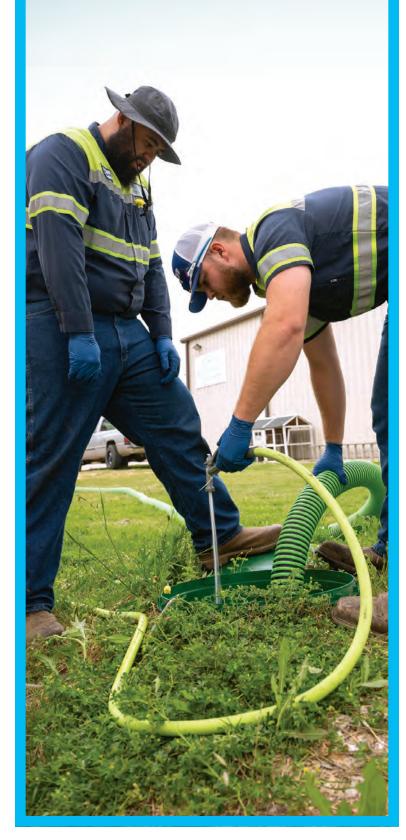


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VARco 866-872-1224 www.varcosupply.com Ad on page 47 Technian Mark Alvarado, left, looks on as field manager Dillon Ahr sprays water to loosen the waste in a septic tank.



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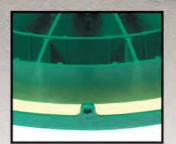
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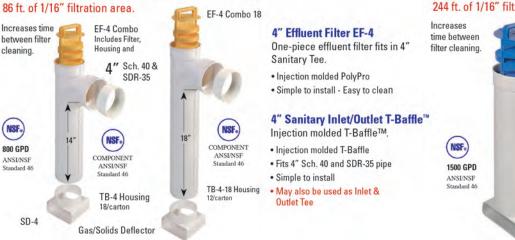


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BUILDING THE BUSINESS



Jeff Haden Contributor

Jeff Haden is a contributing editor for Inc.com and a LinkedIn Influencer.

Wouldn't Your Employees Enjoy Three-Day Weekends?

Adopting a 9/80 work schedule could boost productivity, attract and retain workers, and better meet customer service expectations

By Jeff Haden

've worked several different schedules. Some were great, others less so. But the best work schedules all shared one thing in common: They allowed me to take more time off.

Unfortunately for many small business owners, putting a flexible work schedule in place can be challenging. One potential solution? A 9/80 work schedule. It's a type of compressed work schedule that results in employees still working 80 hours every two weeks while also getting one extra day off.

And if that's not enough, the government approves. A 9/80 work schedule meets the approval of the U.S. Department of Labor. Interested? Let's see how a 9/80 schedule works.

WHAT IS IT?

A 9/80 schedule is based on a simple premise. For the first week, employees work four nine-hour days, Monday through Thursday. On Friday they work for eight hours. Four nine-hour days add up to 36 hours, so the first four Friday hours complete a 40-hour week. That means the last four Friday hours start the clock for the following week.

Working four more nine-hour days adds up to 40 hours, which means employees can take the second Friday off. Then the cycle starts again the following Monday. As a result, you get two 40-hour workweeks from your employees. And your employees get a day off every two weeks, which can actually make them more productive. In fact, Microsoft Japan found a four-day workweek boosted their employees' productivity by 40%.

Win-win-win. As long as you take care of a few details, that is.

PAYROLL QUESTIONS

Typically pay weeks run Monday through Sunday, or Sunday through Saturday. A 9/80 schedule bridges across workweeks, resulting in 44 work hours the first week and 36 hours the next.

That means unless you want to pay four hours of overtime every other week, you'll need to track work hours in two-week periods.

Say your employees typically work 8 a.m. to 4 p.m. On a 9/80 schedule, your employees would work 8 a.m. to 5 p.m. instead Mondays through Thursdays. At noon on the first Friday, the workweek ends and a new one begins. The next workweek ends the following Thursday at 5 p.m.

That also means you'll need to handle sick days and vacation days differently. A sick day counts as nine hours unless it occurs on a Friday. The

Your business may attract more talented employees. Flexible work schedules and better work-life balance are perks that can be just as important as pay and benefits.

same is true for vacation; a Thursday counts as nine hours off, while a Friday counts as eight. And don't forget about holidays. Christmas on a Wednesday counts as nine hours, whereas it counts as eight on a Friday.

Overtime is simple to calculate. During the first week, working more than nine hours a day, or more than 40 hours before noon on Friday, should result in overtime. The same is then true for the following week.

THE PROS

The benefits of a compressed work schedule for employees are tangible:

- 26 three-day weekends per year
- Scheduled, predictable weekdays off to take care of personal appointments or family matters
- · Less time and money spent commuting
- When I was an employee, I would have loved working a 9/80 schedule and it can work for employers, too.

Your business may:

- Attract more talented employees. Flexible work schedules and better work-life balance are perks that can be just as important as pay and benefits.
- Better handle customer communications. Adding an hour to four workdays increases customer touchpoint capacity.
- Be more productive. Working an extra hour a day means fewer tasks will need to be interrupted and picked back up the following day.
- See fewer employee "sick" days. Face it: Some employees call in sick when they want to go out of town, go to an appointment, etc. But with an extra weekday off, your team may use sick days for personal reasons less often.

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RTD100-200	25.0	94.6	2900	200	49.8	32	42	3	128
RTD100-200SX	25.0	94.6	2900	200	49.8	32	42	3	128
RTD130-160	32.0	121.1	2300	160	50.5	36	42	3	128
RTD130-200H	34.5	115.0	2900	200	68.0	36	42	3	128
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RTX50	12.0	45.4	4350	300	35.8	25	23	3	72
RTX60	14.0	53.0	4350	300	41.8	25	28	1	72
RTX70	17.0	64.4	3000	200	33.8	30	23	3	72
RTX85	21.0	85.0	2200	200	31.7	30	28	1	72
RTX-HW85.150N*	21.0	85.0	2200	200	31.7	36	23	1	72
RTX100	24.0	90.8	1800	124	29.8	36	23	3	72
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BUILDING THE BUSINESS

THE CONS

Granted, there are potential downsides to a 9/80 schedule. Some employees may be unwilling or unable to work an extra hour a day. And you'll need to ensure your payroll system is equipped to handle a flexible work schedule.

Plus, the nature of your business may require you to be open Monday through Friday. If that's the case, the solution is simple: Divide your employees into two groups. One group can get every other Friday off, while the other gets every other Monday off. While your workforce will be a little "thinner" on those days, a little planning can help you overcome capacity issues.

Say Tuesday is your "slow" day. You could rearrange the schedule so that Tuesday is the eight-hour flex day. Or you could even make every other Tuesday an off day. That's what a friend does. For his business, customer calls, visits, deliveries and interactions are generally 40% lower on Mondays compared to any other day of the week. He made every other Monday the off day for all but two employees. On those off days, the three of them can easily handle the needs of the business while everyone else takes the day off.

WILL IT WORK?

The short answer is "probably." With a few modifications and a little creativity, many types of businesses can adopt a 9/80 schedule. But a 9/80 workweek may not be right for your employees. For personal, family, commute or other reasons — or simply by inclination — working an extra hour a day may not be something all of your employees wish to do.

In that case, making it work can be problematic, especially if your business involves interconnected or dependent tasks. For example, if you run a production line, having some employees go home at 4 p.m. and others at 5 p.m. simply may not work.

But if your business relies on the collective output of individual contributors, then allowing some employees to adopt a flexible schedule while others don't could work. And once some employees with "regular" schedules see a few of their colleagues leave on Thursday for a three-day weekend, more may decide to adopt a 9/80 schedule.

That's what happened in my friend's case. While at first only half of his employees accepted the offer to work a 9/80 schedule, within two months nearly all had shifted to the flexible schedule.

What should you do? First decide whether and to what extent a 9/80 schedule might work for your business. Then ask your employees what they think. Explain the pros and cons of a 9/80 work schedule. Describe your expectations.

You may find the new work schedule could make your employees more productive, engaged and loyal. And it might be a little easier to attract great new employees, too.

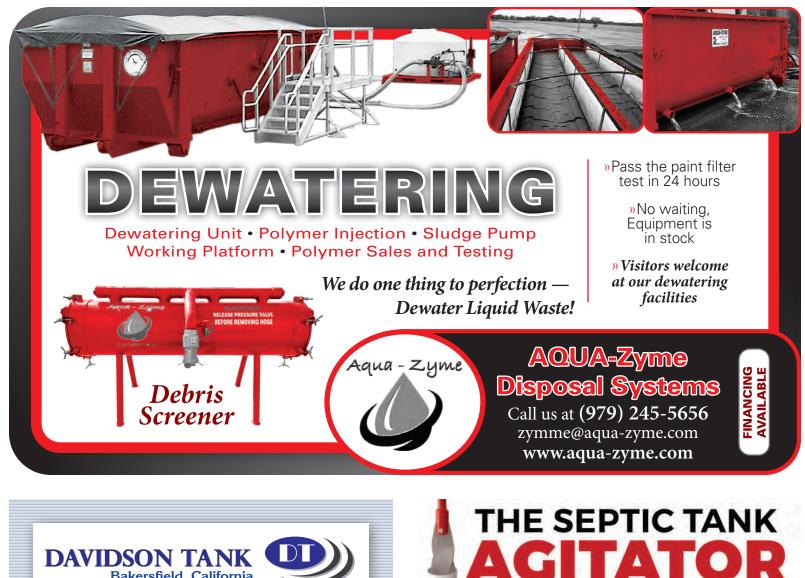


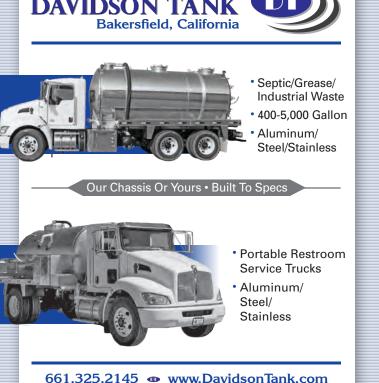




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RULES & REGS

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

Clean Water Boosters Sue to Stop Montana Water Standard

By David Steinkraus

ast spring, the Montana Legislature abolished numeric standards for phosphorus and nitrogen pollution and replaced them with a "narrative standard," which generally describes desired conditions for a waterbody free of pollution. The law took effect March 1, and on March 24 Upper Missouri Waterkeeper filed a federal suit against the U.S. Environmental Protection Agency for failing to act.

In its suit, Waterkeeper argues that EPA should have taken formal action to approve or disapprove Montana's change in standards, as required by federal law. Waterkeeper also says the new standard fails to adequately protect water quality.

"Under the Clean Water Act, states can't lawfully roll back science-based standards that protect waterway health — as Montana has done — and put forth unproven and ineffective pollution control programs that let polluters off the hook for doing their fair share to protect water quality," Guy Alsentzer, Upper Missouri Waterkeeper executive director, said in a press release.

Instead of using numbers, the law mentions regulating discharges of phosphorus or nitrogen that create conditions toxic to human, animal, plant and aquatic life; create conditions that produce undesirable aquatic life; or cause measurable changes in aquatic life.

When the bill was passed last year and signed into law, Alsentzer said standards relying on, for example, the presence of algae blooms are reactive instead of proactive. "It's much better economics to keep something clean than it is to pay to fix it when it's polluted," he said, according to the *Missoula Current*.

After the lawsuit was filed, state Sen. John Esp, R-Big Timber, and one of the sponsors of the new law, said Montanans could face higher water and sewer costs to pay for treatment, according to the *Montana Free Press*. "We haven't even finished writing the rules to implement (Senate Bill) 358, so it's kind of disappointing that Waterkeeper chooses to go to court instead of sitting down and working around the table with the rest of us," Esp said.

New York

Suffolk County is considering formation of a water district to help fund advanced onsite systems. There is no formal proposal yet, but the question may come before voters in November, reports the *Shelter Island Reporter*.

In discussion is an annual \$60 fee for all property owners. The money would form the basis of a fund for onsite system replacements. Fund money would be split with 75% dedicated to system installations and 25% to infrastructure for

the systems. Areas of the county with onsite systems would have the option of joining the fund.

The county occupies the eastern tip of Long Island, and for several years it and its municipal governments have been passing laws to require nitrogenreducing onsite systems. Hundreds of thousands of Suffolk County homes are served by cesspools, and those have been linked to nitrogen pollution and algae blooms along the county's Atlantic Ocean coast.

North Carolina

A staff shortage has severely delayed onsite system permits in Moore County. The problem is a shortage of people in the county's sewage site division, reports *The Pilot* in Southern Pines. Four of seven positions are vacant.

Coupled with rapid growth all over the county, this means applicants may wait up to six months for a permit, said Matt Garner, interim director of the county Health Department. Permits are typically issued in 30 to 90 days.

The county has a population of about 103,000, according to the U.S. Census Bureau. Population increased about 3% from 2020 to 2021, and 13% from 2010 to 2020.

Indiana

Wayne County stopped work on its onsite ordinance because of uncertainty over action by the state Legislature. House Enrolled Act 1245, signed by Gov. Eric Holcomb, changes the rules for counties. It prevents a county health department from denying some onsite permits if they have been approved by an engineer, Christine Stinson, executive director of the county health department, told the county's board of health.

She said the Legislature's original bill did not stir local opposition, reported the *Richmond Palladium Item*, but subsequent amendments did. One, which was removed before the final vote, would have forbidden a county from having an onsite ordinance more restrictive than the state's.

In February, Stinson gave the health board a proposed onsite ordinance for consideration, but she said it is now on hold until there is more clarity about what state government has done.

Ohio

As it has for several years, the Jefferson Soil and Water Conservation District can help people with the cost of replacing or repairing failing onsite



SEPTIC SYSTEM ANSWER MAN



Jim Anderson, Ph.D. Contributor

Jim Anderson, Ph.D., is an emeritus professor at the University of Minnesota Department of Soil, Water and Climate. He works with the National Association of Wastewater Technicians and is a recipient of the pumping industry's Ralph Macchio Lifetime Achievement Award. Send Anderson questions about septic system maintenance and operation by email to editor@pumper.com.

When Baffles Are Involved, Measure Twice and Install Once!

Proper inlet and outlet designs are crucial to balance effluent flow and to keep solids out of the drainfield

By Jim Anderson, Ph.D.

n the June column I addressed a question I received about low-profile septic tanks. While going through some calculations related to that discussion, I decided it would be good to discuss septic tank baffles and why they are important for system operation. Septic tank baffles are something service providers deal with one way or another every day. This is either because they are operating correctly or, most often, because they weren't installed properly, they are missing altogether, or they are out of alignment.

Baffles come in different shapes and of different materials. Some baffles extend across the width of rectangular tanks and are fastened to the tank walls. The most common type of baffle and material are plastic sanitary tees. These are durable and relatively easy to install. With requirements for effluent screens at the outlet, many products fit within the 4-inch diameter tee.

There should be baffles at the inlet and outlet. They each serve a purpose. The inlet baffle directs the raw sewage downward into the middle zone of the septic tank. From there, the larger solids settle to the bottom and form the sludge layer. The outlet baffled allows sewage effluent to flow out from the liquid clear zone while retaining scum in the tank.

TRAPPING SOLIDS

Elbows cannot be used for either the inlet or outlet baffles because gases generated in the tank through bacterial action cannot escape the tank, leading to problems due to corrosion. Gases from the septic tank are meant to move from the tank up through the house sewer and out the plumbing stack vent. It is important there be space for gases to move under the lid and out the inlet piping.

Baffles need to be of proper length above and below the liquid surface level. This is so the tank can effectively trap and hold settleable solids (sludge) as well as floating solids (scum). There also needs to be a minimum of a 3-inch drop between the inlet above the liquid level, which should be at the invert of the outlet of the tank. This difference is required to provide free flow of raw sewage into the tank to minimize the potential for plugging at the inlet. It is also the reason there needs to be adequate distance between where the inlet pipe enters the tank and the baffle wall. If because the pipe was pushed in too far or some other reason solids can hang up there and plug the piping, sewage can back up into the house.

The inlet baffle directs the raw sewage downward and prevents the floating scum from plugging the inlet pipe. The inlet baffle must be submerged a minimum of 6 inches below the liquid level but must not penetrate any Remember that inspection pipes are for inspection and not removal of tank solids. That should be done through the manhole. Even with the best backflush procedures, the tank cannot be adequately cleaned through the inspection pipes!

deeper than 20% of the liquid depth. A deeper submergence will cause the solids at the bottom to be disturbed when sewage flows into the tank. This can re-suspend settled solids. Similarly, the baffle needs to extend a minimum of 6 inches above the liquid level up to 20% of the liquid depth.

To give you an idea of the length of the inlet baffles properly installed with an operating depth of 60 inches below the outlet, the minimum length both above and below would be 6 inches while the maximum would be 12 inches above and below.

Submergence of the outlet baffle is critical to the retention of both sludge and scum. Again, these days we are helped in terms of maintenance frequency by effluent screens which will plug if there are excessive solids delivered to the outlet. Regardless, the bottom of the outlet baffle must be submerged to a point equal to 40% of the liquid depth. In a tank with a 60-inch operating depth, the submergence would be 24 inches.

INSPECTION PORTS

The upper part of the outlet baffle should extend above the liquid level 20% of the liquid depth, or 12 inches for this example. This provides for maximum storage of sludge and scum. Current maintenance recommendations are that when the depth of sludge and scum exceeds 25% the operating depth, the tank should be cleaned. This means when the depth of sludge and scum exceeds 15 inches, the tank should be pumped.

As I indicated, it is important that the tops of both baffles be left open and extend no closer than 1 inch to the inside of the top of the tank. This allows for movement of gases through the tank. Improper venting is one cause of tank corrosion at the outlet baffle.



Access or the ability to inspect the tank contents and baffles is important to determine maintenance frequency and to ensure the baffles are in place and operating correctly. There should be at least one manhole at least 20 inches in diameter allowing access to remove the solids. Inspection pipes at least 4 inches in diameter should be installed directly above and in line with the inlet and outlet baffles. This allows access to measure sludge levels at both tank locations and removal for cleaning the effluent screen at the outlet.

Remember that inspection pipes are for inspection and not removal of tank solids. That should be done through the manhole. Even with the best backflush procedures, the tank cannot be adequately cleaned through the inspection pipes! \mathbf{P}



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	Wallenstein 30		50 - 1,800	15	28"	35	20	4	Air	500 - 1,750			
	Wallenstein 151		50 - 1,800	80	28"	35	100	4	Air	500 - 1,750			
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	Wallenstein 403LN		1,800 - 4,300	220	28.5"	35	245	3	Liquid	500 - 1,200			
	Wallenstein 553		1,800 - 4,300	275	28"	35	300	3	Fan	500 - 1,200			
	Wallenstein 753		1,800 - 4,300	350	28"	35	340	3	Fan	500 - 1,200			
	Wallenstein 753LN		1,800 - 4,300	350	28.5"	35	340	3	Liquid	500 - 1,200			
	Wallenstein 1054		3,200 - 10,000	500	28"	35	700	5	Fan	500 - 1,100			
	Wallenstein 1054LN		3,200 - 10,000	500	28.5"	35	750	5	Liquid	500 - 1,100			
	Wallenstein 1504LN		3,200 - 10,000	700	28.5"	35	750	3	Liquid	500 - 1,100			
	Wallenstein 1604		3,200 - 10,000	800	28"	35	1,200	5	Fan	500 - 1,100			
	Wallenstein 1604LN		3,200 - 10,000	800	28.5"	35	1,200	5	Liquid	500 - 1,100			
	Wallenstein 2106		3,200 - 10,000	1,000	28"	35	1,700	5	Fan	500 - 1,100			
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MANUFACTURER	PUMP	BLOWER	REC. Tank size (gallons)	CFM	MAX. VACUUM (Hg)	MAX. PRESSURE (PSI)	NET WEIGHT (LBS)	NUM. Of VANES	AIR, FAN, Liquid-cooled or Liquid Rings	RPM Range	NUM. Of Lobes	HORSE- POWER (BHP)	PORT/ Piping
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sales@fruitland-mfg.com www.fruitlandmanufacturing.com	RCF 370		As Per Application	272	28.5"	30	385	8	Fan	1,400		27	3"
See ad, page 25	RCF 500		As Per Application	338	28.5"	30	450	8	Fan	1,400		33	3"
	RCF 870		As Per Application	501	28.5"	30	575	8	Fan/Air Injection	1,400		44	4"
	RCF 1200		As Per Application	716	28.5"	30	1,400	8	Fan	1,000		65	4"
	WR 2500		As Per Application	1,192	26"	22	385		Liquid Ring	1,600		155	6"
	WR 3100		As Per Application	1,506	26"	22	422		Liquid Ring	1,600		178	6"
	WR 4000		As Per Application	2,166	26"	14.5	657		Liquid Ring	1,300		218	6"
	W1600		As Per Application	942	27"	29	747	6	Liquid- Cooled/ Air Injection	1,500		120	4"
	W1300		As Per Application	765	27"	29	615	6	Liquid - Cooled/ Air Injection	1,500		91	4"
	W900		As Per Application	530	27"	29	485	6	Liquid - Cooled/ Air Injection	1,500		65	4"
		FB 2000	As Per Application	1,350	24	12	545		Air, Air Injection	3,300	3	80	6"
Howden Roots 900 West Mount St. Connersville, IN 47331 800-55-ROOTS • 765-827-9200 765-827-9317 inquiries.USA@howden.com www.howdenroots.com See ad, page 53		827 DVJ		5,775 (free air)	27" HgV		2,100			1,000 - 2,470	2	324.9	Inlet= 12" Jet= 12" Disch= 14"

MANUFACTURER	РИМР	BLOWER	REC. Tank Size (gallons)	CFM	MAX. Vacuum (Hg)	MAX. Pressure (PSI)	NET WEIGHT (LBS)	NUM. OF VANES	AIR, FAN, Liquid-cooled or Liquid Rings	RPM Range	NUM. Of Lobes	HORSE- Power (BHP)	PORT/ Piping
	304 Challenger		Application Specific	210	27"	30	179	4	Air	1,100 - 1,400		12.2	2"
Netional Vacuum Equipment	607 PRO Challenger Heavy-Duty		Application Specific	380	28"	30	390	7	Fan/Liquid	1,100 - 1,500		28	3"
2707 Aero Park Dr. Traverse City, MI 49686	866 Challenger Heavy-Duty		Application Specific	520	27"	20	507	6	Fan/Liquid	800 - 1,150		38	4"
800-253-5500 • 231-941-0215 (f) 231-941-2354 sales@natvac.com	887 Challenger Heavy- Duty		Application Specific	532	28"	30	620	7	Fan/Ballast Port Cooled	900 - 1,200		54	4"
www.natvac.com See ad, page 3		4307 Tri-Lobe	Application Specific	560	27"	15	421		Ballast Port Cooled	2,500 - 4,000	Tri Lobe	40.6	4"
		4310 Tri-Lobe	Application Specific	940	27"	15	456		Ballast Port Cooled	4,500	Helical	58	4"
		1600 Tri-Lobe	Application Specific	1,600	27"	15	532		Ballast Port Cooled	3,600	Helical	95	6"
		B250 Tri-Lobe	Application Specific	250	15"	15	241		Air Cooled	1,800 - 2,600	Tri Lobe	20	2"
		B500 Tri-Lobe	Application Specific	431	24"	15	370		Ballast Port Cooled	2,200 - 2,600	Tri Lobe	30	3"
ConstraintsArstanArstanArstanBurlington, ON L7L 5L5B00-387-7763 • 905-637-2353(r) 905-681-0411sales@presvac.comwww.presvac.comSee ad, page 72	PV 750		1,000 - 6,000		27 "	35	450	8	Fan/ Ballast Port Gooled	1,500			
Conde	Conde Super 6		300 - 500		28"	20	80	3	Air	1,200 - 1,750			
Westmoor Ltd. 906 W Hamilton Ave. Sherrill, NY 13461	Conde SDS 6		500 - 1,000		28"	20	100	4	Air	1,100 - 1,500			
800-367-0972 • 315-363-1500 (f) 315-363-0193 pumps@westmoorltd.com www.westmoorltd.com	Conde SDS 12		1,000 - 2,000		28"	20	150	4	Air	1,100 - 1,500			
See ad, page 4	Conde SDS Ultra		1,200 - 2,500		28"	20	160	8	Air	1,100 - 1,500			
	Conde ProVac3		50 - 300		28"	20	45	4	Air	1,100 - 1,750			

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PUMPER INTERVIEW



Learning the Benefits of Diverting Graywater

Reuse of a precious water resource is trending across the country, but it started by necessity in the parched Western states

By David Steinkraus

he driest January and February on record happened this year in California. With the state facing another year of severe drought, there is more reason for onsite water recycling projects to help stretch the West's most important resource a little further.

For more than 20 years, Laura Allen has been recycling water with small-scale projects. She is co-founder of Greywater Action, based in Berkeley, California, and is on a mission to help people to reuse onsite wastewater. She was also called as an expert witness in the lawsuit against an Amish group in Minnesota that resisted county orders to install an onsite system for graywater from the Amish homes. That case went all the way to the U.S. Supreme Court.

Pumper: How has graywater reuse changed since you formed Greywater Action?

Allen: For one thing, it's legal in California and many of the Western states. As a result of legalization, and extended water shortages, there's been a lot more interest from water agencies and municipalities. Before it was very bottom up. People wanted to reuse water — people have always reused water — but there wasn't the widespread support you see now.

Pumper: What do California's rules look like for graywater?

Allen: There are different tiers of graywater. For subsurface irrigation in California, there's no treatment needed. Sometimes you filter for functionality so it doesn't clog emitters, but there's no actual treatment until the water enters the landscape. Many simple systems use a woodchips basin as a filter in the ground to prevent the soil from clogging. Some local jurisdictions, such as San Francisco, through their public health departments, are requiring treatment for indoor use because there may be contact with people.

Pumper: What did you reuse when you built your first system in 1999?

Allen: We re-plumbed the shower to lead outside into the landscaping. My 1999 systems are really nothing to emulate. The thing I learned over the years is it really takes time to learn how systems work. Some systems that I thought were great, a year later I changed my mind.

Many simple systems use a woodchips basin as a filter in the ground to prevent the soil from clogging. Some local jurisdictions ... are requiring treatment for indoor use because there may be contact with people" – Laura Allen

Pumper: What should people avoid when creating a reuse system?

Allen: What I found is the simplest way you can meet your needs the better, because every new component or addition is a failure point. The other thing is it really depends on the situation. If you're growing trees or bushes, or the larger landscapes, those do really well with simple systems. And the simple systems are more affordable, they last longer, they're easier to install.

Pumper: About what should someone expect to spend on a graywater system?

Allen: Laundry to landscape is usually the best place to start, and for that system, the materials are around \$200 to \$300. It's usually a one-day installation and doable for a DIYer. To hire somebody to install, the total is about \$700, getting up to \$2,000. Because washing machines have pumps, you don't have to change the household plumbing at all. You're connecting directly to the appliance. Many states don't require permits because you're not changing anything about your home, but the state does have to allow graywater reuse.

You could also spend \$20,000 on a graywater system that's going to be much more advanced. Usually these are only done in high-end new construction.

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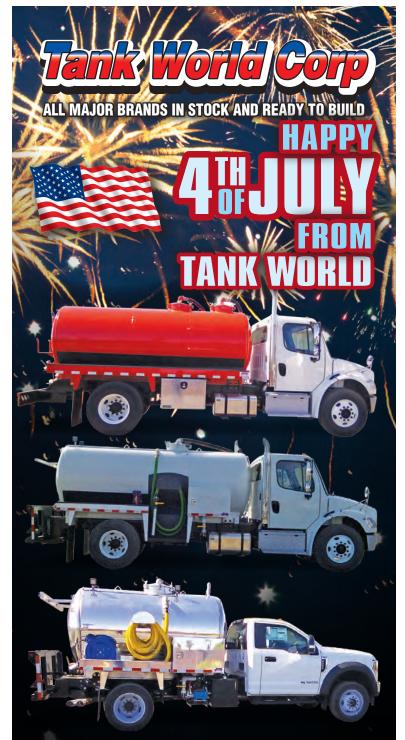
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Pumper: Your website says you do courses, and are those available nationally?

Allen: We do courses online, so those are available nationally.

Pumper: Do you charge?

Allen: In our online school, we have some free introductory classes for anyone who doesn't know about graywater. And then we have an online class that is more in-depth, and there is a fee.

Then there's a design class. That goes step by step through doing a site assessment, soil testing, calculating water flows, calculating plant water requirements, putting it all together, getting permits and getting materials. There's a weekly coaching session so people can bring their designs and get feedback on them.

I'm also on the board of COWA (California Onsite Wastewater Association), and we do trainings where people can get continuing education credits through the public health department.

Pumper: How many places have regulations in place for indoor reuse, for example flushing toilets?

Allen: I don't know this regulation as well as I know the outdoor. In theory you can do it in a lot of places. In practice there's more concern because there's more risk of contact.

In the California plumbing code there is a category for treated graywater, NSF 350 certified, and then you are allowed to flush toilets with it. You have to get a permit, local approval, but there is a state pathway to do that. Most states that allow graywater do allow both outdoor and indoor use, although in practice it can be much harder to get permitting for the indoor use.

Pumper: Can you talk about the lodges project near Yosemite National Park?

Allen: This is one of my favorite examples of appropriate use of graywater. They did this big project at Evergreen Lodge to take the shower water from each of their cabins and direct it through a gravity-flow system, really simple, to irrigate the landscaping right by the cabin. There's 55 cabins, so these simple systems are irrigating with over a 1 million gallons per year.

Then they have their commercial laundry, and a simple system wouldn't work. So they're pumping, filtering and sending water into the forest to create a hydrated buffer zone for potential fire protection. Then they have their staff showers, and those are also pumped and irrigate the landscape.

They built a sister lodge after they had the success with Evergreen Lodge, and from the beginning they implemented reuse of all the graywater. They're also sending the blackwater out to the forest.

Pumper: What was your involvement in the case of the Minnesota Amish?

Allen: I was contacted by the lawyer for the Amish as an expert witness. In Minnesota, graywater is sewage because there's no legal separation between the two. These Amish famers have outhouses, like composting toilets, and they don't have kitchen sinks. They have dry sinks, like a bowl, that they dump out. Their showers and washing machines used a "straight pipe," basically a big pipe going into the field. This is rural.

Graywater is allowed in a lot of places in the U.S., so I was called as a witness to give the bigger picture. If it were in Arizona, what they were doing could have been totally legal. I visited the farms and saw their systems, and they redid them before I got there to make it all subsurface.

Pumper: Can graywater reuse help people with onsite systems?

Allen: I've had people tell me of others who divert their graywater because their onsite systems aren't doing well. And those people don't really want to reuse the graywater. They just want to dump it. So we help them do it better, to make sure they're not causing unanticipated problems.

Some blackwater people think that keeping graywater out will cause problems in a standard onsite system. But there was a study done in New Zealand where they tested one failing septic and one functional septic. They tested the effluent of both systems, and then they pulled out all the graywater and ran it for a while, and they found it improved the efficiency of the failing system, probably because it increased the retention time.

Pumper: What was it like being an expert witness in the Amish case?

Allen: I've talked with very many skeptical people, but it felt like they wanted to understand. But in a courtroom it's completely different. They want to win. They don't want to understand.

It was very sad to see how the Amish were being treated. And their lives are very respectful, overall, of the environment. One of the most ironic things was in that county, people are legally allowed to pump out septic sludge and spread it on the surface of a farm with no permit. But they can't put their shower water into the field? It's like, what's more dangerous?

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He's a Designer, Installer, Pumper ... and Dancer?

High-stepping Dwayne Crocker preaches professionalism and hard work through involvement in the Georgia Onsite Wastewater Association

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 Georgia Onsite Wastewater**

Association

Name and title or job description: Dwayne Crocker, owner/

operator Business name and location: Crocker Septic Tank Service, Kathleen, Georgia

Services we offer: We pump, install and repair septic systems. We also manufacture 70 to 90 concrete tanks a year, anything from 500 to 3,000 gallons. And my favorite thing is designing. I love drawing and laying out designs.

Age: 57

Years in the industry: 34 years. But the business is 40 years old, started by my dad, G.L. Crocker.

Association involvement: A member of the Georgia Onsite Wastewater Association for eight years, currently serving a third term on the board of directors. And I teach continuing education classes.



Dwayne Crocker (right) with his father G.L. Crocker, and technician Shawn Thomas. The equipment is a CASE 55B excavator and Massey Ferguson L105E loader.

Benefits of belonging to the association: I enjoy being able to participate in building a bridge with others in the industry. But, most of all, it's having a voice that's heard. Being on the board carries weight working with the Georgia Department of Public Health. If we have to function under the regulations placed on us, it's nice to know that our experience in the field is taken into consideration. And we have somebody sitting at the state level in the legislature looking for things that could be coming our way.

Biggest issue facing your association right now: Membership is our biggest downfall — and getting members to serve. GOWA is good for the industry so I don't understand why our numbers are so low. It's here to recognize, promote and support the industry. We're fighting for everybody whether they're a member or not, so maybe people think, "Why even be a member?" But you need those fresh new ideas, new blood, to energize and move this association to the next level.

Our crew includes: Shawn Thomas works with me. He and I like to compete with each other to see which one can outdo the other. He's 20 years younger than me and definitely challenges me every day. That competition is healthy and it makes the job fun. Plus, we have a real good friendship. When we do a job, I'm there from start to finish and he's right by my side. And my dad just turned 81 and at the last family Christmas announced he wanted to retire. We have worked side by side for the last 34 years so it's a hard thing for me and I'm trying to make the transition. He still calls every other day and says, "If there's something you really need today, let me know."

Typical day on the job: It usually begins at 5 a.m. when I do invoices, estimates and paying bills. Shawn gets here about 6:30 a.m. and by 7 a.m. he's checked the oils, aired the tires, trucks are loaded and we're ready to pull out. We do our installs and repairs Monday through Thursday. We try to save Thursday afternoon and Friday for pumping so we have some relaxation. It's kind of a breather after some of the jobs we put in. We work about eight hours and then the third part of my day begins which is returning calls and texts and making appointments. We work manufacturing in. We may come in early to set up and pour concrete. The majority of our tanks are poured late spring and through summer.

The job I'll never forget: A mound system for a house where the soil was unusable. To be 2 feet above the water table depth, we had a negative four starting point. The water table was only 20 inches. The drainfield had to go 160 feet from the house. And we had to do this without putting in a secondary tank with a pump. I designed the system, shot the grades and laid it out. The system took 16 loads of certified sand. And we needed 18 loads of



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Before and after — the challenging installation of an ADS Septic Stack mound system, a bundled pipe product.

sandy fill to cover and build the perimeter walls. The mound was 120 by 70 feet and was four feet higher than any other part of the yard. I used a multistack drainfield. We put 350 feet of pipe into that system. It was a three-week process. But I loved it. There's just something about putting an idea on paper, creating it, and seeing that it works just the way you wanted it to.

My favorite piece of equipment: By far the machine I have the most fun on is my John Deere 455 track loader. I just lose track of time.

Most challenging site I've worked on: I did an installation 20 years ago that was on such a steep hillside that we had to remove the tires on one side of the backhoe so we could dig level ditches.

Oops, I wish I could take this one back: There was a system we did that had three tanks — a 1,500-gallon, a 600-gallon ATU, and a tank with a pump. We pumped that thing about 120 yards to the drainfield. We spent two weeks designing and putting it in. But I wish I had never taken the job. I knew from day one, just from talking to the owner, they were not going to finish it out and take care of it the way it needed. They ran out of money, couldn't go any further, left the system unprotected. Within the first two months they couldn't use it. I went back and fixed some things. They never got everything done but it's been working the last four years. I learned a lesson that unless someone wants to do it the right way, I'm not the (installer) they want.

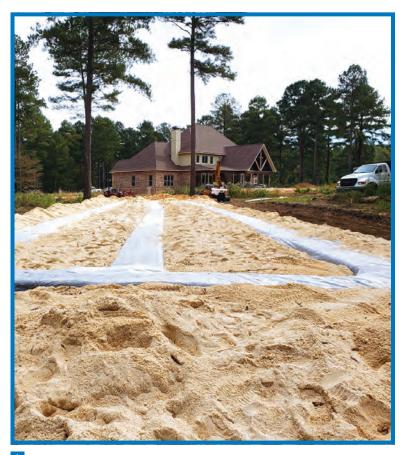
The craziest question I've been asked by a customer: The craziest stuff is the misunderstanding by homeowners of just what a septic tank is and how it works. They might have been standing there watching me but they'll say. "Are you sure you pumped it all out?" Homeowners do not have the understanding that once a tank is full, if you put two gallons in, two gallons goes out. If I could change one industry regulation, it would be: The state says we have to have a 6-inch minimum cover over a system, which I think is not enough to cover a system safely and prevent it from damage. I'd like to see it be 12 to 15 inches.

Best piece of small business advice I've heard: My dad said, "Watch what everybody else does and find one thing to do above that mark." One thing I've done that goes along with that is created an album of photos showing everything from how wiring should be done on a mechanical pump and how the floats are set, to what a yard looks like before, during and after a repair. If a customer asks a question, they get a visual explanation, and because they can see it, they understand it.

If I wasn't working in the wastewater industry, I would: I sometimes wonder what it would have been like if I had continued as a dancer instead of doing what I do. I am a choreographer, I have coached couples who have won events, I have judged, competed, taught private lessons. And I'm still heavily into that. This year I'm going to a ballroom competition in Tallahassee, a shag competition in South Carolina, and in December I'll dance Christmas in Dixie with the United Country Western Dance Council. In April I'm doing the Dancing Stars of Central Georgia, an Alzheimer's fundraiser. I had a chance to do a movie piece with Christopher Reeve 34 years ago but we declined because my wife Kelly and I were getting married. I've danced on stage for Reba McIntyre during her costume change.

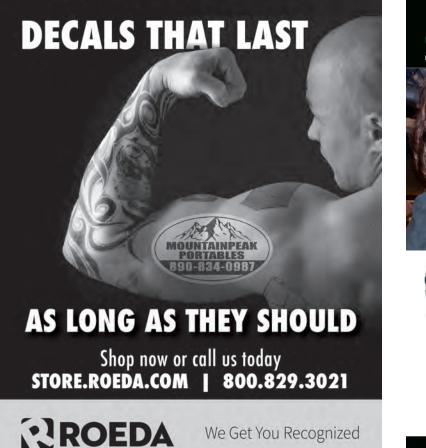
Crystal ball time – This is my outlook for the wastewater industry: I wish everybody in the industry would give all they could give for the protection of what they do. For a lot of people it's just all about money. Money is a huge part of it, but you have to care about what you do. One wrong thing puts a black eye on everybody. I'd like to see installers become more educated and take pride in what they do and how they do it. **P**

- Compiled by Betty Dageforde



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Delaware On-Site Wastewater Recycling Association www.dowra.org

Florida

Florida Onsite Wastewater Association www.fowaonsite.com 321-363-1590

Georgia

Georgia Onsite Wastewater Association www.georgiaonsitewastewater.com 706-407-2552

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

Idaho

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

Illinois Onsite Wastewater Professionals of Illinois www.owpi.org

Indiana Indiana Onsite Waste Water Professionals Association www.iowpa.org; 317-965-1859

lowa

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

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

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

Maine Association of Site Evaluators www.mainese.com

Maine Association of Professional Soil Scientists www.mapss.org

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

Michigan Michigan Onsite Wastewater Recycling Association www.mowra.org

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

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

Mississippi Mississippi Pumpers Association www.mspumpersassociation.com 601-249-2066

Missouri

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

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

New England

Yankee Onsite Wastewater Association (Massachusetts, Connecticut, Maine, New Hampshire, Rhode Island and Vermont) www.yankeeonsite.org; 781-939-5710

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

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

New Mexico

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

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

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

Ohio Ohio Onsite Waste

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

Oklahoma Oklahoma Onsite Wastewater Association 918-727-7113

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

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

Pennsylvania Onsite Wastewater Recycling Association www.powra.org

Pennsylvania Septage Management Association www.psma.net; 717-763-7762

Tennessee Tennessee Onsite Wastewater Association www.tnonsite.org.

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

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

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

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

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

Wisconsin Liquid Waste Carriers Association www.wlwca.com; 888-782-6815

NATIONAL

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

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

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

CANADA

Alberta Alberta Onsite Wastewater Management Association

www.aowma.com; 877-489-7471 British Columbia WCOWMA Onsite Wastewater Management of B.C.

www.wcowma-bc.com

877-489-7471 British Columbia Onsite Sewage Association

www.bcossa.org; 778-432-2120

Manitoba

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

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

New Brunswick

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

Nova Scotia

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

Ontario

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

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

Saskatchewan

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

Canadian Regional

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



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2015 Ford F650, Triton VI0 gas, auto, NON-CDL, 56K miles, NEW 1800 gallon steel vac tank, **NEW** Masport Viper vac pump **Call For Pricing! 1-YEAR NATIONWIDE DRIVE TRAIN WARRANTY**



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1-YEAR NATIONWIDE DRIVE TRAIN AND EMISSIONS WARRANTY



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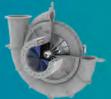
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Roth Global Plastics www.roth-america.com 866-943-7256 erlin Litzenberger added this Firemist brown 2021 Kenworth W900B built out by Nolt's Services and carrying a 5,400-gallon aluminum Martin's Truck Bodies tank and National Vacuum Equipment 4310 blower. The truck is powered by a 450 hp Cummins engine tied to an Eaton 18-speed transmission. Features include dual 4-inch inlet valves and a 6-inch discharge, aluminum fenders and a Garnet SeeLevel gauge. Graphics were provided by Brown's Signs. The tank and fenders were sprayed with AlumaClear clearcoat by Good's Gransport. Litzenberger is the driver and the truck is used to haul municipal sludge and commercial wastewater.

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Fruitland 870 Series

Fruitland's 870 Series pump allows vacuum levels of 28.5 inches Hg and continuous vacuum of 27 inches Hg. Additionally, it is capable of providing 30 psi pressure for offloading. Oil consumption is 1 gallon for 18 hours of operation to reduce consumption



and environmental impact. Locally sourced, nonproprietary oil may be used. The pump delivers 510 cfm (free air) through 4-inch porting. **905-662-6552; www.fruitlandmanufacturing.com**



Masport Titan

The Titan vacuum/pressure pump from Masport has a washable stainless steel inlet filter, integral mounting bosses for alignment with the gearbox and hydraulic mount, an automatic adjustment-free mechanical oil pump and heat-stabilized Kevlar vanes machined to exacting tolerances. It can achieve a minimum of 407 cfm at 27 inches Hg

and is fan-cooled for higher continuous vacuum operations. It has heavyduty bearings, Viton oil seals, vane-wear inspection ports and durable, translucent high-temperature oil lines that allow visible flow of oil to the pump. End thrust protection prevents rotor-to-end-cover contact created by direct PTO drive or misaligned belt-driven systems. It comes with 3-inch NPT bolt-on valve flanges for ease of installation, a 1/4-inch NPT vane flush port, integral vacuum relief valve, an integral valve that allows the pump to operate in vacuum and pressure mode, and O-ring end covers that eliminate air or oil leakages. **800-228-4510; www.masportpump.com**



Moro USA PM90T

Designed for continuous use on vacuum trucks for liquid waste applications, the PM90T vacuum pump from Moro USA offers performance at high ambient temperatures. This Turbo Series vacuum pump utilizes dual fan air-cooling and moves air at 430 cfm, 29 psi

at very low rpm. Weighing 470 pounds, the pump body is built with cast iron and features Kevlar vanes, Viton seals, integrated non-return and four-way built-in valves, 3-inch elbow connections, drive shaft, attached lifting hooks, and a visual inspection port. It has a closed-lubrication system for minimum oil-consumption and includes a versatile stainless steel oil tank that can be mounted left-side, right-side or used as a remote oil tank. **866-383-6304;** www.morousa.com

Presvac Systems PV750

The Presvac Systems PV750 rotary vane pump is designed for continuous fullvacuum operation in extreme conditions. It offers 400 cfm at free air, 350 cfm at 15 inches Hg, a maximum vacuum of 27 inches Hg and maximum pressure of 35 psi. Dual



fans and twin ballast ports efficiently cool the pump. The solid housing with deep cooling ribs allows greater heat transfer from the vacuum chamber. Aluminum fans and shrouding work like a heat exchanger. Multiple manifold and drive options are available for truck, trailer or stationary applications. **800-387-7763; www.presvac.com**



Wallenstein Vacuum 753 Series

The 753 Series vacuum pump from Wallenstein Vacuum is designed for longer service life, incorporating wide vanes that allow up to an inch of wear. It provides 422 cfm airflow at 1,200 rpm and vacuum levels up to 28 inches Hg. Options include air-, liquid- or dual-cooling systems where air injection is combined with liquid cooling. A pump-flushing port is included on the

top valve for convenient maintenance. The quick-access housing end plate allows for easy internal inspection with no bearings to pull. Oil lubrication is via a mechanical piston pump driven by shaft rotation or available with a sight-feed valve oil regulator system using vacuum/pressure to draw oil with no moving parts. **800-801-6663; www.wallenstein.com**

Westmoor Condé PowerPaks

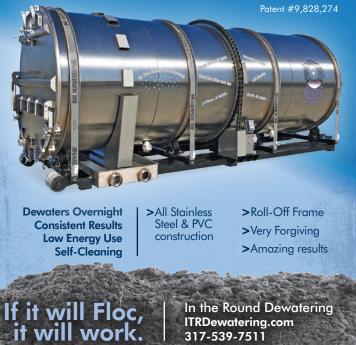
Westmoor Condé PowerPaks are preassembled gasoline or diesel-powered vacuum pump units. They are easy to install, according to the maker, and include a heavy-duty steel base with aluminum diamond plate trim and belt guard. Rigid assembly is designed to ensure



minimum vibration and maximum power. They are available with either vacuum only or vacuum/pressure pumps. A wide range of cfm options ensure the PowerPak is matched to the tank size and application. Units are powered with optional Honda GX Commercial Series gasoline engines or Hatz industrial air-cooled diesel engines. Units can be easily transferred to another tank system when needed. **800-367-0972; www.westmoorltd.co**



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PRODUCT NEWS



SEPTIC TANK CONSTRUCTED FROM RECYCLED MATERIAL TO MEET HEIGHTENED DEMAND

Demand for 1,000-gallon septic tanks was greater than Infiltrator Water Technologies could supply. The company's solution was developing the CM-1060, a compression-molded septic tank manufactured from recycled polypropylene.

"Infiltrator developed the new tank based on the need to increase production capacity," says Josephine Alfiero, content marketing coordinator for Infiltrator. "Compression molding is a new manufacturing process to Infiltrator. This process allows us to greatly increase production rates and overall volume."

According to Infiltrator, compression molding provides an improvement in thermoplastic septic tank design, offering long-term strength and watertightness.

The tanks design makes it relevant to many water storage applications. "The Infiltrator CM-1060 is suitable for use as a septic tank, pump/trash tank or rainwater storage/harvesting tank," Alfiero says. "It can be installed as a single tank or in serial tank configurations."

Along with versatile use, Infiltrator made sure the design was built to last. Each CM-1060 has reinforced structural ribbing and fiberglass bulkheads, along with two, 24-inch access ports structurally reinforced to help eliminate distortion during installation and pump-outs. The tanks can be pumped dry during pumpouts and no special water-filling requirements are needed.

The CM-1060 has a total capacity of 1,309 gallons and a working capacity of 1,111 gallons. The dimensions are approximately 62 inches wide by 134 inches long and 54.5 inches tall, and each tank weighs roughly 331 pounds. The tank can be installed with 6 to 48 inches of cover, and heavy-duty green lids interconnect with EZsnap risers and pipe riser solutions. The plastic tanks contain inboard lifting lugs for delivery and handling. The tanks have a two-piece design for shipping and storing efficiencies.

"We spent years developing the process, and we're pleased with the result and features it will bring to our customers," says Roy Moore, executive vice president of Infiltrator Water Technologies. "Most importantly, the addition of the CM-1060 represents significant increased tank production capacity to support customer demand."

Though the product is fairly new, Alfiero says the debut was well received by pumpers and installers. "Those who viewed the tank at the 2022 WWETT Show shared positive comments about the rounded ends of the tank, thinking it would translate into more structure." **800-221-4436; www.infiltratorwater.com**



COXREELS Extreme-Duty XTM Series spring rewind reel

The XTM Extreme Duty Reel from COXREELS is based on the TMP T-Series Medium Pressure product line, and uses all the options available in the COXREELS lineup with some unique features for rugged environments. All sizes of the XTM Series

feature stainless steel rollers integrated into the welded steel box frame. The reels utilize dual permanently lubricated bearings, rigidly fixing the drum assembly to the solid 1-inch steel axle for consistent stability even in the most vibratory and impacting environments, while still maintaining an external fluid path for easy service. The reels feature swivel retainers, which prevent unwanted vibratory loosening of threaded components and easily accessible ratcheting mechanisms. High temperature, steel core arbors transfer the powerful heavy duty spring motor torque to the multiple supported axle ensuring reliable rewind in odd positions or dirty situations. **800-269-7335; www.coxreels.com**

Kenworth medium-duty trucks powered by natural gas

Kenworth now offers the Cummins B6.7N natural gas engine for new Kenworth T180, T280 and T380 trucks designated for operation in the U.S. The Cummins natural gas engine features spark-ignited combustion with cooled EGR and a maintenance-free three-way catalyst. It has a closed crankcase



ventilation system and onboard diagnostics for optimal emissions performance. The near zero-emissions engine is certified to the California Air Resources Board's optional low NOx standard, which is 90% lower than the current U.S. Environmental Protection Agency standard. Rated up to 240 hp and 560 ft-lb of torque, the engine may be used with either a compressed natural gas or liquefied natural gas fuel system. **425-828-5551; www.kenworth.com**



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Upcoming Training & Events

Septic System Design

NAWT Installer by CPOW October 14, 2022 Location: Virtual Online Course Contact: Lisa Nicoll cpow@cpow.net

UA Introduction to Design of Onsite Wastewater Systems

November 7-8, 2022 Location: Maricopa, AZ Contact: Kitt Farrell-Poe, kittfp@email.arizona.edu

UA Advanced Design of Onsite Wastewater Systems

November 9, 2022 Location: Maricopa, AZ Contact: Kitt Farrell-Poe, kittfp@email.arizona.edu

Inspector Training

UA/NAWT Inspection Training Course August 15-16, 2022 Location: Casa Grande, AZ Contact: Kitt Farrell-Poe,

Contact: Kitt Farrell-Poe, kittfp@email.arizona.edu

> Online NAWT DOT CDL Pre and Post Trip Inspection Course

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UA/NAWT Inspection Certification Renewal Course August 22-23, 2022 Location: Virtual Online Course

Contact: Kitt Farrell-Poe, kittfp@email.arizona.edu

Soils Workshop Schedule

NAWT Soils by CPOW August 30-31, 2022 Location: Western Slope, CO Contact: Lisa Nicoll cpow@cpow.net

UA Soil & Site Evaluation for Onsite Wastewater Systems

September 7-9, 2022 Location: Sierra Vista, AZ Contact: Kitt Farrell-Poe, kittfp@email.arizona.edu

NAWT Soils by CPOW

September 20-21, 2022 Location: Alamosa, CO Contact: Lisa Nicoll cpow@cpow.net

UA Soil & Site Evaluation for Onsite Wastewater Systems Course

October 7-8, 2022 Location: Maricopa, AZ

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Contact: Kitt Farrell-Poe, kittfp@email.arizona.edu

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Liberty Pumps building new material handling center

Liberty Pumps' new material handling center is under construction and on track to be completed by the end of 2022. The 107,000-squarefoot expansion will house both raw

and finished component inventory, and allow for more efficient tracking and flow of components to manufacturing. The expansion will also allow for additional manufacturing space in Liberty's current building when material storage is moved to the new facility.

Milwaukee Tool opens office in Chicago

Milwaukee Tool opened a new office in Chicago. The location will serve as an engineering design and innovation space to accommodate the company's continued investments in new technology. Over the last decade, the company has experienced double-



digit growth globally and employs more than 10,000 people in the U.S.



SJE names chief information officer

Tim Fowler has joined the SJE leadership team as chief information officer, a new position for the company that will oversee IT initiatives and the current IT team. He will be based at SJE in Plymouth, Minnesota. Before joining SJE, Fowler held a series of roles at Polaris Industries.

Tim Fowler







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2000 International with Cusco High Dump 27", DOT Certified, 412 with vacuum pump, pressure offload as well. Cummins Power with low miles and hours. KLM Companies 617-909-9044. (PBM)

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2004 US Jetting 4018-600, 4000 PSI ,1150 hours, Hatz Silent Pack Diesel Tier 3, 500' 1/2" hose, hyd. reel, mini reel with 1/4", 600g, \$20,000. dick@servicepumpingdrain. com, 781-589-4133 (P08)

2001 Harben DTH-300 jet trailer with a Harben radial piston diaphragm pump 16 GPM @ 4,000 PSI driven by a Hatz diesel engine (888)VAC-UNIT (822-8648) www.vsirentalsllc.com.

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2021 Freightliner 114SD cab & chassis with VACALL AJV1215 combination j/vac with 12 cubic yard debris and 1,500-gallons of water with a Roots 824 blower & general MWSR50 water pump. Stock# 057R. www.vacuumsalesinc.com

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We have 2 tanks for sale and 1 truck! Mid State 1600 Gallon Tank 500 fresh, 1100 septic \$22,000 and Satellite 300 Gallon Tank \$15,000 GMC 3600 HD Flatbed \$75,000 300 Gallon Tank can be combined with our GMC 3600 HD Duramax dually truck, Honda pump, + fresh water tank for full set up! Colorado Site Services events@cositeservices 970-963-2482 ask for George or Vicky. (P07)

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2012 Ford 550 2WD Diesel Satellite Truck. 600-waste/350 fresh water tank, Conde Pump. Mileage 276,261, good tires. \$20,500 0B0. Please call 775-635-9600. (P07)

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

PORTABLE RESTROOM TRUCKS



2016 Hino 338 Flomark 2000 gallon Portable Restroom Truck Split 300 Fresh/300 Brine/1400 Epoxy coated waste tank, 250,000 miles, Winter package, Heated tool box , dump valve, bucket fill, heated fresh water tank. **\$50,000.00** 0B0 Dale 708-878-4391 (P09)

2006 Satellite MD- 900 Ford F-550 Super Duty 6.0 L Powerstroke. 650 Waste 250 Fresh, PTO Driven Vacuum Pump. New Jasper transmission, New turbo, Engine started puffing white smoke and we haven't ran it since ,Likely blown head gaskets. Will separate Tank from Truck if you're interested in the tank only. Call or Text Corey 217-442-5400 for Info and Pictures. (P07)



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New Imperial 1,300 U.S. gallon, portable toilet service unit mounted on a 2022 Ram 5500 cab & chassis with a Masport HXL4V pump package. Stock# 14033. www.VacuumSalesinc.com (888) VAC-UNIT (822-8648). (PBM)

New Imperial 1300 U.S. gallon, portable toilet service unit mounted on a 2022 Ford F550 cab and chassis with a Masport HXL4 pump package. Stock # 14029. www.VacuumSalesInc.com

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SEPTIC TANKS



2009, Mack G0713 Diesei Septic Truck 325658.2 Miles, Manual Transmission, 3600 gallon capacity, **\$68,500.00** phone 352-644-3341 (P07)

SEPTIC TRUCKS



2007 Sterling MBE 8 LL 4800 gal. aluminum tank, jetter, 470k miles. Worked daily until bought one year ago. Never put in service locally. Changed plans, discontinuing pump services. \$47000 OBO . Please contact Daniel or Mark at office@mrrootersavannah.com or 912-330-7091. (P07)



2020 WASTECORP TVP-1600 Gallon-DT SUPER DUTY VACUUM TRAILER-Practically NEW, used twice. \$48,000 312-659-5819 or ericwconrad@gmail.com INCLUDES: - DOT Approved Trailer w/ LED Lights & E-Brakes - Single Compartment 1600 Gallon Heavy Duty Steel Tank - 230 cfm Vac Pump w/ 14 HP e-start gas engine -3" x 175' Suction hose w/ 5' Vac Suction Wand - 4" offload port w/ bronze lever valve - 25" Manway rear door - Two 5" Sight Eyes at rear of tank - Painted Epoxy White (P07)



1996 KW, Cummings motor N14 435 HP, 18 speed transmission, 2008 Progress 4500 gallon tank, **506 Challenger** pump. Asking **\$72,500.00 (P07)**



1996 KW w/ Cummins, 10 speed Eaton fuller, 157k original miles on it. Everything works down to AC/ heat... 6400 gallon tanker ready to roll- **50k. 281-852-9517. (P07)**

Submit your classified ad online! www.pumper.com/classifieds/place_ad 2011 international 5900l heavy spec truck 4,700 gallons lsx 525 cummins 18speed everything works masport 400 the only thing the truck needs is paint has new tires on all axels other then drop axel truck is ready to work \$58,000.00 call or text for photos and more information (951)963-6337 James. (P08)



2005 Sterling, 4200 gallon Steel tank (18 months old), Fruitland 870 Pump (18 months old/501CFM), Allison 4500 Transmisson,Cat C13/430 HP, Double Frame,20k Front,46k Rear, 14k Lift axle, 80% rear tires, 25% front tires, sea level gauge, 4&6" NVE Valves. 535k Miles but still in use. **\$89,000 Call/text** 816.988.6650 (P07)



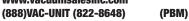
2013 Kenworth T660, Paccar engine, 425 hp, 10-speed, double frame, 18,000 Ibs front/40k rear, New tires all around, 4000-gallon steel tank, Masport hydra plug and play. \$119,900 Call Alan 786-908-5436 (P07)



2015 Freightliner M2, Septic 2500 Gal, 41,306 Miles, Brand New Tank and System, AUTOMATIC Trans Alison, 174 WB, **\$33,000 GVW For more info call 786-302-4989. (P07)**

2014 Freightliner Cascadia Vacuum Tank truck (white). 3,300-gallon New Tank (red). New NVE 360 cfm pump. Clean Interior. Good Cold A/C. Air Ride/ Air Brakes (jake brake). DD15 Engine. 60% Rubber on tires. Mileage: 457,286. Price: \$70,000. 1-800-721-2774 (PBM)

Pre-owned 2000 Mack RD686S cab & chassis with a 4,000 U.S. gallon, carbon steel, vacuum tank unit. (Stock #0514CV) www.vacuumsalesinc.com





2008 International ProStar Vaccum Truck. 10 speed transmission with 427,000 miles. 4,000 gallon tank, pump NVE 607, aluminum hose trays and tool box. Truck just got a fully serviced and runs great. Located in New Orleans, LA, will ship nationwide. Price \$75,000.00. Call or email for more info: Cliff Collins 225-329-8112 ccollins@ legacyindustries.net (P07)



2005 Sterling, 460h.p mercedes, 403k, 10spd, AC, cruise, 20k front, 46rears, 20k lift axle, Hendrickson suspension, double frame, newer 4600 gal tank and Fruitland 500 vac pump. Clean southern truck. Financing and delivery available, \$49,000.00. Hull's Truck Bodies LLC 740-820-5338 (P07)



99 Peterbilt, 3126 Cat, 160k, 10spd, AC, cruise, New 2500 gal tank, stainless steel hosetrays, and Fruitland 500 vac pump, paint, tires and alum wheels. Very nice truck with all new equipment. Financing and delivery available, \$55,000.00. Hull's Truck Bodies LLC 740-820-5338. (P07)



2004 International, Dt466, 259k, Auto trans, AC, cruise, 25,900 gvw, New 2000 tank, stainless steel hosetrays, Jurop R260 vac pump, new tires and alum wheels, very nice truck. Financing and delivery available, \$55,000.00. Hull's Truck Bodies LLc 740-820-5338 (P07)



2003 Peterbilt, 3126 Cat, 86k miles, Allison auto, AC, cruise, 1600 gal stainless steel tank, 1000/600, masport 75HXL vac pump, pot rack. Great running truck. Financing and delivery available, \$49,000.00. Hulls Truck Bodies LLC 740-820-5338 (P07)

New 4,000 U.S. gallon, aluminum, vacuumpressure tank mounted on a 2023 Peterbilt 548 cab & chassis with NVE Challenger 887 fan cooled vacuum pump Stock #14007 (888)VAC-UNIT (822-8648) www.vsirentalslic.com. (PBM)

New 4,000 U.S. gallon, aluminum, vacuum tank. Mounted on a 2022 Peterbilt 348 cab and chassis w/ a NVE Challenger 887 vacuum pressure pump package. Stock #14006 (888)VAC-UNIT (822-8648) www.vsirentalslic.com. (PBM)

Stainless steel 2010 Polar 3,600-gallon tank ready to mount on your chassis or sell outright. 20" rear manway, two 4" inch rear valves with full stainless hose trays. KLM Companies 617-909-9044 (PBM)



2008 Peterbilt 389 373,022 miles, 4242 aluminum tank, NVE 887 pump package call for pricing. Jerry Blake. 401-437-8942. jerry@tankservicesinc.com (PBM)

2001 Freightliner C-120 cab & chassis with a 2006 Presvac 3,200 U.S. gallon, C/S, dump type unit with a Presvac PV750 pump. (Stock #0480C). www.vacuumsalesinc. com (888)VAC-UNIT (822-8648). (PBM)



2005 Mack MRU 273,000 miles, 350HP, Auto trans, 5,400 AL tank, Jurop 200 (2 units). Jerry Blake. 401-437-8942. jerry@tankservicesinc.com (PBM)



2014 Ford F-550. Diesel. Automatic. 4WD. New aluminum back tank. 300 waste/250 water. HXL2 Masport pump washdown system. C0. Call JR @ 720-436-3910. (PBM)



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2007 international 2,500-gallon truck. 250,000 miles. New rebuilt engine dt466. Automatic 6-speed. New liquid cooled how 400 masport. Tool boxes. Excellent condition. New tires. 423-421-4347. (P10)

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)

Pre-owned 1984 Mack R686ST cab and chassis with a 3,000 U.S. gallon, carbon steel, vacuum tank unit. (Stock # 6115C). www.vacuumsalesinc.com (888)VAC-UNIT (822-8648) (PBM)

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2005 Hino Grease Trap Pumper / High Pressure Jetter Cleaning Truck - - -Mileage: 161,0020 - - - Ideal Truck for Restaurants, Schools and Super Market Grease Trap Cleaning and Jetting - - -Price: \$25,000 - - - Contact: Frank King 978-452-7750. (PBM)

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2019 Ford F550 4x2 6.7L V8, 6-Speed, 16' Box 19,500 GVRW, 34,500 Miles, Onan diesel generator 7.5 KW, Power boom crane, EVO 3 interior package, Roof mount AC, Wall mounted heater, 20 gallon wash-down, 32" rear monitor, Auto payout reel with 1,500' cable, OZ2 camera with sonde, SPR2 8"-60" wheeled transporter, Rear view camera for SPR2, LAMP2 lateral launcher with micro PT head and fixed view head, Rear view camera for LAMP2, Two 150' push cable for LAMP2, Summit wireless electronics, Gnet software with PACP and LACP modules \$315.000. Scott 503-720-6874, scott.b@lovettservices.com (P07)

VACUUM LOADERS

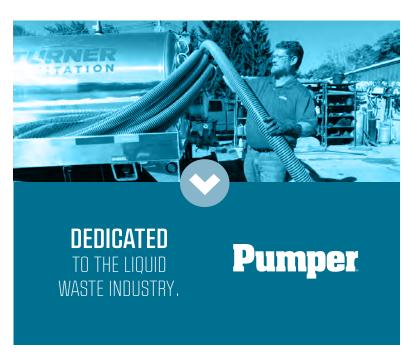
2022 Freightliner 114SD cab & chassis with a VACALL AV18 wet/dry Industrial, vacuum loader with 8" top load boom assembly. www.vacuumsalesinc.com (888)VAC-UNIT (822-8648) (PBM)

2000 Guzzler Ace International chassis with CAT engine. Great running truck and blower. Tank body was recently replaced brand new from Guzzler. KLM Companies 617-909-9044. (PBM)

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