December 2023

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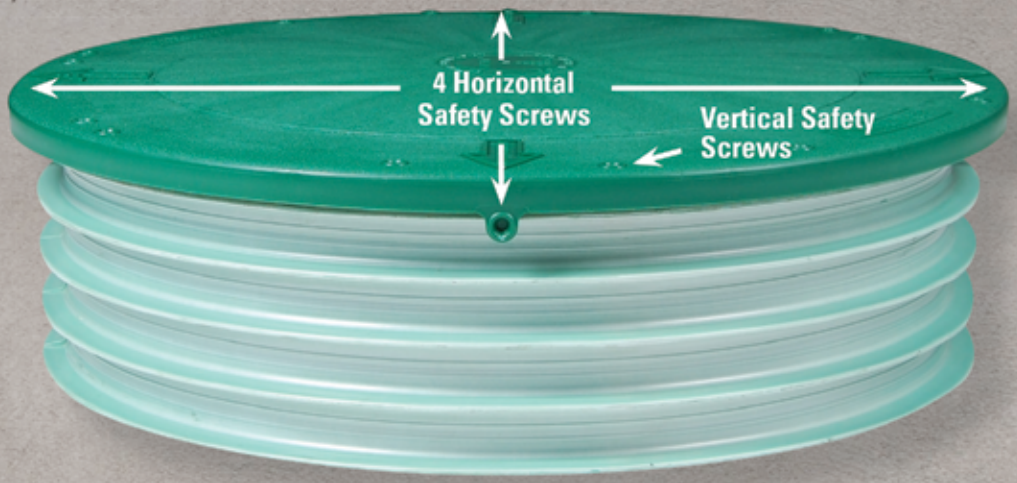

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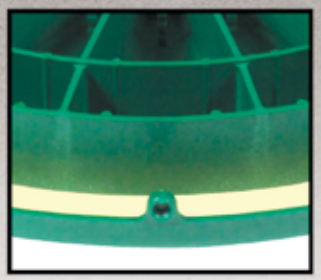

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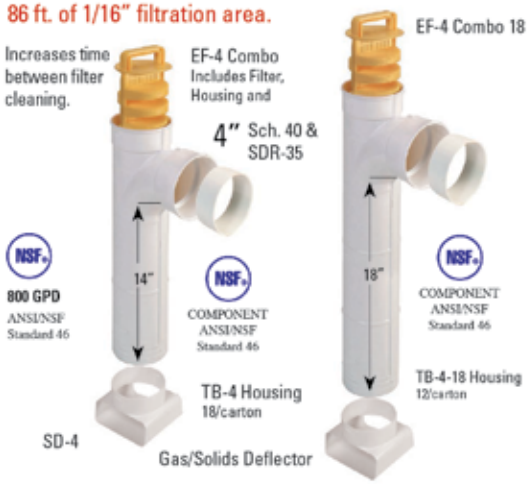

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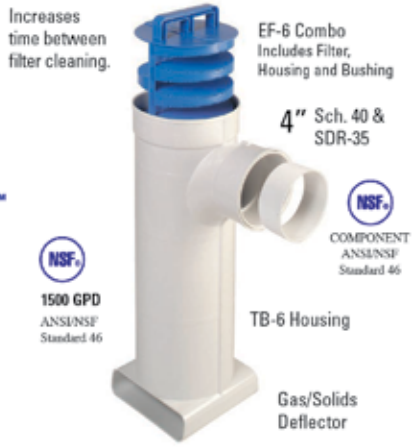

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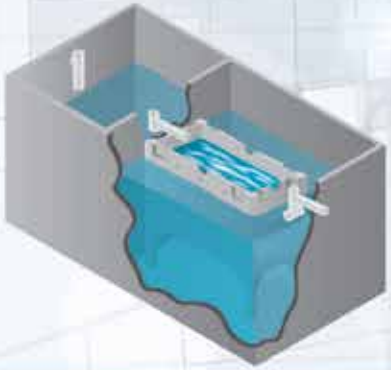

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Industry Influencers
By David Steinkraus

ON THE COVER:
Penn's Trail Environmental formed in 2008 and provides a variety of onsite and environmental project work for residents in Maryland and Pennsylvania. Adam Browning, operating officer for the company, is shown during a site evaluation with a Deere 35G excavator. (Photo by Hannah Beier)

Coming Next Month

ISSUE FOCUS: WWETT Show Issue
System Profile: A motel-campground system solution
Contractor Profile: Going big with Oregon systems

ONSITE installer™

Published monthly by
COLE publishing
P.O. Box 220,
Three Lakes, WI 54562

Call toll free 800-257-7222;
7:30 a.m.-5 p.m. Central time, Mon.-Fri.
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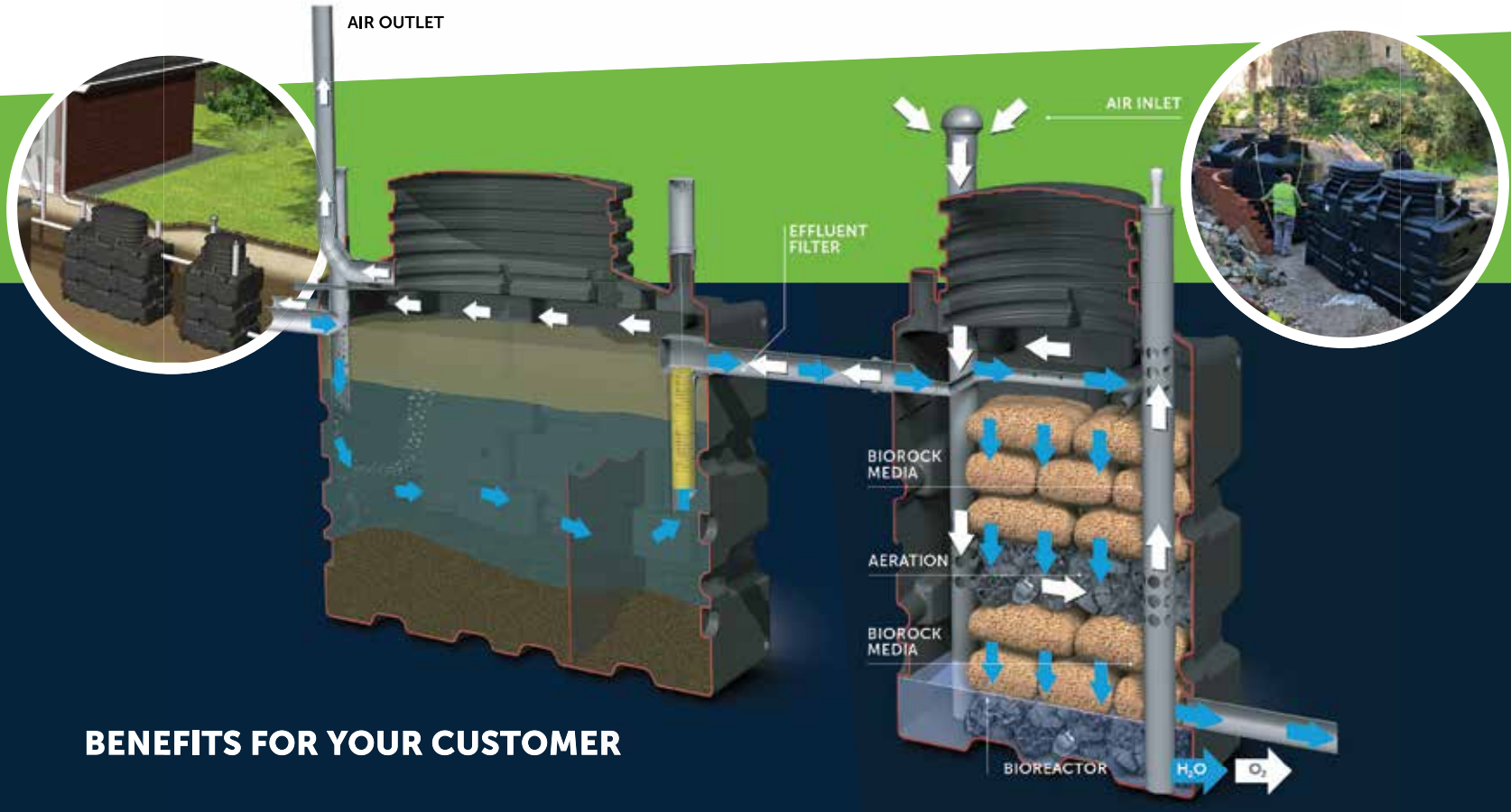

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Overheard Online
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– Customer Follow-Up Is Crucial to Avoid Wasted Business Opportunities
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Mitigating Unsafe Conditions
Unsafe conditions often exist because employees don't see it as part of their jobs to address the issue. Maybe they're timid about reporting an issue or feel like they might "cause trouble for someone." Sometimes, employees may not even realize that the unsafe condition is a hazard since they aren't trained in certain aspects of workplace safety. Here are tips to ensure all your employees feel empowered to speak up when there are unsafe conditions that need addressing. onsiteinstaller.com/featured

3 THINGS TO KNOW
Scouring Velocity
Scouring velocity is never simple, because of variables such as size and type of pipe and the type of solids you are trying to clear from the pipe. In this exclusive online article, columnist Todd Stair answers a three-part reader question about scouring velocity, including whether there is any credible evidence that supports a 2 feet per second scouring velocity in pressurized pipe. onsiteinstaller.com/featured

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The Tale of 2024 — Grow or Go Home?

As the customer calls keep coming, will overburdened installers add to the crew or ratchet back on workload?

It looks like there is no end in sight for rising homebuilding in the United States. High interest rates, inflated construction material costs and some shaky economic indicators don't appear to be dampening the demand for new housing.

The situation was put to me this way a year ago by a Realtor helping my son find a home to buy: We have hundreds of thousands of young people looking to purchase their first home in our state, but very few homes available for sale. The implosion of the residential construction industry that happened 15 years ago brought most new construction to a halt for a decade. The homeowners who would step up to a new home can't find one, so they stay put.

Today, construction is getting back on course, and much of it is happening outside of our cities, which requires septic systems. In addition, millions of existing septic systems in the United States have reached well beyond their predicted life expectancy and need replacement. The result, of course, is that you and your installing crews are insanely busy.

Every week I talk to at least one installer who is seemingly stretched beyond his or her limits. Of course, it's always better to have jobs stockpiled into the future to fill the calendar. But there is a fine line between when a job list feels good for your company's long-term sustainability and when these calls become overwhelming. At some point, customers are no longer satisfied to wait for your excavators to show up and start digging.

That's when you have to do something, whether it is turning down work and stagnating or hiring workers to keep on growing.

At the end of 2023, I'd like to ask: Are we there yet?

EXPAND NOW?

If you choose to hire a new crew, chances are very good that additional workload will find you. For several reasons, I don't think installers have to worry about keeping new staff busy.

New-construction demand will continue. Indications are that new construction will remain healthy for the foreseeable future. While costs for homebuyers rise, particularly due to interest rate fluctuations, it seems like rising home prices are being offset to a degree by escalating wages for the American workforce. And the pent-up demand after a decade of little to no homebuilding is significant. Also, from talking to installers, my hunch is that each new system will be more profitable moving forward. That's because so often the best land has been developed and builders need more advanced treatment solutions to add homes on what were previously viewed as substandard lots.

From talking to installers, my hunch is that each new system will be more profitable moving forward. That's because so often the best land has been developed and builders need more advanced treatment solutions to add homes on what were previously viewed as substandard lots.

More systems fail every day. I read a recent report out of a small Canadian town where existing septic systems were being inventoried as part of an environmental initiative. While it was a small sample size, well more than half of the systems were either failing, out of compliance with sizing rules or required repairs or upgrades. I think this mirrors the onsite situation everywhere. By nature septic systems are out of sight, so out of mind. Many existing systems are 40, 50 or more years old and no longer functioning as designed. At the same time, county and state health departments are starting to crack down on failing systems. These factors converge to ensure a steady workload for installers.

Municipalities don't have money. I am hearing it more and more. Cities once eager to extend sewer service into outlying subdivisions are rethinking that trend. Government budgets are tightening, infrastructure project costs are rising exponentially, and government labor and pension costs are rising as much or more than the private sector. Suddenly to these overburdened bureaucrats, decentralized wastewater is looking like a great idea. Any option that will take pressure off of their treatment systems is seen as a good thing.

The installer workforce is graying. Our industry is a great place for young workers to land. The future of decentralized wastewater treatment is bright. Still, everywhere I look, some of our best installers are nearing the

end of their careers. Each time we blow out the candles at another retirement party, the demand for remaining installers grows. Tell your kids, tell your friends' kids about the great opportunities in the onsite world. We've got to turn this around.

OR PULL BACK?

On the other hand, turning down customers to achieve a better work/life balance will probably help reduce stress. But what long-term effect will this strategy have on your company?

Hurt the value of your business. Small businesses like yours typically need to view the company's assets and revenue stream as a retirement plan. If your inventory of machines is healthy and growing and the revenue from your customer base grows at a consistent pace, a buyer will be willing to pay more for the business when it comes time to sell. Some small business owners fail when they take their eye off this long-range goal and sabotage their retirement plan by deciding to retreat and stay small.

Reduce your pay. There are short-term implications to pulling back when demand for your work is high. At the end of the year, do you want to look at a flat or slow-growing profit and loss statement? This will impact how much income you as the owner can take from the business for expenses like the mortgage payment, new vehicles or sending the kids to college. We all have experienced the impact of rising inflation these days. If your dollar doesn't go as far as it used to, imagine how your budget might be pinched by deciding to cut back.

Strengthen your competitors. Every time you turn down a job, another company in your region lands the contract. So what, you might ask? You can to get by just fine losing a customer or two. But this will have a detrimental effect and cause problems over time. The competitor will use that added revenue to retain good workers, update equipment on a regular basis, and invest in a marketing plan to take more business away from you. And when you lose revenue, all of those things will happen in reverse, and your competitor might even offer more money to your best technicians.

HOW ARE YOU DOING?

What is your strategy for dealing with the persistent strong demand for your services? Share your thoughts by writing to editor@onsiteinstaller.com.

For those installers who are pulling 80-hour weeks and feel unable to control the situation, I hope you find a solution. Work is important, but so is having time to enjoy life outside of the trenches. I'll leave you with one story that highlights the concern I have for the overworked contractors in our industry:

We're trying to complete a profile story on a family installing company, but it's been difficult for the owner to find time to squeeze in a phone interview. His wife candidly told me she was worried about his stress level and exasperated with the situation. She finally told her husband she was planning a Christmas holiday trip with the grandkids and he could take time off to go along or stay home and work. I'm sad to report he decided to skip the trip and keep working.

INDUSTRY INFLUENCERS

The designers at Penn's Trail Environmental go beyond the drawing board to lobby legislators for support of decentralized wastewater

By David Steinkraus

When Piedmont Environmental dissolved in 2008 during the Great Recession, three employees bought the assets of the Pennsylvania company. They formed Penn's Trail Environmental, and after 15 years the business has grown and expanded into design and consulting work in two states.

Those three people were Paul Golrick, Maureen McDermott and Jack Dudish, says Adam Browning. Formally Browning is manager of the wastewater division, but he acts as operating officer for the company. Dudish is a macrobiologist, Golrick a professional geologist, and McDermott a wetland scientist. In both states, Penn's Trail provides a wide variety of services reflecting its founders' expertise including environmental assessments, geology and onsite design.

A couple of years after its founding, the company expanded into Maryland. The northeastern corner of Maryland is about an hour's drive from the Penn's Trail base in Hatfield, Pennsylvania, and the expansion happened because of a manufacturer's rep, Browning says. "He brought us down to assist with a drip dispersal design. That was about 12, 13 years ago, and we never left."

TWO-STATE SOLUTION

Although Penn's Trail technically covers all of Maryland, Browning says, they don't do much work on the eastern shore of Chesapeake Bay. "As far as soils are concerned, the majority of the inland side of Maryland is very similar to Pennsylvania. Both lie primarily on the piedmont geologic formation, so the soils are very similar. Once you get to the eastern shore, it's sandy; it's completely different. The need for our services isn't nearly as prevalent as it is on the dry side of the state."

Onsite design standards in Maryland and Pennsylvania are similar, he says. "They're all based off the Wisconsin mound system. However, Maryland is closer to the Wisconsin mound in its design details. Pennsylvania devised its own version of the Wisconsin mound."

<< Adam Browning of Penn's Trail Environmental in Hatfield, Pennsylvania. (Photos by Hannah Beier)

During a site evaluation in Ivyland, Pennsylvania, Adam Browning backfills soil using a Deere 35G excavator.

Yet Pennsylvania's version is more designer-friendly, Browning says. For example, lateral spacing and hole spacing on laterals are fixed. In Maryland, he says, the size of the mound dictates hole spacing and lateral spacing. For perk tests, Maryland requires open holes and infiltrometer tests. Pennsylvania requires perk tubes for sand mounds and in-ground systems, he says.

There is some seasonal slowdown in the business, he says, but you can look at soils at any time. "In fact, the last couple years, the way housing has been going, we barely saw a difference in business when winter came through," Browning says.

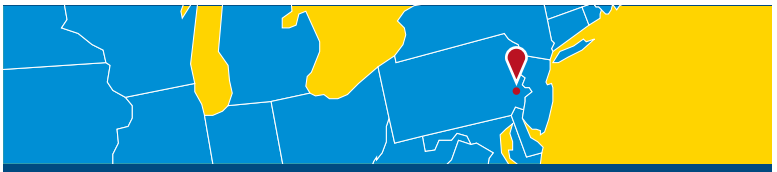
The far northwestern and southern corners of Maryland are about a four-hour drive from the Penn's Trail headquarters. Browning splits his time between the two states. "I'm usually in Maryland one to two days a week, and I'm doing soil testing, infiltration testing, that kind of stuff, to support a design."

The rest of his week is spent in the office. He maintains compliance documents on several systems that require regular samples. "What I like about my job is there's not a lot that's typical about it. In general I'm designing and doing infiltration and soil work daily, but it does vary."

TAKING COMPLEX JOBS

Personally, Browning says, he produces three to four system designs per week on average. The company's other designer outputs about the same.

Penn's Trail services don't break down into clean categories, Browning says. Everything is interrelated. Most of the soil work leads to design work, which in turn leads to compliance and maintenance work. Sewage-related services make up about 65% of the business, he says. Environmental disciplines such as site assessments account for the rest.



Penn's Trail Environmental LLC

Hatfield, Pennsylvania

Owners:	Paul Golrick, Maureen McDermott, Jack Dudish
Founded:	2008
Employees:	12
Service area:	Maryland and Pennsylvania
Services:	Soil evaluation, infiltration testing, system design, planning for wastewater, wetland permitting and delineation, geology work, wastewater service and compliance for wastewater systems, environmental site assessment.
Associations: (corporate and individual)	Pennsylvania Onsite Wastewater Recycling Association, Maryland Onsite Wastewater Professional Association, National Onsite Wastewater Recycling Association, Pennsylvania Association of Sewage Enforcement Officers, Pennsylvania Septage Management Association, American Water Resources Association, Pennsylvania Association of Professional Soil Scientists, Mid-Atlantic Association of Soil Scientists.
Website:	www.pennstrail.com

Adam Browning marks the spot where he dug a soil evaluation pit on a property he was hired to design an onsite system.

Because of the high skills of its staff, Penn's Trail tends to take on more complex jobs, he says. The company has done several multi-lot community systems and small-flow systems serving welcome centers.

When he talked to *Onsite Installer*, Browning was on the site of what would be a convenience store and next to a commercial complex the company also designed.

The commercial complex produced about 3,800 gpd and was served with a subsurface low-pressure dose system. The convenience store has a design flow of 3,000 gpd. On the same property is a liquor store with 400 gpd, and the system will use advanced treatment.

Membrane bioreactors have come up in conversation, he says, but he has yet to use one in a design. The technology does result in better soil loading rates, he says, but in the case of projects like the commercial complex, state regulations would require a licensed operator to be at the work site daily. "It just wasn't financially feasible for that particular project," he adds.

His largest project was a 28,000 gpd drip-irrigation field for a residential development of about 105 homes.

"For me to be at the top of my game, I need to be aware of everything that's going on, **so I make it a point to involve myself in anything and everything I can."**
Adam Browning

PREFERS PRESSURE

In Maryland the company designs a mix of systems using mounds or drip irrigation. For new construction, most systems use septic tanks and trenches although there is an increase in sand mound use, he says. Drainfields are typically hard pipes on top of aggregate and using gravity distribution. Chambers are used when access limitations make it difficult to bring in the stone for trenches.

"I'm not a fan of gravity. I would always prefer to have a pump in a system. Equal distribution is kind of my thing," Browning says. Gravity distribution doesn't work that well, he says, because the first couple of holes in a lateral will receive all of the water until they start to plug. So in a gravity system, a homeowner who paid for 300 feet of trenches is really using only 15 or 20 feet of them at any given time, he says.

Any time a pump is added to a system, such as to move water from a septic tank to a drainfield on a higher grade, it makes sense to eliminate the D-box, pressurize the whole system, and use the entire drainfield, Browning says.

Obviously, all the company's projects are controlled by soils on site, he says. "Where we're located in the southeast region of Pennsylvania, geologic formations clash so we have a mix of everything from really deep, well-drained soils to stuff that you can barely get a fork into."

LEGAL THINKING NOT A BAD IDEA

In Pennsylvania, onsite designs must be within a strict set of guidelines. "Whereas in Maryland, if I can support the design through testing and data, they'll allow me to do it," says Adam Browning, manager of the wastewater division at Penn's Trail Environmental. The company is in the outskirts of Philadelphia and works in both states. The Maryland border is about an hour's drive.

But if working in Maryland allows for more creativity, the related disadvantage is a potential for more legal liability. Browning says liability isn't a focus of his thinking, but he also doesn't ignore it.

"In every job I have to make the assumption that something's going to go wrong, and I'm going to be sued. I have to have enough data that if I'm standing in front of a judge, I can support my case," he says.

"I think it's a safe way to approach work. I've had to sit in front of judges and explain myself before. If you have everything there, you have the information and it's valid information, it's easy to do." Keeping liability in mind also protects the client's well-being as well, he says.

Fortunately, he adds, the company has enough work so that he can walk away from a job where he doesn't feel comfortable.

Terry Harris, of Penn's Trail Environmental, right, consults with a sewage enforcement officer for the Bucks County Department of Health at a work site.

Browning sets up a Topcon laser level to collect site data before an onsite system is designed on a property in Ivyland, Pennsylvania.

Developers in his area would like to see more municipal sewer system extensions, Browning says, but municipalities balk at the cost. "The biggest problem where I am is that the majority of the sewer is so old that the money goes to upgrading what is already there."

> "We have also been pushing (U.S. Environmental Protection Agency) to investigate the environmental benefit of using onsite systems over public sewer even where public sewer is available."
>
> **Adam Browning**

EFFECTIVE EQUIPMENT

Because the company's dirt work is limited, the list of heavy equipment that technicians use is short. A pair of John Deere 32G mini-excavators, one a 2021 and the other a 2019, handle any digging. Other equipment is much smaller.

Permeameters from American Manufacturing Company Inc. measure soil loading capacity.

"We've just recently purchased GPS surveying equipment. Although we're not surveyors, it's beneficial to us to be able to provide solid GPS coordinates to our clients," Browning says.

For design work, the subcentimeter accuracy of their Emlid surveying gear gives very precise locations of wells, property lines and other factors, which makes plans more accurate and designing easier, he says. All design work is done with the drafting software AutoCAD.

"With the GPS I can pick up every point I want to use. So home locations, locations of the corners of my septic system, test pits, perk holes, that kind of stuff can all be collected with the GPS unit. It's directly put into an AutoCAD-friendly format so I can bring that information into AutoCAD and have it placed accurately on a plan in a matter of seconds. What it's done for us is cut down what used to be a two- or three-hour process on site into 15 or 20 minutes, and it increased the accuracy pretty substantially."

Exact information can also be transferred to engineers or surveyors who need to look at a specific location, he says.

In addition to the principals, the Penn's Trail team includes Terry Harris, Devon Tarantino, James Haklar, Cody Kline, Shannon Petrillo, Abigail Stauffer, Marcy Witt and Holly Berryman-Moss.

INDUSTRY ADVOCATE

Each year, Browning says, he joins the NOWRA fly-in day to Washington, D.C., where he and other onsite advocates try to redirect some of the money that traditionally has gone to municipal wastewater projects. "We have also been pushing [U.S. Environmental Protection Agency] to investigate the environmental benefit of using onsite systems over public sewer even where public sewer is available. We haven't gotten that through the feds yet, but it's been talked about the last four or five years we've been down there. I think we're getting closer to it.

"What I like about my job is there's not a lot that's typical about it. In general I'm designing and doing infiltration and soil work daily, but it does vary."
Adam Browning

"Our potable water sources are depleting quickly, and septic systems are the No. 1 recycler of groundwater," he says.

"I certainly think we're getting noticed. We had success in this recent infrastructure budget. We were able to get what seems a quite large amount of money set aside for onsite systems. Up until that point, the money we got from the Clean Water Fund was about 1% of one-tenth of the overall funding. Countrywide, 30% of us are served onsite systems, and 80% of the country could only be served by onsite because the big pipe's not out there yet."

Browning says he also sits on the Sewage Advisory Committee in Pennsylvania. It's a stakeholders group that helps legislators review and write legislation. At the moment the Legislature is rewriting the section of law governing onsite systems. Two laws passed the Legislature to allow some newer onsite technologies, but the state Department of Environmental Protection did not interpret them as legislators or stakeholders intended, he says. The coming draft rules will supposedly remedy that, he adds. By the end of the year, he says, his advisory committee expects to receive the draft rules, and hopefully they will be ready for public comment early in 2024, he says.

LEARNING AND DOING

Browning is a certified sewage enforcement officer in Pennsylvania. "I don't necessarily have to be for what I do," he says. "Everybody in our office are certified sewage enforcement officers, more for the education that came along with it and to understand the program we're dealing with."

To earn the certification, Browning says, he attended a seven-day program. Recently he took a course that will enable him to train new sewage enforcement officers. "I want the industry to continue to advance as much as possible."

The same goes for the Pennsylvania wastewater operator's license exam, he says. He took it to inform his work, but he'll never qualify for a full license because he has no opportunity to acquire the necessary hands-on operational experience.

"For me to be at the top of my game, I need to be aware of everything that's going on, so I make it a point to involve myself in anything and everything I can," he says.

Browning did not grow up in the wastewater industry. "I come from heavy construction. I paved highways, built buildings, ran machinery, pretty much since I was 12 until I was about 21, 22 years old."

At the time he owned his own paving/excavating company, but he grew tired of the hustle. To an excavator friend he mentioned a plan to go back to school for another career. The friend worked for Piedmont Environmental. "About 20 minutes later he waved me over and said, 'You have a job starting tomorrow if you want it.' So I took the job, and I've been here ever since."

Browning says he'd always been interested in design work and learned about automated design during 18 months in community college. Everything he's learned, he's learned on the fly, he says, "which I think in certain aspects I've benefited from because it wasn't being told to me. It was, if you want to know, you have to go find it, and you appreciate what you're finding a lot more when you're the one digging."

Adam Browning sets up Emlid surveying equipment during a site evaluation for a new onsite system.

Construction experience makes him a better designer, Browning says, because he can allow for problems that someone without his experience won't foresee. For example, he will understand from the outset that heavy equipment won't be able to fit a small space to place a concrete tank, and he'll design for a plastic tank. That's minor stuff, he adds, but it's the kind of minor stuff that can make or break a project.

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ONSITE INNOVATIONS

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Tuf-Tite's New Look

Years ago, Tuf-Tite invented the first riser safety pan, allowing a concrete safety lid to be cast into a plastic riser system that could be placed anywhere in the column of risers. It's a design so innovative, it remains an industry standard.

Now the company is innovating once again. Tuf-Tite took the next step to make the first plastic internal safety lid for protection.

Tuf-Tite engineers knew that the original web design was extremely strong in the riser, but what about out of the riser? What if the internal safety lid was damaged in the field? Could it be reused? Others were using a similar web design, but Tuf-Tite moved in a new direction.

Tuf-Tite's new internal safety lids sit in the riser on four ledges. The solid safety lid features an inspection port, screw or bolt holes to fasten the lid to the riser and concrete keepers that can hold 40 pounds of concrete. This design has proved to be one of the strongest safety lids on the market, in the riser or out of the riser, according to a company spokesperson.

Tuf-Tite requires that the internal safety lid be screwed or bolted down to the ledges on the riser below. For added safety, the Tuf-Tite Safety Lid can be filled with concrete, adding adding a feature unique to Tuf-Tite.

Every Tuf-Tite Riser Lid and Safety Lid comes with all the screws, including the horizontal safety screws for domed and flat lids.

Tuf-Tite manufactures a full line of patented septic and drainage products, which are among the best in their respective industries. From the innovative distribution boxes that have become an industry standard, to the patented effluent filters that prolong the life of septic fields significantly, each of Tuf-Tite's products are engineered and manufactured to exceed expectations in both performance and longevity.

TUF-TITE®

Tuf-Tite produced its first product in 1984. Years of polymer formulation experience and field testing have strengthened the full line of products the company produces today. Tuf-Tite is an American-owned and -operated company and all polymer products are manufactured in Lake Zurich, Illinois, where the modern and highly automated manufacturing, warehouse and shipping areas are all contained under one roof in a 165,000-square-foot facility. The company is fully capable of servicing any and all demand for Tuf-Tite products. Its automated supply chain capabilities provide customers with seamless on-time deliveries.

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Retrofit Parts Extend the Useful Life of Septic Tank

After pumping a 41-year-old septic tank, a pumper had observed that there was no inlet or outlet baffle in this old single-compartment tank. The pumper had informed the homeowner of this condition. The homeowner, stunned at the cost of a new tank and possibly a new leachfield, then asked "what is my other choice?" The pumper replied that he would not feel good about letting it go as-is. He knew Polylok had some great retrofit parts that just might work here. The pumper and homeowner decided to use the much lower cost option of extending the useful service life of both the tank and the field.

The pumper opted to use a Polylok Extend & Lok at both the inlet end and outlet end of the tank. Because the inlet pipe was made of cast iron, this made an easy decision. After breaking off the deteriorating pieces of the cast iron pipe, and somewhat cleaning the inside of the pipe, the 4-inch Extend & Lok was simply hammered inside the exposed end of the pipe. This provided a perfect PVC 4-inch Schedule 40 pipe surface to glue on a Polylok PL-68 tee for an inlet baffle.

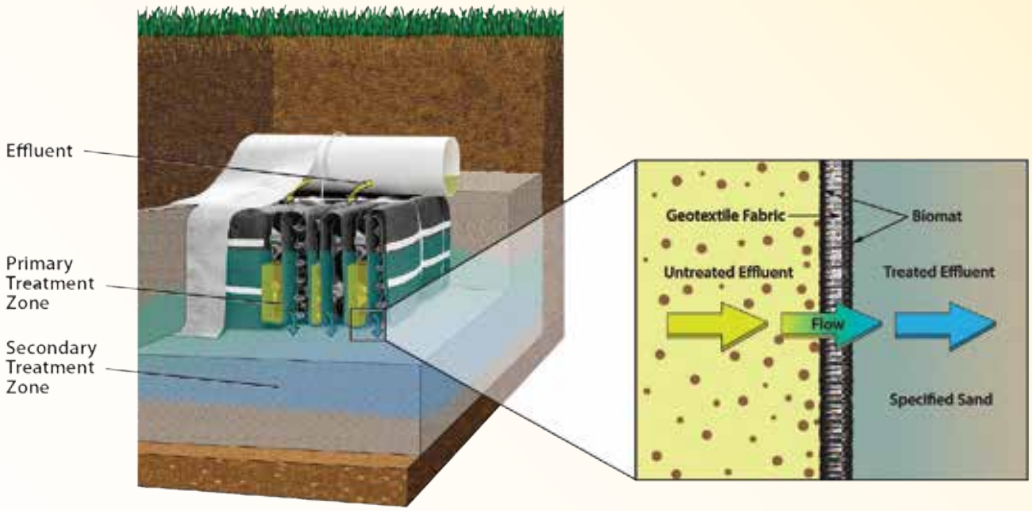
This same installation procedure was done on the outlet side as well; the difference being that the outlet pipe was already a 4-inch Schedule 40 pipe (as there must have been some type of previous repair done). However, it was too close to the inside of the tank wall to solidly glue on a tee or filter housing. Fortunately, the Polylok Extend & Lok is designed for all 4-inch pipes. It was hammered into the end of the outlet pipe to extend it away from the inner wall. A PL-122 filter and housing was then glued to the Extend & Lok.

The project was finished off using Polylok adapter rings, risers to grade and covers. Typical cleaning of this septic tank and filter was performed approximately every three years. Polylok covers and risers made that a simple task. The last inspection on this tank occurred in August of 2020. Upon inspection, everything was still in perfect working order. That was 16 years later, and who knows how long the life of this tank and field have been extended for?

Versatile System is a 'Go-To' For Onsite Installers

Established in 1970, Eljen Corporation created the world's first prefabricated drainage system for foundation drainage and erosion control applications. In 1982, we introduced our Geotextile Sand Filter products for the passive advanced treatment of onsite wastewater in residential and commercial applications.

Since the first installations, the system has shown it is versatile and proven and is 100% passive in gravity-dosed designs. This system can also be used with a pump for pressure-dosed and pump-to-gravity configurations.



The high flexibility of the system and its ability to be used in multiple applications makes the GSF a go-to for designers. Systems can be configured into trenches, beds or mounds, and are a solution for tight lots, high water tables, sloping sites and poor soils. The system excels at intermittent use sites like campgrounds and seasonal homes, as there is no startup time or procedures needed (third-party testing shows treatment begins on day one) and maintenance requirements are low with no replacement media or parts needed.

The GSF's unique design provides treatment and dispersal in the same footprint while keeping installations easy and maintenance minimal. In the primary treatment zone, open-air channels within each module support aerobic bacterial growth on the module's geotextile fabric, which provides increased surface area for biological treatment. The GSF Module provides biomat management and takes the burden treatment off of the native soil.

The secondary treatment zone supports unsaturated flow into the soil and works to minimize clogging from anaerobic bacteria. It also protects the soil from compaction and helps maintain cracks and crevices in the soil, preserving the soil's natural infiltration capacity, which is especially important in fine-textured soils where these channels are critical for long-term performance.

The GSF system can also be used as a denitrification system (GSF-TN), where a tertiary treatment zone includes a carbon source mixture to create an anaerobic zone that reduces total nitrogen. Once effluent passes through this layer, limestone rock balances the pH before the final filtration into the native soil. While the GSF product is highly successful, the real success of the product comes from our team's work with the designer, installer, regulator and homeowner.

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Singulair Green Tank Enables a Variety of System Options

Norweco's Singulair Green is the most durable and reliable high-density polyethylene tank in the onsite industry; it crushes the competition! The newly expanded Singulair Green tank design features the capability for system expansion. The new and improved Singulair Green rib pattern includes an interlocking ability for adding capacity to the inlet or outlet of the Green tank. This new development opens up more opportunities for system applications.

The newly expanded Singulair Green tank's cutting-edge features include an optional connection point on the outlet wall of the clarification chamber for attaching additional tankage. This new design allows a 520-gallon pump tank to be installed downstream of the Singulair Green system.

An optional connection point on the inlet wall of the pretreatment chamber is available for attaching additional tankage. If the job requires a larger-sized system, additional tankage can be added upstream of the Singulair Green system. The modified rib pattern provides interlocking capability to allow the integration of more tankage upstream and downstream without compromising structural integrity.

Additional transfer ports inside the tank allow modification of the Singulair Green system to meet specific application needs. This highly engineered Singulair Green tank design is the latest example of Norweco's dedication to continuous product improvement. We look forward to expanding your market with these exciting new options.

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A Lid Is Just Something to Cover a Septic Tank — Or Is It?

Oh, the humble septic tank lid. Installers, contractors, and maintenance specialists work with them daily, but how much do we know about that lid — and why it should be important to our industry and clients?

"Safe and secure septic tank lids allow for easier septic tank and system maintenance, which helps the owner save costs while operating a safe system," says Cory Lyon, product management director for Orenco Systems Inc., innovators in the septic system marketplace.

Here, we take a closer look at the role a lid plays in residential neighborhood sewer systems, along with onsite safety practices and information to share with your customers.

LIDS 101

To start, let's talk basics. A septic tank lid covers the hole that provides access to the inside of the tank for routine maintenance and pumping. The type of septic tank riser will dictate what type of lid is used.

"First and foremost, the septic tank lid is a primary barrier between something or someone falling into a tank," Lyon says. "It also prevents unwanted water or debris from entering the system."

Tank lids can be made from fiberglass, plastic, concrete and more. Some materials are stronger and last longer than others — and some break down and need to be replaced.

"To maintain a good connection and stand up to the weather and impacts it may see in someone's yard, a lid needs to be made out of materials that are not only strong but are less likely to break when impacted and not become brittle when subjected to the weather," Lyon says. "Modern composites like fiberglass do a good job of both those things when designed correctly."

Other enemies of aboveground tank lid integrity are UV rays, outdoor elements, and people driving vehicles over them, Lyon adds.

General Safety Practices

Though reputable service providers know basic safety practices surrounding septic tank lids, let's review them. The South Carolina Department of Health and Environmental Control provides a succinct summary on its website:

1. Never work alone around a septic tank.
2. Do not smoke or ignite flames at or near a septic tank.
3. Be sure the tank and its access ports have sound and secure lids that do not risk collapse.
4. Make sure the lid is secured with bolts so that children or animals cannot remove or nudge it aside. Consider doubling the lid's protection with a secondary safety barrier.
5. Beware of old, collapsing septic systems.
6. Watch for electrical hazards.
7. Rope off and mark dangerous sites.
8. Be alert for unsanitary conditions.
9. Do not drive over a tank, lid, or piping.
10. When inspecting the tank, wear appropriate PPE and wash hands thoroughly when done.

If your clients choose to perform routine maintenance on their septic tanks, discuss these safety practices with them as many homeowners do not realize the hazards involved.

A Shiny New Lid, And More!

So, why should you worry about lids – and make sure your clients understand them too? A strong, well-secured lid with secondary protection of a safety barrier like Orenco's Tank Shield, will protect yourself, protect your crew, and your clients.

Inquire today about these Orenco secondary safety barriers:

Tank Shield

- Secondary safety device
- Durable polypropylene construction
- Supports up to 250 lbs (113 kg)
- Installs in new and existing access risers and pump basins
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Fiberglass Lids

- Secure, durable, watertight construction
- UV- and corrosion-resistant materials
- Supports 2500lb (1134kg) loads*
- Non-skid surface and molded-in caution statement
- Fits ribbed PVC, HDPE, and Orenco FRP access risers and pump basins

*not recommended for vehicular traffic

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Two-in-one Rewatec distribution box is simple and efficient

At Premier Tech Water and Environment, we want our local, sustainable wastewater solutions to be easy to work with. We know that professionals bring their best to every site, and we want to give them the tools to succeed. For that reason, we have combined dosing and distribution into a two-in-one unit that is simple, lightweight, and that promotes the life span of soil absorption systems.

As its name suggests, the Rewatec gravity dosing distribution box accomplishes two functions in one unit. As effluent accumulates in the unit, the floating plate rises. Once the unit reaches capacity and the floating plate begins to lower, effluent flushes through its central aperture into the distribution chamber. The floating plate stops at a preset level and prevents further effluent from entering the chamber.

Once inside the distribution chamber, effluent leaves through one-to-five 4 inch outlets and is evenly distributed across the length of the soil absorption system. This ensures that no part of the system gets worn down prematurely and promotes a longer system life span.

Unlike other similar devices, the Rewatec gravity dosing distribution box makes full use of gravity. The inside of the unit is separated into two parts: an 18-gallon reservoir and a distribution chamber, with the floating plate acting as a conduit between the two. When the reservoir is full, the floating plate lowers before stopping at a preset level.

The device is designed to adjust to a project's parameters. As the floating plate's preset level is adjustable, the amount of effluent that enters the distribution chamber can be dosed anywhere from 12 to 18 gallons. A single distribution box can have up to five outlets, and each outlet can be equipped with flow levelers to optimize distribution.

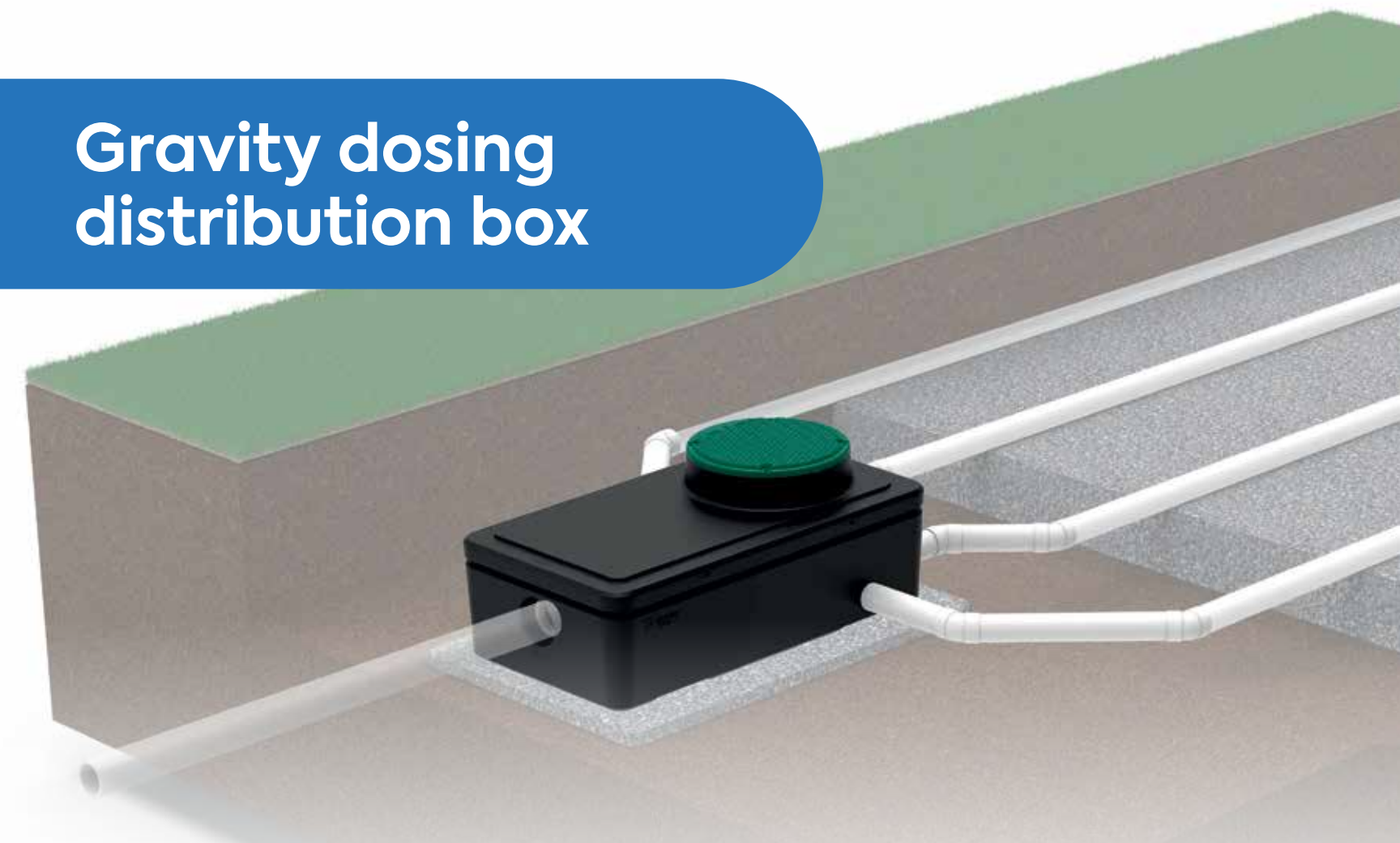
The Rewatec gravity dosing distribution box uses no electromechanical parts or electricity to operate. The floating plate is the only component, and everything is made of durable plastic. On top of being easy to install and maintain, you can open it by simply popping the lid –— no need for tools or dismantling.

The Rewatec gravity dosing distribution box measures 35 inches wide, 64 inches long, 24 inches in height, and is made using only plastic. Between this one and a concrete distribution box, everyone knows which one you'll have an easier time lifting.

While it is compatible with any gravity-based system, the Rewatec gravity dosing distribution box is an excellent complement to combined treatment and dispersal systems that rely on even dosing and distribution to protect against premature wear.

The Rewatec gravity dosing distribution box is everything we want our systems to be. It is both modular and operates with simple efficiency. We are excited to get it into the hands of professionals!

Gravity dosing distribution box



ADVANTAGES

- **Longevity**
  - Uniform dosing increases your soil absorption area's lifespan
  - Flow levelers can be added to each outlet
- **Two functions in one reservoir**
  - Adjustable dose from 12 to 18 gallons
  - Gravity distribution with zero energy required
- **Easy to install and maintain**
  - Lighter than concrete distribution boxes
  - Access without the need for tools or dismantling

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Wholesale Pump Products Available

Ashland Pump assembles a wide variety of pumps (2 to 20 hp grinders and solids-handling pumps) in Ashland, Ohio, and has a full-service testing lab to support all products. Ashland Pump officials say they are thoroughly committed to supporting the professional marketplace with a full line of sump, sewage, effluent and grinder pumps for the residential market.

That means customers will have a brand that is only sold into the plumbing wholesale channel. "And it means that you will have a partner that understands your business and customers and the importance of brand loyalty to you and the professional trade," says a company spokesperson. "Ashland Pump is a brand you can trust to be honest, dependable and professional in everything that we do, from our products to our service — we are here for you!"

Ashland PUMP

Ashland Pump is located in Ashland, Ohio, and manufactures a complete line of pump products for the residential wholesale market. It is a family-owned business with over 35 years of experience manufacturing pumps. The company says it's committed to offering a quality, dependable product with excellent customer service. To support that, it stocks thousands of pumps in its 130,000-square-foot warehouse because having inventory on hand for customers is important.

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Truck Stop Saves Money on High Strength Wastewater System

A nationally operated and well-known gas station and convenience store chain required an onsite wastewater treatment system at a smaller, remote location in Colorado. The store required a treatment system capable of treating the typically high-strength wastewater generated from food and beverage service in addition to what is generated from high-traffic restrooms for highway travelers. The challenge faced by this and many similar facilities around the country is to find a cost-effective treatment system that can reliably meet performance requirements long-term.

The design engineer for the facility found a solution using a combination of the BioMicrobics LIXOR and HighStrengthFAST systems. Wastewater from the facility passes through a primary septic tank into a flow equalization tank, where it is then dosed on a timed basis to a LIXOR 1.0 aeration system. The LIXOR reduces the incoming BOD by up to 50%, with the remainder of the BOD and TSS load handled by the HighStrengthFAST 4.5 system at the next stage of the process. The effluent is then collected and dosed to the drainfield. The LIXOR aeration system helped reduce the overall capital cost of the project. Using the simple, nonclogging submerged LIXOR aerator before the main treatment process cut down the size of the required treatment unit by half while providing a robust treatment capacity for waste with a BOD concentration in excess of 1,000 mg/L.

BIO MICROBICS
BETTER WATER. BETTER WORLD.®

BioMicrobics specializes in providing wastewater treatment solutions for all kinds of commercial applications, including restaurants, wineries, truck stops, and RV resorts. If you need help with a wastewater treatment project, call or email.

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Emergency FujiClean Upgrades on Adjacent Lots

Problem: Two neighboring residences located on Three Mile Harbor in East Hampton, New York, had collapsing cesspools that needed to be replaced with a low-nitrogen treatment unit pursuant to new sanitary mandates implemented by the town and county. The project was complicated by the properties' proximity to the harbor and the resultant high-water table.

Solution: Advanced Wastewater Solutions and A&A Sewer and Drain teamed up to replace the failing cesspools with FujiClean CEN5 onsite treatment units leading into pressurized shallow drainfields consisting of an Orenco Simplex Pump Station discharging into two rows of chambered drainfield. The FujiClean CEN units will remove upwards of 80% of nitrogen from the wastewater effluent through its "contact filtration" treatment whereby the wastewater is recirculated through aerobic and anaerobic chambers in direct contact with proprietary fixed film media, facilitating biological digestion and mechanical filtration. The PSD further reduces total nitrogen and provides treatment of other contaminants by evenly distributing the effluent within 18 inches of the topsoil horizon where increased microbial activity and nutrient absorption occurs.

Result: Under a special "emergency replacement" program adopted by Suffolk County, AWS and A&A were able to bypass the usual months-long sanitary design and approval process and replace both failed cesspools with cutting-edge onsite treatment technology in a total of three days.

FujiClean USA
Toward Clean Water...

FujiClean is the world-leading manufacturer of onsite advanced wastewater treatment with over 2 million installed and operating systems. Compact and energy-efficient models are available in one-tank systems from 450 to 6,000 gpd. No preceding septic tank is required. NSF 40/245 denitrification units are best in class for Suffolk County, New York, BAT Bay Restoration Fund in Maryland, and BBUWP in Alabama.

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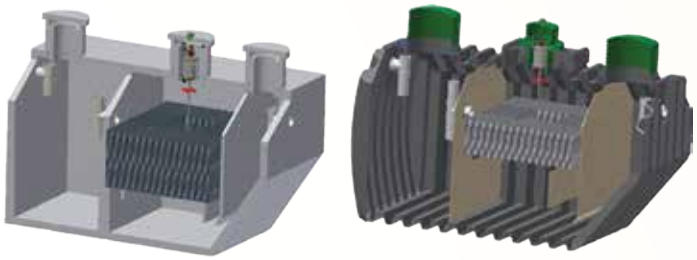
BAT Media Plants Fit a Variety of Challenging Sites



Jet Inc. BAT Media Plants offer variable capacity in a NSF-40 and -245 listed treatment system. The precast concrete J-1500 Series provides complete effluent treatment from 500 to 1,500 gpd with the convenient option of a fully integrated pump tank. The 500 and 800 gpd PLT Series tanks are the lightweight, rotational molded alternative to the concrete J-1500 Series. The seamless polyethylene tanks are easy to transport and install in the most difficult site conditions. Since 1955, all Jet Inc. treatment systems and components are locally supported by Jet's global network of trained and certified distributors.

Jet™ Wastewater Treatment Solutions

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Since 1955, Jet Inc. has been leading the way in value with innovative wastewater treatment systems and components for residential, commercial and decentralized wastewater treatment. Jet plants have successfully undergone independent testing through hundreds of programs worldwide. Our residential systems meet NSF-40 and NSF-245, our chlorinator meets NSF-46 and treat up to 1,500 gpd. Jet's hybrid systems will treat up to 6,000 gpd, while commercial systems will treat up to 300,000 gpd. Jet Inc.'s innovative options are installed in RV parks, campgrounds, housing developments, apartments, casinos, hotels/motels, factories and hospitals and as pretreatment before discharging into stressed municipal systems. In addition to residential and commercial systems, they offer a full line of disinfection and biological enhancement products including the Illumi-Jet UV disinfection unit, Accutab wastewater tablets, CHLOR-AWAY dechlorination tablets, Jet Tablet Feeders for chlorination and dechlorination, BIO JET-7 bacterial additives, lift stations, liquid level alarms, controllers and a broad range of other wastewater treatment products and equipment.

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ONSITE INNOVATIONS

System Upgrades Winery and Wedding Venue

Problem

Fleetwood Farm Winery in Loudoun County, Virginia, a winery and wedding venue featuring a restored turn-of-the-century farm located in a rural setting, needed to upgrade their wastewater treatment system to meet their expansion needs when serving up to 200 guests and protecting the pristine surroundings.

Solution

The owners and engineers' choice for high-quality treatment and low long-term investment was the EZ Treat synthetic recirculating treatment system. It is designed at 1,000 gpd. The winery seats 40 inside with outside seating for 50-plus. The wedding venue capacity is 200 guests. It offers influent BOD 650 mg/L and TSS 300 mg/L, with effluent BOD/TSS < 10 mg/L. It meets NSF 245 for nitrogen reduction.

Result

The winery has done a fantastic job of landscaping the EZ Treat 2L modules, multiple tank access points and the control panel. The effluent is so clean the pump is clearly visible.

INDUSTRY NEWS

Felling Trailers names Capobianco as regional sales manager

Jim Capobinaco

Felling Trailers has appointed Jim Capobinaco Northeastern regional sales manager. Capobianco will be responsible for all sales development, activity and dealer support in Maine, New Hampshire, Vermont, New York, Rhode Island, Massachusetts, New Jersey, Maryland, Delaware, Connecticut, Pennsylvania and Washington, D.C. He takes over the Northeastern region once served by Mike Flynn, who retired after 22 years with the company.

EZ Treats introduces new website

EZ Treat launched its new website at www.eztreat.net. The new online platform aims to simplify the way customers interact with the company, offering a seamless and user-friendly experience. In a release, President Carl Perry says, "We are excited about the launch of our new website. It has been designed to cater to the evolving needs of our valued customers and reflects on our commitment to delivering exceptional products and informational resources."

Installer-Friendly Series Makes Programming and Monitoring Easy

Newly redesigned IFS panels make programming and system monitoring a breeze. They feature a new color LCD interface on the inner door. With this interface, the panel configuration can easily be converted in the field to either timed dose or demand dose.

Other interface features include touch-safe housing, Pump Hand/Off/Auto Control selectable via menu navigation, tank level indication and setpoint monitoring at a glance, display with remaining time in each active on or off timed dose mode, and RJ45 communication connector for future expansion.

IFS Single Phase Panels are available in both simplex and duplex models. The simplex is designed to control one 120/208/240-volt pump, while the duplex controls two 120/208/240-volt single-phase pumps.

Both panels are housed in 12-by-10-by-6-inch NEMA 4X ultraviolet-stabilized thermoplastic enclosures that are padlockable and include integral mounting flanges, drip shield, heavy-duty cover latches and stainless steel quarter-turn set screw.

Need flexibility when it comes to level monitoring? No problem. These panels can be changed in the field to use either floats or the C-level sensor for continuous level monitoring.

For easy float replacement, these panels can be ordered with the EZ Connex float connection system; it makes replacing floats a snap, with quick release connectors and other labor-saving features. IFS Single Phase Panels are cUL Listed and covered by SJE Rhombus' 5-year limited warranty.

SJE RHOMBUS

SJE Rhombus is a leading manufacturer of liquid level control products including panels, alarms, floats and accessories. They have been servicing the water and wastewater industries since 1975. SJE Rhombus is a brand of SJE, a privately held company with corporate headquarters located in Detroit Lakes, Minnesota. SJE does business globally from multiple locations across the U.S. and Asia. 218-847-1317 | info@sjeinc.com | www.sjerhombus.com

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

Place Onsite Components as Shallow as Site Conditions Allow

There are plenty of reasons to minimize excavations and techniques to avoid issues including the winter freeze

By Sara Heger

There are many advantages to keeping septic tanks, pump tanks and other advanced pretreatment units (aerobic treatment units and media filters) shallow. During the design and installation process, potential disadvantages can be accounted for.

As tanks and other components are buried deeper in the ground, there is more downward force on the element from the weight of the soil. Every tank and advanced treatment unit has a specific load-bearing capacity dependent on its material and geometry. The manufacturer should indicate this maximum load as a pressure rating in pounds per square foot or a maximum burial depth.

Depending on the material (concrete, plastic or fiberglass), the component can handle varying amounts of force. Concrete tanks are known to withstand the most downward pressure, but they have limits as well. For instance, standard concrete septic tanks are only intended to be installed under vehicle traffic loads if designed for traffic loading. Unless the tank is traffic-rated, measures may be needed to prevent traffic over components exceeding the load-bearing capacity.

Yellow insulation has been sprayed over the exterior of these risers before backfill to prevent freezing. (Photo courtesy of Clayton Foster)

Tanks buried at shallow depths (less than 2 feet of soil cover) may require additional insulation. In most situations, just the tank lid will be insulated with foam board, but be sure the insulation is designed for burial.

All tank materials can be damaged if they are buried deeper than their designs specify. The allowable installation depth should be verified with the manufacturer of your chosen tanks and advanced pretreatment units.

Another concern with deeper burial depths is buoyancy. All buried components have the potential of being lifted out of the ground due to forces acting on them in saturated soil. Saturated soils can exist or develop around the elements because of shallow groundwater, water filling the excavated volume and flooding over the components. Seasonal groundwater can surround the element and rise to a level equal to the original groundwater level in the soil.

If the unit weighs less than the force of water displacement, it will float — particularly when empty — like a fishing bobber.

WATER PRESSURE

On many sites, the deeper you go in the ground, the more likely you will encounter a water table, which could cause an outward force on your tank. The backfill in an excavation may become saturated due to the backfill material being able to accept and transmit water at a greater rate than the native soil. Rainfall can infiltrate the excavated area, filling the pore space in the backfill material with water.

Additionally, a site with a clay pan or limiting layer relatively close to the soil surface can have a seasonal flow of water moving across the limiting condition. An excavation passing through that limiting condition can allow the flowing water to enter the excavation and cause saturation. A limiting layer may sometimes prevent laterally flowing groundwater from coming to the surface. When the hole passes through the limiting layer, the seasonally flowing water below the limiting layer can rise into the backfill material in the excavation.

Pretreatment units placed in floodplains or flood-prone areas can have water flowing into the soil when the site is saturated during a flood

>> This tank was not properly anchored in a shallow placement and surfaced through the force of water entering the excavation. (Photo courtesy of Sara Heger)

event. The floodwater can infiltrate the backfill in the excavation.

A buoyancy analysis must be conducted to ensure a component will not float when in saturated soil. To carry out the analysis, you must know the weight of the empty tank, the weight of the minimum amount of water in the tank (typically assumed to be zero), the weight of the soil directly above the tank and the weight of the maximum volume of water that is displaced (the buoyant force). There is a benefit here to burying your tank deeper if the soil above the tank is not saturated. In this case, the soil on top of the tank can help balance the upward buoyant force.

If water is encountered during excavation and the design plan does not account for this with anti-floatation protection, the designer of record should be contacted and made aware of this risk. Measures should be taken to eliminate floatation potential.

AVOID INFILTRATION

Remember all excavations are possible areas for collecting rainwater and groundwater — they act like sumps, especially under high rainfall events and when porous bedding material is used. Even on sites with deep water tables, it is still possible to float a component. This is especially true

when using soft, noncompacted backfill or porous bedding material, and when mechanical compaction is impossible around fiberglass and poly filter containers. Using proper and approved anti-floatation measures or manufacturer-supplied components minimizes this risk considerably.

Increased concerns about water at deeper depths also come with increased problems for infiltration into pretreatment components. Groundwater infiltration can disrupt the settling, treatment and storage of solids by reducing detention time. Infiltration also results in hydraulic overload of downstream elements in the treatment train by increasing flows beyond design capacity.

Components should be manufactured and installed to prevent infiltration, but it is also less likely to be an issue if there is water around the unit to test joints, seams, penetrations and inlets/outlets.

Finally, shallow pretreatment components are much easier to service and maintain. Many pretreatment components require access to grade, but the bottom depth of the unit can impact serviceability. The deeper the element is buried, the more difficult it is to maintain.

In cold climates, there may be concerns about shallow components freezing. In these cases, 2 feet of soil should provide enough insulation for operation. Tanks buried at shallow depths (less than 2 feet of soil cover) may require additional insulation. In most situations, just the tank lid will be insulated with foam board, but be sure the insulation is designed for burial. Spray-on insulation is now available and provides an additional sealant for seams coated in the insulation.

Pink foam insulation is enough to prevent freezing in this tank that will be buried in a shallow excavation. (Photo courtesy of Tim Haeg)

EMPLOYING PUMPS

In some projects — homes with basements where wastewater is generated, for example — keeping pretreatment components shallow may require a pump. These pumps are typically grinder or ejector pumps, which create a slurry to move the solids that may be present. If this is part of the system, the design should account for it. Some potential design solutions include:

- Limiting the volume pumped — the smaller the dose, the better to minimize turbulence.
- Pumping into the sewer line versus the septic tank to minimize turbulence.
- Upsizing the septic tank by 50% and having multiple compartments/tanks to allow for more settling.
- Utilizing a larger effluent filter that has more storage, such as a 6- or 8-inch diameter to catch solids in suspension.
- Having the pump only handle the wastewater from the lower elevation in the structure and letting the flow from higher elevations run at gravity to minimize turbulence.

The benefits of keeping components shallow well surpass the disadvantages. Some designs need to account for cold climates and elevation challenges. Keeping pretreatment elements shallow will reduce the overhead load and likelihood of groundwater infiltration and facilitate maintenance.

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SYSTEM PROFILE

Pam's Promise Home Requires System Upgrade; IOWPA Delivers

Indiana onsite professionals and industry manufacturers donate a new system with ample flow for women's crisis home facility

By David Steinkraus

With the sand bed laid, the crew from Dutcher Trenching begins laying rows of Infiltrator Advanced Treatment Leachfield (ATL) pipe at the Pam's Promise field day installation. (Photos courtesy Greg Inman, Infiltrator Water Technologies)

Pam's Promise, a women's housing facility in Crawfordsville, Indiana, was in need of a new onsite system for one of its buildings, a four-bedroom home that had been closed because the old onsite system was undersized. So the facility was chosen for one of the charity installations from the Indiana Onsite Wastewater Professionals Association.

Every year, IOWPA holds a field day where some worthy cause receives a donated system, says Greg Inman, area sales representative for Infiltrator Water Technologies and chair of the field day committee for IOWPA. People interested in the project — health officials, installers and other interested people — are invited to attend the field day and learn about onsite systems and technologies.

The IOWPA field day committee looks at the need of applicants, Inman says, and also the size of the project to ensure it can be completed within a day. "Also parking comes into play because we use these as a learning opportunity." In the case of Pam's Promise, the neighboring golf course allowed observers to park on its property, he adds.

The existing system at Pam's Promise really was an old system. "They never truly found where wastewater was going, but they believed it was just going over the hill," Inman says.

Advanced drainfield

Because of setback requirements, the well on the property had to be moved. A new 300-foot-deep well was donated, along with the other services and supplies that made the project possible. Dutcher Trenching of Crawfordsville performed the installation.

An Infiltrator IM-1530 1,500-gallon poly tank receives wastewater from the house and has a TUF-TITE EF-6 filter on the outlet. The tank was set about 10 feet from the house. Water enters the tank and leaves in 4-inch Schedule 40 PVC pipe.

From the tank, pipe runs about 80 feet to the drainfield that uses Infiltrator's Advanced Treatment Leachfield technology. This is a passive system: a 4-inch pipe surrounded with one layer of coarse synthetic aggregate and a second layer of fine synthetic aggregate. Geotextile fabric holds both in place.

The drainfield consisted of five rows of ATL pipe spaced 2 feet on center and covering an area of 24 feet by 72 feet. Beneath the ATL pipes was 6 inches of Indiana Department of Transportation specification 23 sand. Between the pipes was 12 inches of sand, and another 12 inches of sand was placed around the edges of the drainfield. Cover was 12 inches of soil.

Soil was a clay loam, Inman says, with bedrock at 41 inches. There was

« The 1,500-gallon tank and rows of drainfield pipe, both from Infiltrator Water Technologies, sit ready at the Pam's Promise transitional housing location in Crawfordsville, Indiana.

» To disperse effluent at Pam's Promise in Crawfordsville, Indiana, the system uses Infiltrator Advanced Treatment Leachfield technology: pipes surrounded by layers of synthetic aggregate. A perimeter drain was installed around the drainfield because of a water table that reached 14 inches below the surface.

also a seasonal water table that came up to within 14 inches of the surface, he says.

Because of that water table, the system was equipped with a perimeter drain, Inman says. It was installed 10 feet from the edges of the drainfield and 36 inches below the bottom of the base ATL sand layer. Water was removed by 4-inch corrugated pipe and drained to a drop-off.

Women in transition

The facility is not a shelter in the common understanding and association with domestic violence, says Elizabeth Zuk, executive director of Pam's Promise. "We are very much just transitional housing. We're independent living for women and women with children."

That could mean women who lost housing because of a separation or divorce, she says. It could also be a woman coming out of prison, or a woman moving out of her parents' house or a house shared with a roommate.

Women stay for different lengths of time. Ideally they will stay no more than six months, but lately that hasn't worked out, she says. As in other parts of the country, the housing market in Crawfordsville has priced out people with limited means, she says. The city of about 16,500 people is about 50 miles from Indianapolis.

The house itself used to be a vacation home for Lew Wallace, she said. Although known for service in the Civil War and as governor of New Mexico Territory, his fame was linked to writing, most notably *Ben Hur*, a story turned into motion pictures several times.

One of three homes used by Pam's Promise, the Wallace house has the greatest square footage but only four bedrooms, Zuk says. (Another home has six bedrooms.) Each woman is assigned to a bedroom, and mattresses for children are fitted into each room as needed.

Don Orr, a local Montgomery County's environmental health specialist, connected Pam's Promise to IOWPA, she says.

System Profile

Location:	Crawfordsville, Indiana
Facility served:	Pam's Promise women's housing facility
Designer:	Infiltrator Water Technologies
Installer:	Dutcher Trenching, Crawfordsville
Type of system:	Passive tank and drainfield system utilizing Infiltrator's Advanced Treatment Leachfield technology
Site conditions:	Clay loam with a high water table
	square foot
Hydraulic capacity:	600 gpd

A good cause

When the field day came, workers from Dutcher Trenching ensured the installation went smoothly, Inman says.

"What we like to do with attendees, when we get out there, is get them to understand proper installation — trying not to damage the soil in the process of installation, spacing, how to properly put the piping in, how to place the sand," Inman says.

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SYSTEM PROFILE

Proper backfilling of a tank is one of the lessons taught at field days of the Indiana Onsite Wastewater Professionals Association. Here the Infiltrator IM-1530 poly tank sits in its hole at Pam's Promise in Crawfordsville, Indiana.

"They never truly found where wastewater was going, but they believed it was just going over the hill."

Greg Inman

Use of a poly tank provided another education opportunity, he says. "We took the opportunity to educate them on how to properly backfill one, how to properly install riser systems." In Indiana that also means installing a secondary safety device, in this case the Infiltrator Safety Star system, a plastic grid that fastens inside the riser and will prevent falling into a tank if the lid is removed.

Although the house had a flow equivalent to three bedrooms, the final sizing was for a five-bedroom home, plus a bit more so the facility has some options about the number of people it holds, Inman says. Pam's Promise had the need for this project, he says, and it was a good cause. ☐

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Cover Electrical Shock Risks in Your Company Safety Plan

The dangers of electrocution must be respected by every member of your crew working at an installation site By Sara Heger

Electrical shock is a potential hazard to onsite wastewater treatment system professionals. Written procedures for dealing with electrical hazards must be part of a company's safety plan.

All underground power should be located prior to beginning work on the site. Be aware of overhead power lines that may be in the way of excavation equipment. It may be necessary to contact utility companies to drop lines temporarily to install the system.

Because electrical shock can cause serious injury or death, installers should never attempt to repair electrical equipment unless they are experienced with electrical systems. Only trained individuals should be allowed to service, repair or troubleshoot electrical equipment and systems.

In all states, installers must be qualified and authorized to work on electrical equipment before attempting to make any repairs or troubleshoot. Trained and qualified employees should use hand tools designed specifically for use in electrical environments. Ordinary 110-volt electricity can be fatal and 12 volts can also cause injury if enough contact is made.

IMPORTANT REMINDERS

Contact with 110-volt circuits actually kills more people than contact with 240-volt systems. Installers may be in close proximity to all of these at any given time.

Any electrical system, regardless of voltage, should be considered dangerous unless it is positively known to be de-energized.

The basic safety rules when working around electrical equipment include:

- Be aware of the potential hazard at all times
- Do not use metal ladders
- Never override any electrical safety device
- Inspect extension cords for abrasion and insulation failure as well as for missing grounding prongs
- Use only hand tools that are fully insulated to prevent electrical contact
- Use only grounded or insulated UL Solutions-approved electrical equipment
- Energize AC-powered equipment through a connection with a ground fault circuit interrupter

CONSISTENT TRAINING

Employees should receive training on proper lockout/tagout procedures. Safe work practices should always be used and must be consistent with the nature and extent of the associated hazard. Lockout/tagout practices include the following:

- Live parts that have been de-energized but not locked out must be treated as energized; de-energized circuits must be locked out and tagged
- Locks and tags must be in place before equipment may be de-energized
- Live parts must be disconnected from all electrical sources and stored electrical energy must be released. (Note that this includes any pressurization of the system.)
- Live parts must be de-energized unless it is impossible to do so and if safe work practices for working on live parts are mandated
- Locks and tags must be placed together unless the lock cannot be applied
- If only a tag is used, additional safety measures are required
- If only one item is de-energized, a lock may be used without a tag; however, the lockout period cannot extend past the shift and employees must be familiar with the procedures
- A qualified person must check to see if the equipment is de-energized (if it is over 600 volts) and verify that equipment is safe to energize
- Only the person placing the lock can remove it. If that person is not on the site, the employer can remove the lock *only* after all persons are positively located
- Only qualified persons are allowed to work on live, exposed parts

Trained and qualified employees should use hand tools designed specifically for use in electrical environments. Ordinary 110-volt electricity can be fatal and 12 volts can also cause injury.

TAKE PRECAUTIONS

Again, the practices listed above are intended only for use as a general guide. Training and education for employees is critical to working safely.

Michigan launches fund for food business onsite work

By David Steinkraus

The Michigan Department of Agriculture and Rural Development has launched a $30 million fund to help food businesses pay the cost of onsite wastewater treatment systems, several news outlets reported.

The businesses must pay the full cost upfront, but they may be reimbursed for up to 50% of total project costs. Among those are site work, engineering design, installation and materials. Payments are limited depending on daily flows. For example, a project of up to 750 gpd is eligible for a maximum grant of $225,000. On the top end, a project for more than 20,000 gpd is eligible for the maximum grant of $2 million.

Money from the new Wastewater Infrastructure Fund is intended to help businesses meet requirements for groundwater discharge permits, says the state website detailing the fund. There is a focus on processing of fruit, vegetables, dairy products, meat, eggs and grain.

Jamie Zmitko-Somers, director of the department's agriculture development division, told *Crain's Grand Rapids Business*, "A lot of these processing facilities are in rural communities, and the disadvantage for them is they do not have municipal waste systems that they can send their waste to where it's treated."

Scott Newman-Bale, CEO of Short's Brewing Co. LLC, told Crain's that in 2013 the brewery's wastewater output exceeded the treatment capacity of its home community of Elk Rapids, located on a bay of Lake Michigan. The brewery produces about 4.5 gallons of wastewater for each gallon of finished beer, he said. To solve the problem, he said, the company built its own $2 million wastewater treatment system, which came online in 2015.

South Carolina

The Charleston Waterkeeper and Coastal Conservation League recently asked a judge to temporarily ban some septic tank permit approvals. The ban would last until the state updates its permit process to allow for rising seas and increasing storms.

Only large-scale housing developments would be affected along with homes within 200 feet of state waters in coastal counties, reported *The Post and Courier* of Charleston. Single-family homeowners replacing septic tanks would not be affected.

Attorney Leslie Lenhardt, representing the two groups, said the state's coastal act of 1977 was passed before scientists fully understood how climate change would impact modern septic systems. She said permitting rules need to be adjusted to account for that.

Around Charleston, sea levels have increased by 10 inches since 1950, and since 2010 levels have increased at a rate of 1 inch every two years.

The judge in the case said she would issue a ruling as soon as possible.

Massachusetts

Two towns are considering options for complying with the state's new onsite rules intended to reduce nitrogen pollution of coastal waters.

Bourne may hire an outside firm to manage onsite system upgrades required by the new rules. Officials may contract with the town's current management firm, or may partner with some or all of the 15 other towns on Cape Cod to hire a management firm to serve all of them, reported *The Enterprise* in Falmouth.

The town is still also considering whether to apply for a state watershed permit. Under the new rules, towns in areas designated nitrogen-sensitive have two years to apply for a permit that provides a 20-year period to implement nitrogen-reducing strategies such as advanced onsite systems or municipal sewer connections. If towns don't apply for the permit and after the two-year application window closes, residents will have five years to upgrade their onsite systems to advanced treatment.

In Wareham, voters may be asked to decide whether to opt for municipal sewer or pursue onsite upgrades, reported *Wareham Week*. Patrick MacDonald, the town's public health director, said the options for complying with the new onsite rules are to extend sewer service to the entire town or accept responsibility for the compliance of every private onsite system affected by a watershed permit. He recommended a shift to municipal sewer.

Oregon

Lincoln County and Oregon State University Extension Service have expanded their onsite replacement program to all low- and middle-income homeowners in Lincoln County. The program provides aid to replace onsite systems damaged by wildfires.

Eligible homeowners can have their systems replaced at no cost, according to the county's website. Eligibility depends on household size and income. For example, a household of one person must have an income no greater than $38,640, and a household of eight would qualify with an income of no more than $133,980.

New York

The village of Speculator, in the Adirondack lake country, passed a time-of-sale ordinance requiring onsite system inspections when properties are transferred. Mayor Jeannette Barrett told the *Adirondack Almanac* that the village has watched similar ordinances pass in nearby communities around Lake George and like those communities there is local concern about the quality of lake water. The new regulations apply to Lake Pleasant, Whitaker Lake and Lewey Lake.

Guam

To protect its aquifer, the Guam Environmental Protection Agency may seek to cut off the water supply of people who violate its onsite rules. This is part of a recommendation to the agency's board for combatting increasing groundwater contamination, reported the *Guam Daily Post*.

Guam law forbids onsite systems on parcels of less than half an acre in the groundwater protection zone on the northern section of the island. But an exception to the rule allows parents to split property and pass it on to their children, and this has been used to bypass the aquifer protections, the recommendation said.

The second piece of the approach is permitting advanced treatment systems, said Brian Bearden who directs the agency's water division. Current law does not allow this and recognizes only three types of toilets: connected to a sewer system, connected to a septic system, or discharging to a hole in the ground.

Guam is a U.S. territory in the western Pacific Ocean about 2,000 miles north of Australia.

Oregon

A new onsite assistance program from the Central Oregon Intergovernmental Council will provide financial aid for the repair or replacement of onsite systems. Money will provide reimbursements to people at or below moderate income levels in Crook, Deschutes and Jefferson counties, reported KTVZ News in Bend.

Eligibility varies by county and household size. According to the council's website, the income for a two-person household in Crook County cannot exceed $58,380 while the income for the same size household in Deschutes County is $73,140.

Virginia

Low-income homeowners in Roanoke County can apply for a free pumpout through the Roanoke Valley-Alleghany Regional Commission. Money from the Virginia Environmental Endowment will cover about 50 pumpouts in the county, reported WDBJ News in Roanoke.

Montana

An environmental group has won a round in its lawsuit to stop a state wastewater permit for a large subdivision. In the latest development, a judge rejected the state's motion to dismiss the case. The issue will now be argued in court on its merits.

Upper Missouri Waterkeeper sued in state court to halt the onsite plan for a 175-acre residential development near the Gallatin River. Last year the state Department of Environmental Quality recognized that section of the river as impaired by algal blooms, reported the *Billings Gazette*.

Upper Missouri Waterkeeper asserts that by allowing individual onsite systems with lower individual discharge volumes, DEQ would create an unscientific exemption from standard permit requirements.

Iowa

Supervisors in Tama County, in central Iowa, voted to decrease the health board's budget after the board made payments totaling about $13,000 to two homeowners whose onsite systems were improperly approved by the county's former sanitarian.

Carlton Salmons, attorney for the county supervisors, found the payments unlawful for many reasons, reported the *Tama-Toledo News Chronicle*. Supervisors voted to refuse any payments to the homeowners and to transfer $51,000 from the health department budget into the county's general fund. Supervisor Bill Faircloth said supervisors would find out whether there is a legal way for them to help.

As the supervisors voted, a relative of one of the homeowners said, "We'll see you gentlemen in court."

"Rules and Regs" is a monthly feature in *Onsite Installer*™. We welcome information about state or local regulations of potential broad interest to onsite contractors. Send ideas to editor@onsiteinstaller.com.

SNAPSHOT

Everything ... Including Development, is Bigger in Texas

This pumping and onsite company hopes improving onsite technology and water reuse efforts will preserve a dwindling resource for a fast-growing populace

Compiled by Betty Dageforde

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

Patrick Kern, vice president and
Chase Kern, general manager

Business: **Paramount Wastewater Solutions LLC,** Temple, Texas

Age: Patrick 56, Chase 27

Services we offer: Septic pumping, roll-off services for picking up dry sludge, and a commercial Orenco dealer; retail store and sell septic products, retail and wholesale, to contractors

Years in the industry: *Patrick:* I've been in it 28 years. I was previously a real estate appraiser. With the sprawl from the cities into the suburbs, I saw how people were needing onsite systems. The appraisal industry wasn't doing real well at the time so I was looking to make a change and moved over into septic.

Chase: I grew up with it but professionally I've been here three years to help my parents run the business.

Association involvement:

Patrick: I've been a member of the Texas On-Site Wastewater Association for about 10 years. I am on the board of directors and have served on several committees.

Benefits of belonging to the association:

Patrick: TOWA is very active. It's an intermediary between our members and the regulators. We try to prevent overreaching regulation, police our members, work with the Texas Commission on Environmental Quality for suggestions on research and development, and we're active in the legislative process. We try to educate the members — for example, we have really been active on stressing the importance of securing tank lids and secondary fall prevention.

The Paramount Wastewater Solutions leadership team includes, from left, Chase Kern, Hannah Fischer, Krista Kern, Patrick Kern, David Wharton, and office pets Dundee and Zoe. (Photo courtesy of Paramount Wastewater Solutions)

Chase: TOWA is good for advocacy. It really does an excellent job visiting the capitol, representing the contractors, coming up with realistic solutions on the regulations side, and informing the legislature on what they should proceed with.

Biggest issue facing your association right now:

Patrick: Keeping up with the big influx of people into Texas is a challenge. We have diminishing water levels and have to keep them clean. We have an excellent group of installers and designers but we're continually trying to improve the process. There's a lot of research going into reuse and looking at other avenues to prevent groundwater contamination.

Our crew includes:

Patrick: We have a staff of 16. My wife, Krista Kern, is the president and chief financial officer. Our operations manager David Wharton handles the day-to-day trucking operation. Our sales manager Hannah Fischer controls most of our retail and wholesale sales.

Typical day on the job:

Patrick: When I arrive I speak with the managers and work on the policies, processes and procedures — trying to hone that in and help them,

<< The fleet of trucks at Paramount Wastewater Solutions.

make their lives easier. They carry the weight around here and I try to use my experience to help them out.

Chase: My dad is specialized in and really good at decentralized wastewater treatment and treatment of commercial sites and does a lot of consulting. He and Hannah work together on that. When I come into the office I talk with Hannah about the sales for the day as well as stocking different products. Once she and I are on the same page I talk with David about the status of trucks and drivers. Then I move to our customer service representatives and make sure customers are receiving availability and pricing on good terms and that we are keeping a healthy cushion on when we're booking out jobs.

The job I'll never forget:

Patrick: We had a call come in one night around 8 p.m. It was a woman whose husband had been deployed overseas and she couldn't flush any of her toilets. Normally we would try to push somebody off until the next day but she had kids and this was a special situation so we headed out. My wife and I and one other employee were the only ones available. We ended up having to dig it up. There was a huge root ball in the line. In the middle of all that I noticed my wife had disappeared — she was only there for emotional support, anyway. I looked up and she and the woman were having a glass of wine while we were toiling away. It was about 3 in the morning when we got done but we got her taken care of.

My favorite piece of equipment:

Patrick: I like the larger vacuum trucks — 4,000 gallons or more (Mack and Freightliners built out by American Tank with aluminum or steel tanks and National Vacuum Equipment blowers or Fruitland pumps). I also like our RIDGID locators and our Bobcat mini excavator, which has worked out wonderfully for digging up systems.

Chase: I really enjoy our vehicle tracker software from Samsara. That has been extremely helpful in keeping up with the status of the trucks, telemetry, keeping track of maintenance. We utilize the GPS gateways with the dual-facing cameras to help with complaints, accidents and harsh events.

Most challenging site I've worked on:

Patrick: The deep lift stations, the septic systems that are downhill, are the most challenging. To overcome that, we use a booster which injects air into the vacuum line to help lift the waste. And we use an NVE 4310 blower to assist us.

Oops, I wish I could take this one back:

Patrick: I'm always looking for new technology but one time I got a little over my skis with a new treatment unit. We put numerous ones in the ground before I realized there were problems. I had to go back and make it right with my customers when they started having issues. Another thing to watch out for is buying used equipment from auctions. I've learned my lesson there.

Chase: We tried to take a swing at pumping out a freshwater clarifier at a municipality that we weren't ready for. We didn't have our blower yet. We were down there in waders with pressure washers in the middle of the summer, trying to get it out. We couldn't quite get the whole job done and had to call in another group to help us.

The craziest question I've been asked by a customer:

Chase: We get calls from people asking why their system is full if they just had it pumped. We constantly have to educate customers. We have Septic 101 on our website.

If I could change one industry regulation, it would be:

Patrick: One thing we have been trying to do in TOWA is get a pumper course for basic knowledge, teaching people outside the industry who have pump trucks how to not damage the equipment, not leave risers open where children or pets could fall in. We don't want them to do more damage than good. Right now there is no legal requirement to attend classes to learn about septic systems. You could damage media, burn out pumps, knock off floats with the vacuum hoses, and cause the homeowner problems.

Chase: Whoever touches a septic system, even to pump it out, needs to be educated on the system. You shouldn't be able to just buy a truck and get into servicing. And it goes beyond just you touching the system. The homeowner is standing over your shoulder asking you questions about how it works, trusting that you know something about it. Sometimes these guys give advice that is off-the-wall crazy stuff.

Best piece of small business advice I've heard:

Patrick: You have to know your costs before you can quote a price to a customer. And maintenance, maintenance, maintenance on trucks.

Chase: Watch your costs and don't cheat yourself on margin.

If I wasn't working in the wastewater industry, I would:

Patrick: Both of us have the same answer — real estate development. We were both real estate appraisers at one time.

Crystal ball time – This is my outlook for the wastewater industry:

Patrick: In Texas, we have diminishing potable and freshwater levels and I'd like to see steps to conserve and reuse. Texas is a big rainwater reuse state. Instead of putting potable water on lawns, we're trying to get people to reuse wastewater or use rainwater. An old oil man once told me, "Water is the next oil in Texas."

Serving the Industry

Visit your state and provincial trade associations

ALABAMA
Alabama Onsite Wastewater Association;
www.aowainfo.org; 334-396-3434

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Arizona Onsite Wastewater
Reclamation Association;
www.azowra.org; 928-443-0333

ARKANSAS
Arkansas Onsite Wastewater Association;
www.arkowa.com

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

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www.cpow.net; 720-626-8989

CONNECTICUT
Connecticut Onsite Wastewater
Recycling Association;
www.cowra-online.org; 860-267-1057

DELAWARE
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;
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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

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

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

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

MAINE
Maine Association of Site Evaluators;
www.mainese.com

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

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

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

NORTH DAKOTA
North Dakota Onsite Wastewater
Recycling Association
701-650-8792

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

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

UTAH
Utah Onsite Wastewater Association
(UOWA); www.utahonsite.org;
385-501-9580

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

WASHINGTON
Washington On-SiteSewage 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
British Columbia Onsite
Wastewater Association;
www.bcossa.org; 778-432-2120

Goulds Water Technology EP04 and EP05 effluent pumps

Goulds Water Technology Model 3871 EP04 and EP05 effluent pumps are designed for effluent systems, homes, farms, heavy-duty sump, water transfer and dewatering applications. The EP04 impeller features a thermoplastic semi-open design with pump out vanes for mechanical seal protection. The EP05 has a thermoplastic-enclosed design for improved performance. Both models feature a rugged thermoplastic casing and base for strength and corrosion resistance, while the cast iron motor housing efficiently transfers heat, providing strength and durability. The thermoplastic motor cover includes an integral handle and float switch attachment points. Capable of running dry without damage to components, these pumps come with a severe-duty rated, oil and water-resistant power cable and heavy-duty upper and lower ball bearings. **866-325-4210; www.goulds.com**

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

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

If you would like your wastewater trade association added to this list, send contact information to editor@onsiteinstaller.com

PRODUCT SPOTLIGHT

Pressure filter aims to keep solids out of dispersal field

By Tim Dobbins

High amounts of suspended solids in a pressurized onsite system can quickly clog the lateral piping that supplies the drainfield, reducing the effectiveness of the drainfield and even causing total failure in some situations.

Sim/Tech designed and developed the STF-100 line of pressure filters to counter this issue. "Placing an effluent filter just before entering the force main of the pressurized septic system is an extremely effective solution," says Darrell Maves, operations manager for Sim/Tech. "The pressure filters are mounted on the discharge side of the pump so they are filtering the effluent at the best possible point in the process, right before it enters the dispersal field."

According to Sim/Tech, the inherent design of effluent pumps creates an on-and-off scrubbing action caused by shock waves as the effluent pump works. That action is strongest near the pump where the filter is positioned. The high-flow rates and low-pressure loss of the pressure filter are achieved by a large filter area with more than 40% of the filter screen being open. "The pressure filter handles flows over 80 gpm," Maves says. "So, even a partially contaminated wastewater filter will keep virtually any pressurized distribution system functioning properly."

The STF-100 line of filters is constructed using a PVC housing with an internal screen made from 316L stainless steel with 0.062-inch diameter holes. The filter cartridge is 3 inches in diameter and 18 inches long. Optional filter socks are also available if users require more fine filtering.

Maintaining the filter is as easy as unscrewing the cap and rinsing off the screen or changing the filter sock depending on the filter version.

Maves says the company has received many positive comments about the filter's variety of applications. "Some have used it on problem jobs that maybe they were having to jet out laterals on a regular basis. Some have used it to pre-filter disc filters, reducing the frequency of the time-consuming maintenance that those require," he says.

Maves says many installers put them on all of their pressurized systems and have expressed the peace of mind they experience knowing that if something goes wrong in the system, at least the disposal field will be protected by the filter. "We have often referred to the filter as the last line of defense," he says. **231-582-1020; www.simtechfilterinc.com**

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