October 2023

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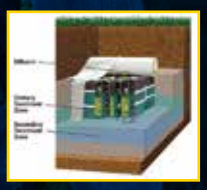

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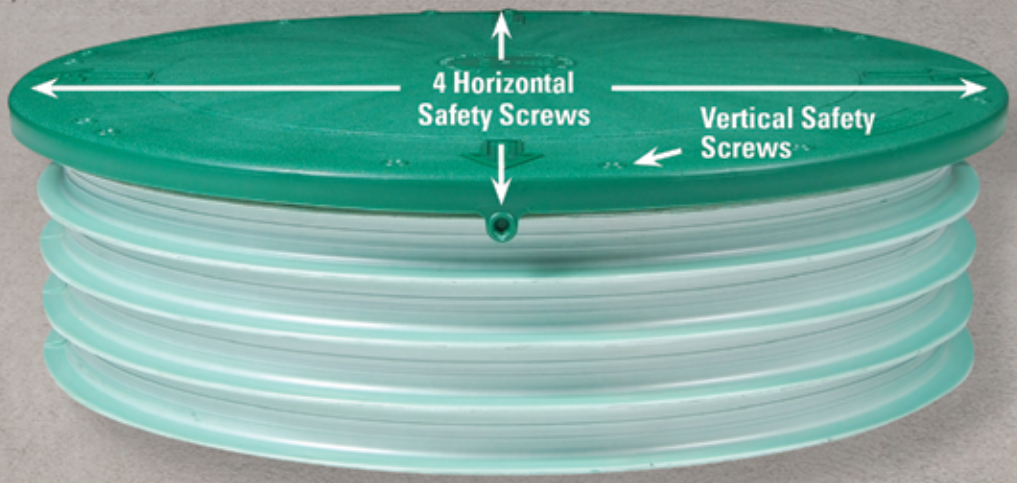

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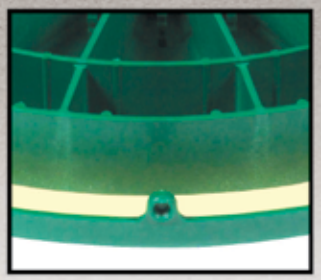

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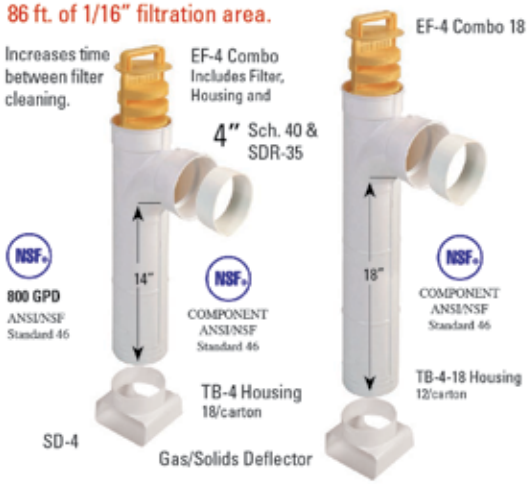

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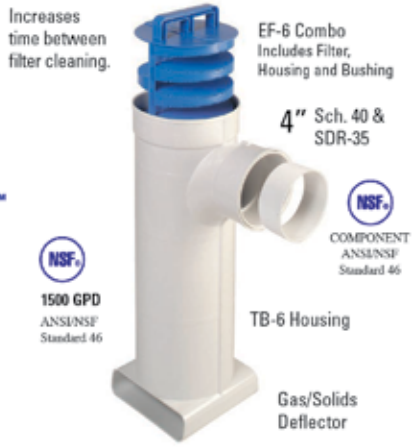

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Adding to a Legacy
By Ted J. Rulseh

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AAA Allied Septic Service is celebrating 70 years as a family business in Santa Fe, New Mexico. Ralph Baker Dotson, left, and Gino Dotson are shown during a system install. (Photo by Eric Swanson)

Coming Next Month

ISSUE FOCUS: System Maintenance, Inspection and Installation Tools
Safety First: Cold weather workwear
System Profile: A big waterfront system in North Carolina

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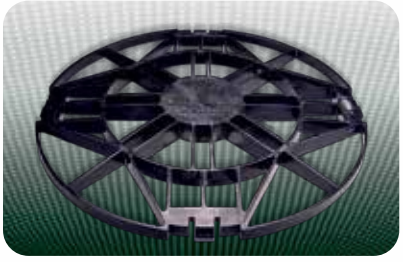

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October 2023

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Overheard Online

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– Get Back to the Business Marketing Basics
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SCALE UP
Setting a Goal to Grow

As your onsite business begins to develop a loyal customer base, your attention will naturally turn toward sustainable scalability. How much do you desire your business to expand? And what's the best way to grow without losing sight of everything that made your company successful in the first place? Here are a few scalability tips that any service company might take to heart. onsiteinstaller.com/featured

REFRESH AND DISCONNECT
How to Truly Relax on Vacation

In order for business owners to succeed over the long haul, it's critical to take some time off every now and then. Simply exiting the office for a week isn't enough; it's important to actually disconnect, dedicating your attention to something other than your business and your team. This can be easier said than done. If you're planning a vacation but already know you'll struggle to disconnect, this article gives you a game plan of practical strategies. onsiteinstaller.com/featured

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Health Departments Make Mistakes Too

An Iowa County is forced to pay up for bungled time-of-transfer home inspections

News and notes about the onsite industry and a reminder to share your system install stories:

Iowa county forced to pay for bad inspections

Installers and designers can face scrutiny for their work, but local government inspectors can make mistakes, too. Such is the case in Tama County in central Iowa, where errors on required time-of-sale real estate inspections have cost the county thousands of dollars so far.

The county recently agreed to pay out almost $14,000 to two property owners to address missed inspection issues — and the county board of health budgeted $30,000 to cover such payments in the future. The recent payouts will take care of half the expected cost to fix problems that were not discovered by a former environmental health officer/sanitarian.

According to a report by the *North Tama Telegraph*:

- One house passed inspection, though it was later found to have a septic tank smaller than the required minimum and that septic system was located too close to the home's well, 15 feet away. The estimated cost to remedy the issues was $10,400.
- In another system, the house passed inspection with a 400-gallon tank, while the minimum tank size is 500 gallons. The tank was also made of bricks and had caved in. The problem was discovered when the house went up for sale again two years later. The estimated cost of a new tank was $15,400.

The takeaway: Nobody is perfect. Approvals for new systems can be a rigorous process for designers and installers, and sometimes mistakes are found and adjustments have to be made. But health departments and other regulators also must be vigilant in the role they play as inspectors.

An inspection snapshot in Canadian lakes country

A small sample of mandated onsite system inspections in a Canadian recreational lakes area supports what many experts think about the state of decentralized wastewater treatment across North America: That is, a good number of aging systems are no longer up to the task and need upgrades to protect sensitive waterways and drinking water supplies.

The *Halliburton Echo* in Dysart, Ontario, took a look at the results of about 160 system inspections completed at the beginning of a 2023 septic maintenance program covering dwellings around several lakes. Homeowners were given a 50% discount on the fee if they responded during this period, and the inspections were treated as a training opportunity for new inspectors.

The local maintenance program supervisor reported what were described as "typical results."

- 41 permits were called "high risk" because permit rules were not followed, such as having too many bedrooms for the size of the system.
- 58 properties were medium risk, for instance requiring pumpouts, replacement lids and baffles.
- 56 were considered low risk and having no compliance issues.

Where systems were nonconforming because of having too many bedrooms, property owners were allowed to pay $150 for a review and possible decommission of a bedroom — by converting a sleeping room into an office or den.

Mayor Murray Fearrey said it was a "wake-up call" for residents to see that eight of 15 properties on one lake had some septic issue to deal with. "It's good for people on the lakes to see that," he told the *Echo*.

I suspect these inspection results would be mirrored in thousands of communities across the U.S. and Canada, where many systems are operating well beyond their expected life span and building codes have been ignored when remodeling and adding to houses, creating greater sewage flow.

As regulations stiffen to protect precious water supplies, a steady flow of new work will come to the installer community. I only hope the industry can attract enough young talent to answer this anticipated demand for new systems, repairs and upgrades.

Approvals for new systems can be a rigorous process for designers and installers, and sometimes mistakes are found and adjustments have to be made. **But health departments and other regulators also must be vigilant in the role they play as inspectors.**

Amish win latest round in septic system debate

It's taken eight years — and an unlikely hearing before the U.S. Supreme Court — but a Minnesota Court of Appeals finally reversed a lower court decision requiring an Amish sect to install septic tanks to treat graywater effluent. I first addressed this contentious septic regulation issue in 2021, and I'll admit my opinion was on the failing end of this debate.

Since 2015, four members of the Fillmore County Swartzentruber Amish community fought an order by county and state officials requiring them to install a graywater treatment system on their farms. They argued that mandating a subsurface treatment system under the county rules violated their religious freedoms. Instead, the Amish proposed what they said was an acceptable alternative, a mulch basin system, to handle the flow of graywater from their homes.

Depending on the Amish sect, some groups refuse to use electrical power or other modern conveniences in the name of religious traditions. In the past, governments have faced off with Amish over the use of outhouses and pit toilets when septic systems are required by local codes.

Attorneys for the Amish argued questions under the Religious Land Use and Institutional Persons Act. They are: Does the government have a compelling interest in regulating the disposal of graywater, which includes laundry, bath and dishwasher water? And, is a septic system the least restrictive method when they argue that 20 states allow Amish-preferred mulch basin systems?

At the time I argued the people of Minnesota should be able to expect uniform standards to protect public health and it was hard to see how individual homeowners or a group should be able to skirt best practices on graywater treatment. But the Supreme Court found that the lower Minnesota courts were wrong in siding with the regulatory officials and sent the case back to the state appeals court for reconsideration.

Despite the county maintaining that graywater contains some human fecal material, harmful bacteria, viruses and chemicals that pose environmental concerns, the appeals court recently found that the Amish group doesn't need to install septic systems to handle graywater. Officials from the Minnesota Pollution Control Agency can apparently appeal the court's decision and carry on with the debate.

What is your opinion? Do you have experience with the mulch basin treatment preferred by the Amish group? If so, how effective has it been? Stay tuned; this discussion is likely to continue.

Still time to suggest a system profile story

We're always on the lookout for interesting projects for our System Profile feature. If you have a challenging install coming up and would like us to feature it in *Onsite Installer*, please reach out at editor@onsiteinstaller.com. What are criteria for projects we select for layouts in the magazine? Difficult topography, small lots, poor soils, nearby lakes and streams, new-to-you technology used, high flows and systems donated for charity are examples. We will cover both residential or commercial decentralized systems.

We enjoy publishing your tough-job stories and photos featuring your hardworking crews at work. This case study feature is a great way to share your knowledge and give credit to your frontline workers for a job well done. I hope to hear from you soon with suggestions.

ADDING TO A LEGACY

A 70-year-old New Mexico installing company enjoys renewed vigor when the next generation comes on board

By Ted J. Rulseh

AAA Allied Septic Service has been a thriving business since its founding in the Santa Fe area 70 years ago.

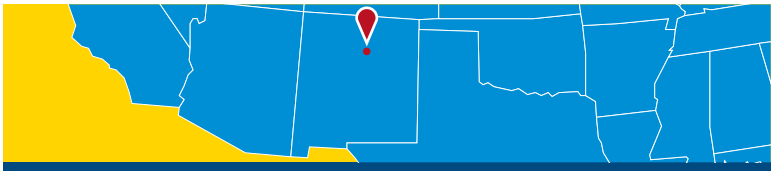
Today the company, owned by Ralph Baker Dotson and Gina Dotson, installs up to 125 new onsite treatment systems per year, pumps 1,000 to 1,200 septic tanks per year, and performs numerous system inspections for property transfers.

The company's reputation is so strong that most of its business comes through word of mouth; the book of projects is full despite minimal advertising. And now a new source of energy has arrived the Dotsons' son Gino, a couple of years removed from general business, marketing and management studies at New Mexico State University.

As general manager, he brings youthful energy and business acumen to a company that specializes in advanced systems. Meanwhile his father helps blaze a trail for the state's onsite industry as president of the Professional Onsite Wastewater Reuse Association of New Mexico.

The crew, from left, Roman Cardiel, Juan Alvidrez and Giovanni De La Paz, lower an Infiltrator tank into an excavation during a system install. (Photos by Eric Swanson)

Ralph Dotson digs a trench using a Caterpillar 300.9 mini-excavator.



AAA Allied Septic Service

Santa Fe, New Mexico

Owners:	Ralph Baker Dotson, Gina Dotson
Founded:	1953
Employees:	7
Service area:	40-mile radius; up to 100 miles for complex projects
Specialties:	Onsite system installation, repair, inspections; septic tank pumping
Affiliations:	Professional Onsite Wastewater Reuse Association of New Mexico, Colorado Professionals in Onsite Wastewater, National Onsite Wastewater Recycling Association, National Association of Wastewater Technicians
Website:	https://aaasepticservice.com

ALWAYS EVOLVING

Onsite Installer profiled AAA Allied Septic in 2012. It was founded by Ralph's father, Carl Baker. Ralph began working beside his dad at age 14. When Carl died suddenly, Ralph and his mom, Florence, kept the business going. A few years after graduating from high school, Ralph bought his mother out and took full responsibility for the business.

Much has changed in the past 11 years. The equipment fleet has grown from one vacuum truck to three and from one excavator to three. There are now seven team members, four more than in 2012. Still, the essentials that drive the business remain: dedication to quality, belief in training and professional education, and deep involvement with the industry through membership in associations.

Gino carried on the family tradition, working with his father during summers starting at age 15. Among his contributions since coming to the business full-time are improved contracts designed to protect both the company and its customers.

"I took some business law classes in college, and I realized that a modern business can't operate without a solid contract," he says. One provision enables AAA Allied to file a mechanic's lien on a property if a customer fails to pay for services by a set deadline. The contract also covers responsibilities around location of utility lines.

Gino has also devised an improved scheduling system that team members can access and modify in the field. He's also planning to install dash cameras in all company vehicles to record any road accidents and protect team members in case of false claims by other drivers.

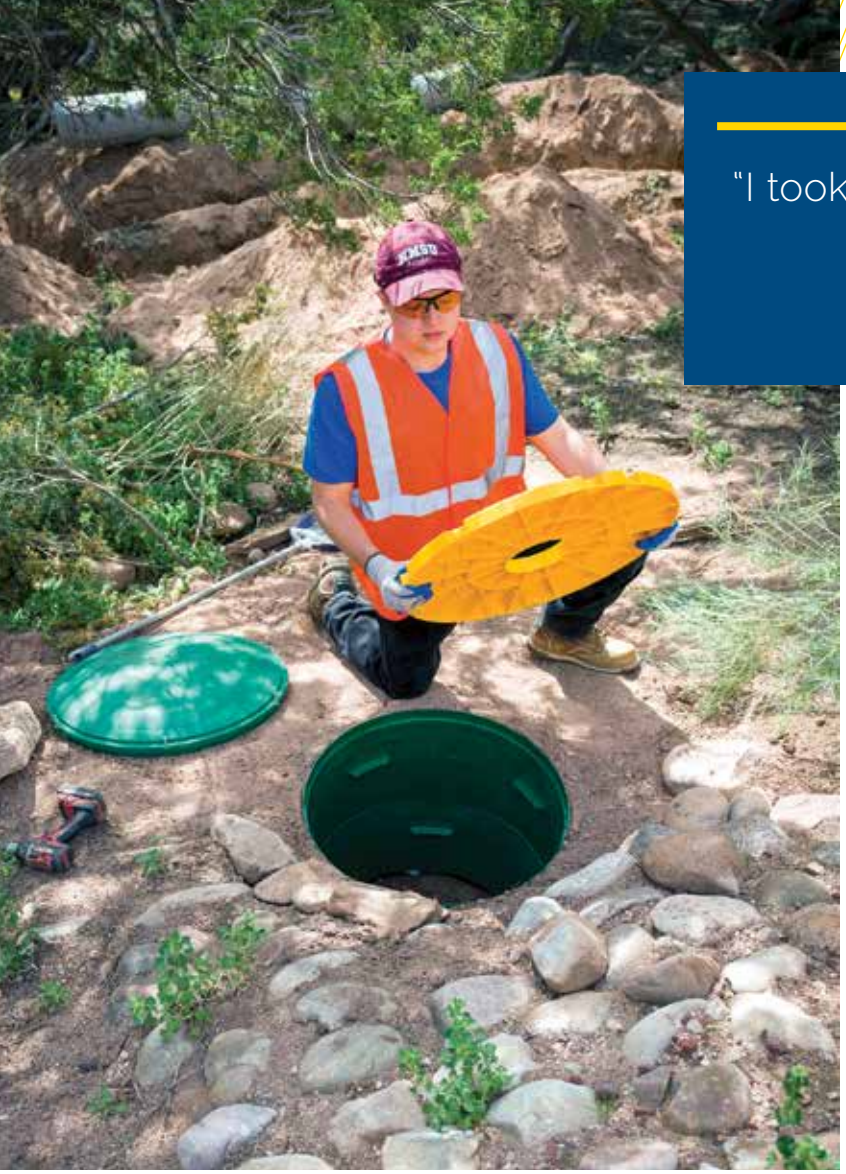
SELLING SOLUTIONS

To Ralph Baker Dotson, a key part of being professional is being a reliable and credible resource. "I have found over the years that consumers really are looking for somebody who can help them out of problems," he says. "We see part of our role as educating the public on why it's important to do the job right.

"We'll come to a property and the owner will say, 'I had two other companies out here, and they told me this and that.' I scratch my head at some things they tell people that just aren't going to work. It gives our industry a black eye. When we can educate people and give them confidence in us, when we can solve problems from simple to the hardest, that gives our industry credibility.

"We shouldn't be working for cheap because we work in wastewater. What I have learned, and what I've passed on to Gino, is that if you do a better-quality job and build the reputation of your company and the industry, you can charge a good price. It's not about doing it cheap. It's about doing it right, and having them call you back.

"We can go to a site and bid a job for considerably more money than a competitor, and we will get the work because the consumer has confidence that they're going to get a good system that they won't have to replace it in four or five years. People can see the education we have in the industry.



Gino Dotson adds a Safety Lid from TUF-TITE to a new septic system. The yellow inner lid offers added protection to prevent people from falling into the tank.

> "I took some business law classes in college, **and I realized that a modern business can't operate without a solid contract."**
>
> Gino Dotson

From left, Giovanni De La Paz and Juan Alvidrez lower a Zoeller pump through a TUF-TITE riser and into an Infiltrator Water Technologies tank during a system installation.

They can see the education Gino has in business. And they will say, 'That's the company we want to hire.'"

LIFELONG LEARNING

Ralph's belief in training goes back decades. He credits Gene Bassett, a past president of the National Association of Wastewater Technicians who has also served on the National Onsite Wastewater Recycling Association board of directors, for instilling a dedication to training and education.

"Gene brought NAWT training to New Mexico in the late 1990s," says Dotson. "I met him in 2003. He helped me understand the training that was available. Now Gene is still around, and he's bringing Gino into the educational picture."

Both Dotsons attended NAWT training and certification courses led in New Mexico by Jim Anderson (now retired) and Dave Gustafson of the University of Minnesota onsite program. Gino has completed NAWT programs in design/installer, inspection and vacuum truck operation.

Gino observes, "It's important when you're learning to find people in the industry who aren't just trying to sell you a product. Jim and Dave do a fantastic job of showing you the pros and cons and how to think outside the box."

The emphasis on training extends to every member of the AAA Allied team. Says Ralph, "We require and pay for our employees to go to NAWT inspector, installer, designer and pumper certification courses.

"We do not let anybody go out alone in our septic pumper truck for a year to a year and a half, until we feel they can represent our company properly, giving good information, knowing what their limitations are, and knowing when to call me or Gino for questions they may not yet know the answers to. It's the same with installing. Nobody goes out on a job without oversight who doesn't have three to five years of experience."

ELEVATE THE INDUSTRY

While maintaining and raising their company's standards, the Dotsons also look to improve industry practices. That includes working with the New Mexico association to update onsite system regulations.

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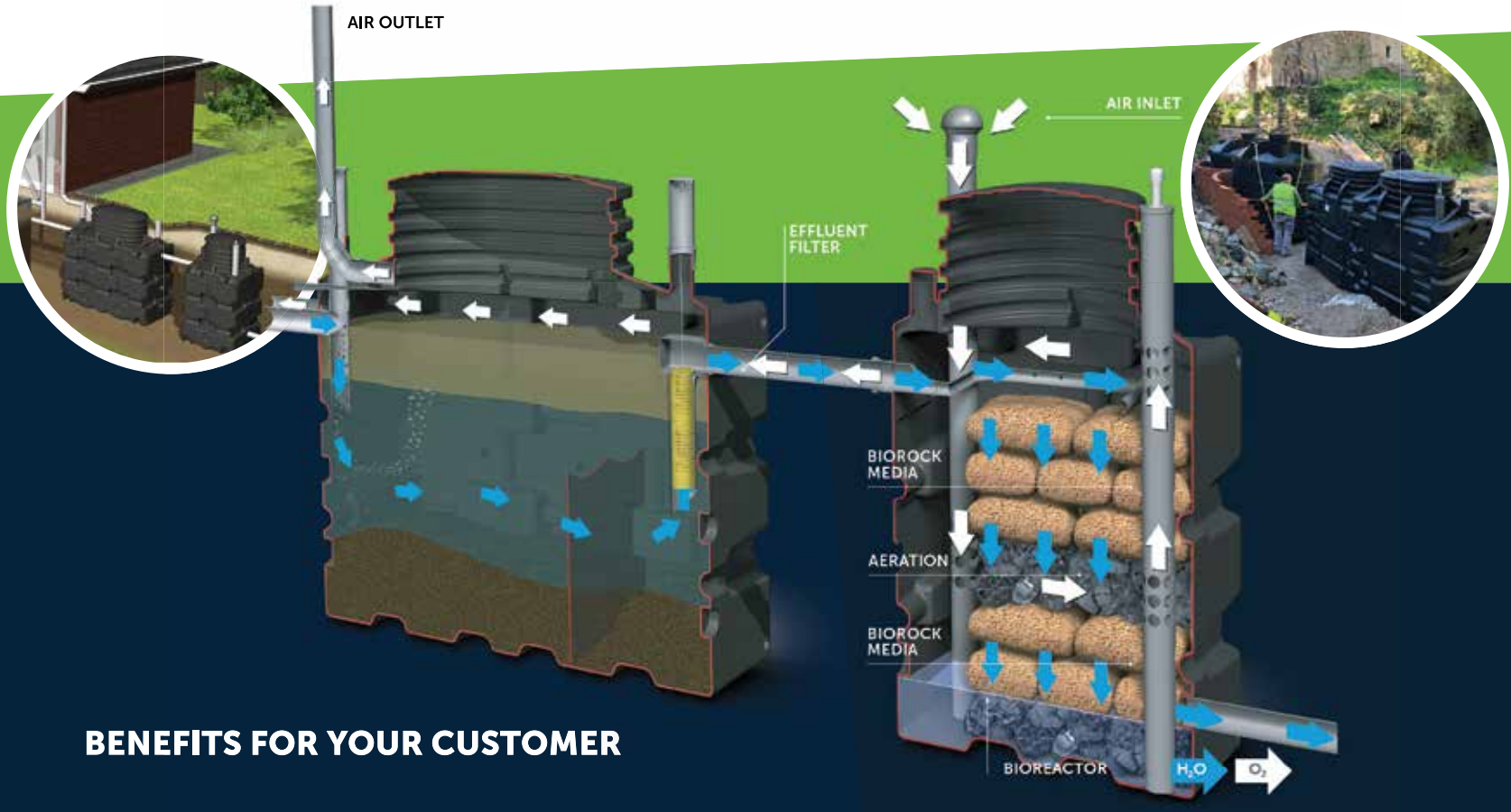

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Gino Dotson cleans a Caterpillar 249D skid-steer in the company yard.

Gina Dotson, left, and Kassie Garcia in the office of AAA Allied Septic Service.

One initiative is to require safety inserts inside risers. AAA Allied already uses safety rope inserts in risers from PolyLok, TUF-TITE and Infiltrator Water Technologies. "It doesn't add a significant expense, and it could save a life," says Ralph. "We've been installing safety nets in our systems for the last seven years even though it's not required."

Another change would eliminate loopholes in a rule requiring effluent filters to have handles. Some installers have used makeshift handles made from pieces of broomstick or sections of irrigation tubing. "We want to clarify that the handle has to meet manufacturer requirements, has to be made for the filter, and has to be fastened with noncorrosive screws," Ralph says.

A further change would require inspectors of onsite systems for property transfers to have certification for that purpose as well as an installer license. "Sometimes people who have only the certification find themselves doing work that would normally require a license," Ralph says. "They come out to a site and do an inspection, and the next thing they're doing is installing risers."

QUALITY JOBS

AAA Allied provides comprehensive onsite service that includes maintenance for advanced onsite systems through a separate business, Water Management Associates; and tank pumping with three vacuum trucks. "Pumping is an integral part of the business," says Ralph. "It's a

LEARNING KNOWS NO BOUNDARIES

Why would a New Mexico onsite installer belong to the industry association in Colorado? For Ralph and Gino Dotson, the answer is easy.

Areas of the two states have similar climate and terrain. Professionals in both states face many of the same issues. So it makes sense for them to share expertise.

Ralph and Gino are members of Professional Onsite Wastewater Reuse Association of New Mexico, but also Colorado Professionals in Onsite Wastewater. Ralph observes, "We don't work in Colorado, but we support CPOW by attending their conferences.

"Colorado has some of the same conditions as New Mexico, with mountains and drier areas. Seeing what that state's installers do can teach us how to do things here. If something is working well in Colorado, how can we make that work in New Mexico? Or if they have issues in Colorado, how can we avoid that here?"

For similar reasons, they have attended conferences of the Arizona Onsite Wastewater Recycling Association. They are also active members of NOWRA and NAWT. All that industry involvement leaves AAA Allied Septic in good position to stay current with best practices and to share what they have learned with others.

necessity for emergencies and for maintenance. We pump tanks for inspections, which can lead repairs, modifications and replacements."

The equipment inventory includes two 2019 Caterpillar 304.5 excavators, a 2023 Caterpillar 300.9 mini-excavator, and a 2018 Caterpillar 249D skid-steer, and six Ford service trucks. The vacuum truck fleet consists of:

- 2020 M-2 106 Freightliner with KeeVac 2,500-gallon steel tank and Challenger blower
- 2009 International DuraStar with COLT by IWS 1,850-gallon steel tank and Masport pump
- 2007 M2 Freightliner with Imperial Industries 2,500 gallon steel tank and Moro pump

Aerobic treatment units play a big role in system installations in difficult soils and terrain, for fitting systems into compact lots, and for including water reuse as part of the system.

Multi-Flo units (Consolidated Treatment Systems) are an ATU for the filtration component they contain that produces extremely clean effluent.

"For nitrogen reduction we put FujiClean USA systems on smaller lots," says Ralph. "They have controls inside that let me change aeration and flow. I also like SludgeHammer because we can use it to retrofit systems and remediate drainfields. I believe that no single product fits every site. I like to have multiple products so that we and our customers have options."

"We've been installing safety nets in our systems for the last seven years even though it's not required."
Ralph Dotson

For drip systems, the company uses Geoflow tubing (Anua). Ralph likes that interior anti-bacterial coating inside and the rooticide in the emitters. ATUs combined with drip tubing are the recipe for water reuse installations.

Many customers like to subsurface irrigate their landscapes in particular to protect the health of piñon, pine and fruit trees: "We've seen some of these trees get healthier when given that extra bit of water, with some nutrient but not too much. There is more maintenance involved in these types of systems, but the payoff of reuse in our desert area can be worth it."

Two local concrete precasters supply the majority of septic tanks, although the company uses

Plastic tanks from Infiltrator or Norwesco where site access is challenging. EZflow (Infiltrator) is the drainfield media of choice because it is easy to transport and provides high flexibility, and because gravel is expensive in the area.

The AAA Allied Septic Service crew includes, from left, Roman Cardiel, Juan Alvidrez, Steve Sandoval, Chris Marin, Gina Dotson, Ralph Dotson, Gino Dotson, Kassie Garcia and Giovanni De La Paz. The fleet of vacuum trucks were built out by KeeVac, COLT by IWS and Imperial Industries. Pumps and blowers are from National Vacuum Equipment, Moro and Masport.

MOVING FORWARD

The company's success is driven by a strong team. Co-owner Gina Dotson works alongside her husband and son as a manager of the business. Other team members are Steve Sandoval, senior technician, pumper and inspector/evaluator; Kassie Garcia, office manager; Ramon Cardiel, lead installer and pumper; Giovani De Paz and Juan Alvidrez, installers; and Chris Marin, pumper.

The outlook is favorable for AAA Allied septic and other quality installers in the Santa Fe area. "When you study your craft, when you learn from other people, when you are open to ideas even after 41 years in the business, you don't have a lot of competition," says Ralph.

"We learned, we went to the classes. We continue to go. We travel to conferences. Even during the market crash in 2008, because we could do alternatives and people with money could still afford them, we were able to continue growing our business."

> "When you study your craft, when you learn from other people, when you are open to ideas even after 41 years in the business, you don't have a lot of competition."
>
> Ralph Dotson

Gino adds, "A lot of folks in the industry are getting up in age and starting to retire, and we're not seeing an influx of new people. I see opportunities for us to thrive. I'm focused on continuing education for myself and any future employees. The future looks bright for us."

featured products

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www.consolidatedtreatment.com

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www.fujicleanusa.com
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www.geoflow.com

Imperial Industries, Inc.
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(See ad on page 3)

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231-348-5866
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Polylok, Inc.
877-765-9565
www.polylok.com
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TUF-TITE, Inc.
800-382-7009
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(See ad on page 2)

Zoeller Pump Company
502-778-2731
www.zoellerpumps.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

Overcome These Pitfalls of Vacation Rental System Design

Get honest answers from your clients about maximum occupancy and seasonal usage before you start ordering tanks and mapping out dispersal areas

By Sara Heger

U.S. short-term rental supply hit record highs in 2022. That means more of your customers may be renting out their vacation homes either part time or full time. Vacation home rental can create numerous challenges that can be addressed during the design and installation of a new septic system for the property. If these issues are not dealt with, the performance and life expectancy of the system may be negatively impacted. Unaware property owners could irreparably damage their system if these issues are not addressed. During design and installation of a new system that serves a vacation home, you need to consider the overall hydraulic load, peak load and usage concerns.

1. Overall hydraulic loading

Problems: When you are designing and installing a new system in a location where rentals are common, the first question to ask your clients is how they plan to use their property. Some cabins, cottages and vacation homes are used on a very limited basis, while others are heavily used. Homes rented through one of the online vacation rental services will often be fully occupied during peak periods, which can vary based on the location.

You must get honest answers from the owner regarding how many beds are in the home as many times occupancy will exceed the typical assumption of two people per bedroom. Vacation home rentals often have multiple beds per bedroom, pull-out sofas, futons, air mattresses and occasionally a bunk house. It is common to find a four-bedroom home advertised to sleep 10, 16 or even 20 people! With high flows, septic tanks are more likely to have turbulent conditions decreasing settling and causing downstream components to deal with more solids.

Solutions:

a. For the design flow: Add 50 gallons per person to the occupancy beyond two people per bedroom. If the vacation home is being rented, gathering existing flow data is a great idea to verify average and peak flows. The owners may also consider limiting the occupancy to match the design flow.

b. For septic tank capacity — take the calculated design flow and multiply by three to determine septic tank capacity.

c. Add a large effluent screen to catch solids and add an alarm to notify when cleaning is needed.

d. Be sure to use calculated design flow (or flow equalized design flow) for sizing any advanced pretreatment or the soil treatment area.

An example of a flow equalization panel from SJE Rhombus that can be helpful at monitoring and adjusting flow in vacation rental home onsite systems. (Photos courtesy of Sara Heger)

2. Peak loading

Problems: Peak loading can be an issue with any vacation or second home. And it is even more likely with those used as rentals. Large peak flows tend to happen on days when one family leaves and the next arrives. On these days the entire home is typically cleaned and all the towels and bedding being laundered. Remember that state code values for bedrooms

« Vacation rentals like this waterfront cabin attract lots of short-term renters, which can lead to high peak usage of the septic system.

» This mound shows signs of leaking due to septic system overuse.

are to be viewed as a peak flow that should not be exceeded on any given day and that average flows should be less than 70% of these values for system longevity.

Solutions:

a. Discuss management options with the owner — would they consider having double sets of towels and sheets and laundering them offsite? Would they lower the allowed number of occupants?

b. Include timed dosing with the treatment system designs that include a pump. Timed dosing configurations include an adjustable timer that controls pump rest interval and runtime to spread out the application of

wastewater over time versus how it is generated in a typical home or other facility. This will not help prior to the septic tank but it will help downstream components perform better.

Utilizing timed dosing instead of demand dosing mitigates variations or peaks in wastewater flow. Peak flows from the dwelling are stored and then dosed to subsequent components evenly throughout the day. Usually, the flow for one day is equalized over a 24-hour period, but it can be done for longer periods of time, especially if peak flows last for longer than one full day. For this to be accomplished, the tank must be large enough to handle these flows. The pump tank capacity for a single-family residence using flow equalization should be at least two times the daily design flow.

3. Usage

Problems: Large groups gathering in vacation homes often lead to large meals being prepared, creating extra food waste entering the system — and larger volume of food waste if a garbage disposal is present. In addition, commonly people renting vacation homes are not aware of the do's and don'ts of what should go down the drain with septic systems. This can result in many inappropriate items being flushed down toilets and washed down drains.

Solutions:

a. Discuss management options with the owner. Removing the garbage disposal may sound extreme but is a very effective way to decrease the loading to the system. Use and provide biodegradable cleaning products, as well as soaps at sinks and for laundry that will also lessen the load to the septic system. Be sure all cleaners and sanitizers used in the home do not contain "quats" (ammonium chloride is the active ingredient) as these strong sanitizers are very hard on the needed beneficial bacteria in septic systems.

b. Provide educational materials — the U.S. Environmental Protection Agency has great flyers developed for rental properties that can be provided prior to check-in, and then hung up or placed in kitchens and bathrooms. Search online for EPA Septic Smart Educational Materials.

c. If it is an existing vacation home, sample the effluent from the septic tank and compare it to normal septic tank effluent levels. If they are higher than normal, up-size components based on these elevated levels. Increasing the septic tank size and adding an effluent screen will help to decrease these levels but advanced pretreatment may also be needed.

THE BOTTOM LINE

Not every vacation home rental is the same, so during the design process we must discuss with the owner how the property will be used and discuss how those decisions will impact the septic system design and longevity. During the design process, the operation and maintenance frequency may need to be adjusted to deal with higher loading and usage issues that may arise for long-term system performance and longevity.

SYSTEM PROFILE

Yoder Concrete delivered and set the 1,500-gallon dual-compartment concrete septic tank. (Photos courtesy of Meade Septic Design)

Gravity Is Key in Amish School System Build

When a religious community prefers not to utilize electricity to move effluent, designer Stuart Meade makes sure everything flows downhill

By Scottie Dayton

An Amish farmer donated three acres of his agricultural fields in Ligonier, Indiana, for a new school accommodating 40 students and two live-in educators. The building had two indoor restrooms and two bedrooms.

The site also would have a stable, small and large softball diamonds, a potable well, and onsite system. Jonas Yoder, school board administrator, hired Stuart Meade, owner of Meade Septic Design of Goshen, Indiana, to design the latter. He hired Glen Graber, owner of Glen's Excavating in Shipshewana, Indiana, to install the system.

"Making components fit on these tight sites is always challenging because everything is set back 100 feet from the well," says Meade. "Often a stake indicates the well's location, but I must verify that it has been approved before taking measurements."

The community wanted a gravity-flow onsite system to avoid buying additional solar panels to power a pump. "Fortunately, the property dropped off quite a bit; otherwise, they would have to elevate the school to raise the building sewer outlet sleeve high enough to achieve gravity flow," says Meade.

Then Meade discovered a solid 6-inch PVC tile drain and a parallel solid 12-inch ABS tile drain (an agricultural drainage system) running across the proposed absorption bed at a depth of 48 inches. Both discharged to a county-regulated ditch.

With the seasonal high water table at 13 inches, Meade stipulated a shallow Presby Advanced Enviro-Septic treatment system with perimeter drain. He designed the sand-lined system for the native soil loading rate instead of taking the allowed 30% reduction. The installation took 11 hours over two days in June 2023.

SITE CONDITIONS

Soils are clay loam with a loading rate of 0.30 gpd per square foot.

Wastewater runs 45 feet through the 4-inch Schedule 40 building sewer to the septic tank.

Glen Graber's Bobcat T76 compact track loader.

SYSTEM COMPONENTS

Meade designed the system to handle 750 gpd. Major components are:

- 1,500-gallon dual-compartment concrete septic tank (Yoder Concrete) with PL-122 effluent filter (Polylok) and 20-inch risers (TUF-TITE)
- 360 feet of Presby Advanced Enviro-Septic treatment-dispersal pipe (Infiltrator Water Technologies)
- 309 feet of 4-inch polyethylene ASTM F405-05 corrugated perimeter drain pipe

SYSTEM OPERATION

Wastewater runs 45 feet through the 4-inch Schedule 40 building sewer to the septic tank. Effluent leaving the tank travels 5 feet through the Schedule 40 line before it transitions to 179 feet of SDR 26 pipe with gasketed compression joints. "Gasketed pipe is important for long runs, especially when buried above the frost line and subjected to shrink-swell conditions," says Meade.

From the distribution box, effluent flows to four 90-foot rows of serial distribution treatment pipes on the upslope side of a 6-inch-deep 92-by-28-foot sand bed. A 20.5-foot sand extension creates the downslope side.

INSTALLATION

Graber, Garold Delagrange, Anthony Bontrager, and Jay Bontrager arrived on-site with a Kobelco SK160 LC crawler excavator, a Bobcat T76 compact track loader, and a Bobcat E55 compact crawler excavator. While Jay Bontrager excavated trenches and the hole for the septic tank using the Kobelco, the other three began removing 7 inches of soil to create a level area for the absorption bed. "The land sloped 1% to 3% to the north," says Graber, who shot grades using a GL422N dual-grade laser (Spectra Precision).

System Profile

Location:	Ligonier, Indiana
Facility served:	Winding Creek Amish School
Designer:	Stuart Meade, Meade Septic Design, Goshen, Indiana
Installer:	Glen Graber, Glen's Excavating, Shipshewana, Indiana
Type of system:	Passive combination treatment and dispersal
Site conditions:	Clay loam soil; loading rate 0.30 gpd per square foot
Hydraulic capacity:	750 gpd

Yoder Concrete delivered and set the tank, then Delagrange and Anthony Bontrager plumbed it and began laying sewer pipe. Graber had arranged for Double E Trucking and E&B Trucking to deliver septic sand as soon as the absorption bed was half excavated.

"The drivers dumped directly into the leveled area, enabling us to build the 6-inch layer of sand beneath the treatment pipes as we finished excavating," says Graber. Each driver hauled five loads totaling a combined 213 tons of sand.

Graber's crew had installed Presby systems before and this was a routine installation. However, the subsurface perimeter drain around the bed and a swale along the upslope side added interest.

"As we were digging the 43-inch-deep trench for the perimeter drain, we found the tile drains exactly where Stuart had drawn them on the plans," says Graber. "His design also included instructions on how to overcome them."

Anthony Bontrager in the Bobcat E55 compact crawler excavator throws topsoil on the Presby treatment bed, while Jay Bontrager uses the Bobcat T76 compact track loader to level it.

"Making components fit on these tight sites is always challenging because everything is set back 100 feet from the well. Often a stake indicates the well's location, but I must verify that it has been approved before taking measurements."

Stuart Meade

The crew dug down to the top of the PVC and ABS tiles, then measured 10 feet from the edge of the sand to the perimeter trench and 10 feet beyond the trench. "We cut the pipes, extracted the 21-foot sections with the excavator, and capped the 28-foot lengths beneath the bed," says Graber.

Graber, Jay Bontrager, and Delagrange returned the next morning to remove the upslope ABS pipe and reroute 244 feet of the PVC tile around the bed's west side, then north to discharge into the creek.

"We put a fitting in the cap of the live ABS tile and plumbed the perimeter drain's polyethylene pipe into it instead of running a separate line to the creek," says Graber. Workers backfilled the trenches with clay loam and the perimeter drain with pea gravel.

Meade had designed the surface diversion swale to discharge west of the bed, but Graber found doing so was impossible.

"To maintain gravity flow, the sewer pipe entered the distribution box at an elevation that left it exposed in the swale," he says. "Consequently, we built the swale to the east so it discharges to the roadside ditch." The bed was crowned with a 9-inch-deep layer of topsoil to shed water.

THE COMPANY

Glen's Excavating works in LaGrange, Elkhart, and Noble Counties, but 95% of jobs are within a 30-mile radius of Shipshewana and most customers are Amish, as is Graber. The trucking subcontractors and Delagrange are not Amish. "Garold owns a pickup truck and drives the rest of us to work," says Graber. Stuart Meade is his favorite designer because the plans are easy to read. "If you can't install a system from Stuart's designs, you're in the wrong business."

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System Repair, Drainfield Rejuvenation

By Craig Mandli

AERATION SYSTEMS

BioMicrobics LIXOR

LIXOR from **BioMicrobics** is a nonclogging, venturi-type aeration device that supplies air in a variety of wastewater applications. Equipped with an aboveground, regenerative blower — the system's only moving part — a continuous large volume of air is piped down to submerged devices. The velocity of air and water increases substantially inside the venturi chamber, creating a vacuum that pulls in surrounding liquid and breaks the incoming air stream into smaller size bubbles. The result is a turbulent plume of water and bubbles that transfers oxygen for biological activity and creates horizontal and vertical mixing patterns. Each submerged aeration system is designed to achieve reliable aeration and mixing performance efficiencies. Individual or multiple units may be used in many configurations. **800-753-3278; www.biomicrobics.com**

Wholesale Septic Supply Tempest Diffuser

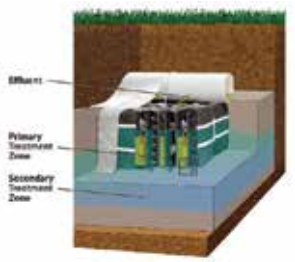
The **Tempest Diffuser** from **Wholesale Septic Supply** is used for the treatment of wastewater. It is placed inside the ATU to introduce oxygen to promote aerobic bacterial growth. It provides an air flow rate of 160 liters per minute, and measures a compact 8 by 14 inches. It comes with a 1/2-inch NPT connection, and includes a swivel joint for flexibility in tight spaces. **936-681-8198; www.wholesalesepticsupply.com**

ATUS

Delta Treatment Systems ECOPOD-NR

The **ECOPOD-NR** for advanced wastewater treatment from **Delta Treatment Systems** is designed to meet the growing demand for total nitrogen reduction in wastewater. The system meets the need in Florida for treatment systems to achieve greater than 65% total nitrogen reduction. NSF/ANSI 40 and 245 certification testing demonstrated the ability of the ECOPOD-NR to reduce influent total nitrogen by more than 68%. The 500 gpd ECOPOD E50-NR model includes an aerator to provide air for the treatment process and create an airlift that recirculates treated wastewater from the treatment chamber back to the pretreatment chamber. This enhances the unit's denitrification capabilities, allowing increased total nitrogen reduction to occur. **800-221-4436; www.infiltratorwater.com**

Eljen Geotextile Sand Filter



The GSF, or **Geotextile Sand Filter** system from Eljen, is designed to provide treatment and dispersal in the same footprint with easy installation and minimal maintenance. It is used for commercial and residential applications. Utilizing a two-stage pretreatment process, the geotextile modules apply filtered septic tank effluent to the soil, increasing the soil's ability to accept effluent and increase the long-term acceptance rate. Its design provides increased surface area for biological treatment that greatly exceeds the module's absorption area. Open-air channels within the module support aerobic bacterial growth on the module's geotextile fabric interface, surpassing the surface area required for traditional absorption systems. The system is tested and certified by NSF to NSF/ANSI Standard 40. **800-444-1359; www.eljen.com**

MicroSepTec EnviroServer ES

The **MicroSepTec EnviroServer ES** series utilizes five chambers to achieve primary settling, treatment and clarification in one tank. The units use a moving-bed biological reactor made for the residential market. The first compartment is the primary clarifier for settling sludge and solids. The second houses the first of two aeration chambers and contains bio-media providing surface area to promote a healthy population of microorganisms. The third compartment is used for further aeration to amplify the growth of nitrifying bacteria and the process of nitrification. The fourth chamber is the final clarifier where suspended solids settle out. Wastewater is then recirculated back to the primary clarifier in the first compartment, which contains enough carbon to promote denitrification removing high levels of nitrate. Clarified water then moves through an effluent filter before entering the fifth compartment, an effluent chamber for storage. **877-473-7842; www.microseptec.com**

Norweco Singulair Green

Norweco's Singulair Green with optional 520-gallon integrated pump tank offers an easy-to-install, all-in-one system for situations that require a downstream pump tank. The system with optional pump chamber returns clean, highly treated effluent to the environment. **800-667-9326; www.norweco.com**

Orenco Systems AdvanTex AX-RT Series

The **AdvanTex AX-RT Series** of advanced wastewater treatment systems from **Orenco Systems** is designed for system repair and rehabilitation. All interior components are installed, plumbed and adjusted at the factory. Units can be shallowly buried for use between a functional, watertight septic tank and a functioning drainfield. The three-in-one design includes recirculation, treatment and discharge in a single unit to simplify installation and eliminate the need for additional tanks, basins, risers and lids. The system can be maintained with an annual service call. Filters and textile media are accessible and cleanable, and control panels are touch-safe. No blower is needed for the passively vented system. An optional UV disinfection unit is available. **800-348-9843; www.orenco.com**

CHEMICALS

Oatey Hercules AID-Ox

Hercules AID-Ox from **Oatey** is a mild oxidizing powder formulated to maintain proper drainage and treat clogged and sluggish cesspools, seepage pits, drywalls and drainfields. Frequently used on seasonal rentals, it detoxifies and deodorizes stagnant drainage areas, enhancing conditions for aerobic bacterial growth. It comprises an oxygen-based porosity foaming restorer, enhancer and cleaner. It is recommended to use when drainage systems are sluggish, water-logged and emitting foul odors. It contains no acids, caustics or organic solvents. **800-321-9532; www.oatey.com**

DRAINFIELD COMPONENTS

Sim/Tech Filter orifice shields

Orifice shields from **Sim/Tech Filter** are designed to prevent drain media, such as drain stone, from blocking discharge holes, promoting even distribution of effluent in pressurized systems. The shields have a sturdy design that keeps them firmly in place after snapping them on the laterals, according to the maker. The large amount of open area between the pipe and shield allows for easy placement over the holes and reduces media clogging by debris. The enclosed design has a large amount of open area, but all openings are small enough to prevent media from entering the shield. Two styles are available — for top-discharge distribution holes and bottom-discharge holes. Shields are available to fit 3/4-, 1-, 1 1/4-, 1 1/2-, 2- or 3-inch pipe. **888-999-3290; www.simtechfilter.com**

SEPTIC SYSTEM BACTERIA

Cape Cod Biochemical AfterShock

Aftershock from **Cape Cod Biochemical** is a blend of laboratory-enhanced naturally occurring primarily aerobic organisms that are type-specific to the various substances that typically clog residential and commercial drainfields and leaching structures. It also contains a bacteria-friendly, time-released oxidizing agent to accelerate bacterial action of the organisms in the product to restore drain in most soil-absorption areas. Its consortium of bacteria and oxidizer can be applied at the same time. According to the maker, the oxygen-accelerated bacterial action will quickly digest the organic solid material that reduce the drainfield's capacity to absorb water, restoring drainage through a natural process. **800-343-8007; www.capecodbiochemical.com**

Jet Inc. Bio Jet 7

The **Bio Jet** 7 series of bacterial supplements from **Jet Inc.** accelerates the degradation of fats, oils and grease, proteins, tissues, soap scum and other organics in residential, commercial and municipal wastewater applications. Nonhazardous and nontoxic, it is formulated to assist biological activity in septic systems, aerobic wastewater treatment systems, lift stations, lagoons, grease traps and retention ponds. According to the maker, the supplements are effective for difficult startups, daily maintenance to meet system discharge requirements or when a system becomes unstable due to changes in flow, chemicals or increased organics. The manufacturer asserts that continuous use can lead to a significant decrease in odor, maintenance and emergency line blockages. It is available as ready-to-use, quick-dissolving, flushable dry packs providing a 1-year supply in a recyclable plastic canister. The liquid version is available in 1-, 5- and 55-gallon containers. **800-321-6960; www.jetincorp.com**

SEPTIC DRAINFIELD RESTORATION

EarthBuster

The **EarthBuster** is a repair/maintenance alternative to replacing septic fields. The deep soil decompactor mounts to skid-steers, tractors and mini-excavators using a probe to inject compressed air into the ground at depths up to 6 feet. It breaks up the biomat, loosens soil for better absorption, and provides oxygen access to the effluent treatment soil. One or two operators can complete a field in two to three hours with long-lasting results. **406-670-8318; www.earthbuster.com**

RioVation BioMaze

RioVation BioMaze rejuvenates biomat-clogged drainfields by providing advanced treatment of the effluent before it reaches the drainfield. Typically, single digit $CBOD_5$ and TSS effluent is produced, therefore very little soil-based treatment is required in the drainfield. The effluent is rich in oxygen, which kills the biomat causing bacteria and the aerobic microorganisms consume the biomat, thus clearing the drainfield. The process is a combination of fine air diffusion produced by a porous ceramic stone fed by a HIBLOW XP air pump and fixed film media pods that float and self-position in the septic tank. This allows for attached growth of the microorganisms, rendering the entire tank clear and odorless. **903-215-8855; www.riovation.com**

VENT PIPE FILTER

Simple Solutions Distributing WVI Inline

The **WVI Inline** activated carbon filter from **Simple Solutions Distributing** is installed in an attic or crawl space inline of the current vent to remove septic odor. The filter comes in 4- and 6-inch sizes, with the smaller unit able to be bushed down to 1.5-, 2- and 3-inch sizes. It comes with 2 pounds of Sulfursorb Plus activated carbon, which is poured into the 2-inch fill port. The unit accepts an optional screw-in saturation indicator that changes color to indicate when carbon needs to be changed. It is suitable for extreme, cold climates, as it is enclosed in an attic or crawl space. It can be installed in any climate where septic or sewer vent odor exists and the roof vent filter needs to be hidden. **973-846-7817; www.industrialodorcontrol.com**

CASE STUDIES

System Repair, Drainfield Rejuvenation

By Craig Mandli

Septic vent helps keep drainfield healthy and odor-free

Problem: A homeowner located in Massachusetts was in the process of a septic repair installation when they noticed a plastic PVC candy cane was being installed in the yard. Disturbed by the look of it and the potential for odor, they asked the installer if there was another option.

Solution: The installer contacted Pagoda Vent Company and purchased a septic vent.

Result: The customer was happy with the final result and the drainfield, along with all the subsurface components, will get the oxygen they need. 888-864-1468; www.pagodavent.com

Bacterial generator provides remediation for duck farm

Pond A Before Inoculation

Pond A After Two Months Treatment

Problem: The Reichardt Duck Farm in Petaluma, California, has to deal with 200,000 gallons of raw duck refuse daily. With more than 40 million gallons of ponds, they had tremendous capacity, but the high-strength waste built up over time and they had to improve conditions.

Solution: SludgeHammer's Aerobic Bacterial Generator was the solution. While invented to provide bacteria to septic tanks, scale-up was simple. The SludgeHammer unit let the farm grow its own bacterial supply.

Result: A massive supply of new bacteria consumed sludge, reducing BOD, solids, nitrogen and ultimately increasing the growth rate of the farm's ducks, improving profitability. 231-348-5866; www.sludgehammer.net

SNAPSHOT

Regulations Needed in Nova Scotia For Influx of Onsite Inspectors

The COVID pandemic prompted numerous opportunistic contractors with push cameras but no training or qualifications

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 Waste Water Nova Scotia.

Darrell MacKenzie
president and general manager

Business: **MacKenzie Environmental,** Alma, Nova Scotia, Canada

Age: 56

Services we offer: Septic tank pumping, portable sanitation, hydroexcavation, industrial and commercial pumping, high-pressure washing, dust control for roads and bulk water hauling.

Years in the industry: My grandfather James Robert MacKenzie formed the company in 1964. I started traveling with him when I was about five or six years old and I've been doing it ever since. My father Charles Robert MacKenzie took over from him and then I took over in 1993.

Association involvement:

I've been with Waste Water Nova Scotia since 2006. I've been on the board of directors since 2006 and serve as one of two provincial representatives for pumpers, portable restroom operators and cleaners.

Benefits of belonging to the association:

The association helps keep everybody on the same page and keeps the training up to snuff, which also helps protect customers. And, importantly, we work really well with the government. There's been great cooperation and it's very easy to get stuff done. We have our differences, of course, but it's worked out and there are never any major issues.

Biggest issue facing your association right now:

Because of the real estate boom here during COVID, when people were moving out of the cities and working remotely, anyone could go out and buy a push camera and do septic system inspections with no training or qualifications. That situation is at the forefront of what the association is concerned with right now. WWNS is trying to come up with some guidelines for people practicing this type of work. Our hope is to eventually have the government regulate the inspections.

Our crew includes:

We have administrative manager Tanya Smith, administrative assistant Karen Marshall, accounts receivable and payable manager Doreen Rector, and operators Travis MacKenzie (my son), Shawn MacKenzie (my brother), D.J. Worth and Blake Kontuck.

Typical day on the job:

I'm usually in the office by 4:30 or 5 a.m. I catch up on paperwork and get things organized for the day. I do all the bidding for the contracts and tenders. I look at jobs, perform maintenance on vehicles, and even get in the truck and go do the work myself if we're busy.

The job I'll never forget:

There are a lot of them. The most recent one was when Hurricane Fiona came through here in September 2022 — the worst hurricane to ever hit Canada, I think. The area had no power for over two weeks. We had seven trucks going non-stop during those two weeks to keep the sewage lift stations pumped down to prevent overflowing. There was a lot of damage in the province and eight months later people are still repairing their homes and waiting to get their roofs fixed.

My favorite piece of equipment:

We have a Vactor 2100 combo unit which we use for sewer flushing and hydroexcavation. It's a real versatile piece of equipment for us. We have a

new one ordered but delivery has been delayed due to difficulty of getting parts and the lack of welders.

Most challenging site I've worked on:

There was a motor vehicle accident here in 2010 involving a half-ton pickup and an oil truck hauling waste oil. The load of oil went into a river. We spent three months with six or seven vacuum trucks collecting the oil. I had to set up a tank farm to hold the oil and water we collected to wait for transport to be shipped away. It was a long three months to organize things and keep everybody working without getting overly tired.

Oops, I wish I could take this one back:

There had been a small fish plant here. When the owners went bankrupt they just walked out and left the fish and lobsters. We were contacted to go in and vacuum it out, clean it up and wash it down. But I didn't realize how long it had been from the time the owners walked away from it and when we got that contract. When we got in there, we quickly realized it was full of dead fish and lobsters. The smell, the maggots, the rotten fish, rats — it was quite an experience. It took us about three days.

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

I went to pump out a tank for an older gentleman. He had a very beautiful property with a perfect lawn. He met me at the truck and asked me if I wouldn't mind walking lightly across his grass so I wouldn't leave any footprints. I told him I'd do my best. Obviously I left footprints and hose marks but he didn't say anything.

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

Other than the unregulated camera situation, things are really good right now.

Best piece of small business advice I've heard:

It's not so much what I've heard but my thing has always been, "failure is not an option." You do what you have to do to make things work and get through the day. You take the good times with the bad.

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

This is all I've ever done so there's nothing else I'd want to do. And since I've worked from daylight to dark for years, I've never even really gotten into any hobbies. To me, this isn't work, this is just where I go every day to do stuff.

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

Down the road, there will be more regulations for things that come up. There will be more ATU technology with the advanced treatment units for smaller lots and other places. We've got a good working relationship with the government that I don't see changing. So, it's a good outlook for Nova Scotia. ☐

Would you like to see someone in your state or provincial wastewater trade association profiled in Snapshot?
Send your suggestions to Jim Kneiszel at editor@onsiteinstaller.com.

Serving the Industry

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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

COLORADO
Colorado Professionals
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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;
www.georgiaonsitewastewater.com;
706-407-2552

GEORGIA
F.O.G. Alliance;
www.georgiafog.com

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

ILLINOIS
Onsite Wastewater
Professionals of Illinois;
www.owpi.org

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

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

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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

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Massachusetts Limits Scope of Onsite Rules Update

By David Steinkraus

Over the summer, Massachusetts officials updated onsite rules to address nitrogen pollution, but the new rules are more limited than originally proposed.

In 2022, when officials first suggested changing the rules, widespread public opposition caused the state to hold several public hearings and extend its deadline for public comments. The proposed changes would have allowed the state Department of Environmental Quality to designate nitrogen-sensitive areas along the entire Massachusetts coast and on its islands. Onsite system owners in designated areas would have faced a tight deadline to upgrade their systems to include nitrogen-reducing technology. The updated rules focus only on Cape Cod.

Municipalities in designated nitrogen-sensitive areas will have two years to acquire a watershed permit that will last 20 years and allow them to apply a range of nitrogen pollution remedies such as municipal sewer connections and advanced onsite systems, news reports said. If a municipality does not acquire a permit, its residents will be required to upgrade onsite systems on their own.

The proposed rules set a five-year time limit for homeowners to improve systems in the absence of a watershed permit. In the updated rules, the five-year clock doesn't start until the end of the two-year window for a watershed permit application.

State Sen. Julian Cyr (D), who represents Cape Cod and the islands of Nantucket and Martha's Vineyard, said he expects most municipalities will apply for the permits. Earlier this year he said most communities already meet the permit requirement because of their work on comprehensive watershed management plans. The final onsite rules streamline transformation of those comprehensive watershed plans into the new watershed permits.

According to information compiled by the Association to Preserve Cape Cod, about 90% of bays along the cape had unacceptable levels of nitrogen in 2022 compared to 68% of bays in 2019.

In a related action, town of Dartmouth residents approved the potential expenditure of $200,000 for legal counsel that may be needed to represent the town in conjunction with the state's new onsite rules. If the money is not spent within a year, it will return to the town's general fund.

Because of the cost of nitrogen-reducing systems, Dartmouth citizens and their government were vocal in opposing the proposed rules. Dartmouth is not included in the final rules. In a statement the Department of Environmental Quality said communities on the state's southern coast, such as Dartmouth, have not had the same time as Cape Cod communities to plan for nutrient reduction. The department said it intends to assist communities outside the cape with nutrient pollution planning.

The budget proposed by Democratic Gov. Maura Healey calls for tax rebates of up to $12,000 for homeowners who upgrade their onsite systems.

Florida

Officials in Martin County put a 60-day delay on a new sewer system for two communities now served by onsite systems. The decision came after residents voiced concerns about the cost of hooking up to municipal sewer.

As part of its goal to eliminate septic tanks within 10 years, the county specified 1,000 homes in Port Salerno and New Monrovia must connect to a future municipal sewer system. After completion of the system in 2025, residents would have one year to connect at a cost of about $12,000, reported WPTV of West Palm Beach. If that cost were spread over 20 years of payments added to tax bills, each homeowner would pay about $15,000.

County commissioners delayed the system to find out what other state and federal funds might be available. Commissioners said each $1,000 of reduction in connection cost assessment for a homeowner requires $1 million from other sources. Grants would cover about half of the system's $24.3 million cost.

Martin County lies between Lake Okeechobee and the Atlantic Ocean.

Washington State

The state is distributing $313 million in grants and loans for clean water projects, including onsite work. The Regional Onsite Sewage System Loan Program will receive more than $15 million to assist homeowners with onsite repairs or upgrades. This is a continuing project of the state Ecology and Health departments, and the nonprofit third-party lender Craft3.

Thirty-seven nonpoint pollution projects will receive $43.9 million. Projects include stabilizing stream banks in the Hangman Creek watershed near Spokane and establishing a watershed conservation fund in Jefferson County, which covers part of the Olympic Peninsula.

Money for these projects comes from the state and the Bipartisan Infrastructure Law signed by President Joe Biden in 2021.

Oklahoma

A judge sentenced the owner of an onsite installation company to life in prison without parole for killing his employee and burying his body beneath a septic tank.

When Brent Mack went missing in September 2021, Daniel Triplett, of Guthrie, Oklahoma, told police he had fired Mack, paid him $1,000 in severance, and dropped him off at a laundromat. Using a search warrant, investigators looked at a list of recent installations by Triplett and focused on the job done on the day Mack went missing.

Surveillance video showed Triplett and Mack working at the job site. Mack climbed down into a septic tank hole but never appeared in the video again, and although the video showed two people arriving at the site, only one was seen leaving.

Investigators dug up the tank and beneath it found a body and a wallet containing Mack's ID. They said Triplett shot Mack in the back and used a backhoe to bury him.

PRODUCT SPOTLIGHT

Pod system utilizes coconut fiber media to suit small commercial systems

By Tim Dobbins

Colin Bishop, chief executive officer for Anua International, says small commercial system demand is increasing, regulations are becoming more stringent and customers are looking for portable solutions for remote areas. In response, the team at Anua came up with the Synergy BioCoir QuadMod, a unit built with a focus on the small commercial market.

"They fill the gap for any small commercial application, whether permanent or mobile," Bishop says. "BioCoir provides enhanced nitrogen reduction, which is required more and more."

BioCoir systems are a recirculating media biofilter that utilize coconut coir housed in a preassembled pod. "Coir refers to the fibers that make up the thick husk of the coconut fruit," Bishop says. "Coconut fiber is low cost, an upcycled resource and high in lignin content, which results in a durable material."

Pretreated effluent is time-dosed over the coir media using helical spray nozzles for uniform distribution. After passing through the media, effluent travels to the bottom of the pod and the flow is split, with 80% returning back into the treatment stream and 20% to the final dispersal point.

"The treatment process cannot be bypassed," Bishop says. "It's certified to NSF/ANSI Standard 40, Class I and third-party nitrogen reduction greater than 50%."

QuadMods are designed for both burial and portability by featuring an I-beam steel frame that allows the unit to be picked up and moved many times. The frame is heavy enough to also serve as an antibuoyancy anchor for permanent installations.

Measuring just over 19 feet long, 7.38 feet wide and 3.42 feet tall, QuadMod systems are designed to fit in standard shipping containers, so they can be transported worldwide. Total weight is roughly 8,500 pounds.

Bishop says media filters are also useful for intermittent use applications and highly variable flow applications, making them an option for remote sites or seasonal use. He also says they are built with installers in mind. "The preassembled unit is designed to save the installer and service provider time," he says. "We try to make it easy for them to do their job." **336-547-9338; www.anuainternational.com**

Franklin Electric FE Connect app

Franklin Electric added to its FE Connect app designed to help professionals quickly set up and service Franklin Electric products equipped with wireless connectivity. The app supports some of the company's variable frequency drives, including SubDrive Connect, SubDrive Connect Plus, SubMonitor Connect and select configurations of Cerus X-Drive. The app offers an array of startup, monitoring and troubleshooting solutions, including in-app guidance when setting up products, access to over-the-air firmware updates for effortless upgrades, and visibility into real-time product status. Engineers and water system professionals can also create and manage templates to easily save and load configurations across installations. The app helps preserve VFD integrity, allowing users to perform tasks and troubleshoot with minimal hands-on interaction with the drive. **866-271-2859; www.franklinwater.com**

SJE Rhombus SJE VerticalMaster 3 Plus pump switch

The SJE VerticalMaster 3 Plus mechanically-activated pump switch from SJE Rhombus is designed for direct control of pumps up to 1/2 hp at 120 volts AC and 1 hp at 230 volts AC in nonpotable water and sewage applications. The vertical design makes this a perfect fit for limited space applications, including small sump chambers, laundry trays and effluent, as well as in large tanks. SJE Rhombus has incorporated many features from the original version, as well as some new features, including redesigned compact float housing for improved buoyancy, increased contact force, and an easily adjustable plastic clip. A cable entry design helps prevent moisture ingress, and it has been; life cycle tested to over 1 million cycles. **218-847-1317; www.sjerhombus.com**

Geoflow WaterflowECO drip tubing line

Geoflow's WaterflowECO subsurface drip irrigation tubing for wastewater and nonpotable water applications was developed to provide a more complete line of products for the wastewater market. WaterflowECO is made in the U.S. and has 0.67-inch tubing which incorporates Geoshield, an antimicrobial lining that stops bio slime buildup. It is purple tubing with flat emitters, which are available in flow rates of 0.4, 0.6 and 1.0 gph. **800-828-3388; www.geoflow.com**

INDUSTRY NEWS

Franklin Electric names new global water VP, celebrates HQ anniversary

Donald Kenney

Greg Levine

Donald Kenney, vice president and president, global water, will be retiring after nearly 32 years with Franklin Electric. Kenney led Franklin Electric's Global Water growth strategy over the past decade. Taking over the position is Greg Levine, who joined Franklin Electric in July from Nidec Corp., where he served as president of the motion control and drives business for the past six years. Before working at Nidec, Levine held senior engineering roles at Emerson for 15 years.

Franklin Electric also celebrated the 10th anniversary of its global corporate headquarters in Fort Wayne, Indiana.

CEO Gregg Sengstack addressed employees. Completed in 2013, the 120,000-square-foot complex is located on 102 acres. The building is powered by more than 70 Franklin Electric products. Outside, a cooling pond provides geothermal heating and cooling. The company was granted LEED Silver certification through the U.S. Green Building Council.

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