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Sand and boulders, foothills and hardpan valley soils provide plenty of onsite challenges for Arizona's Hornick Contracting PAGE 12

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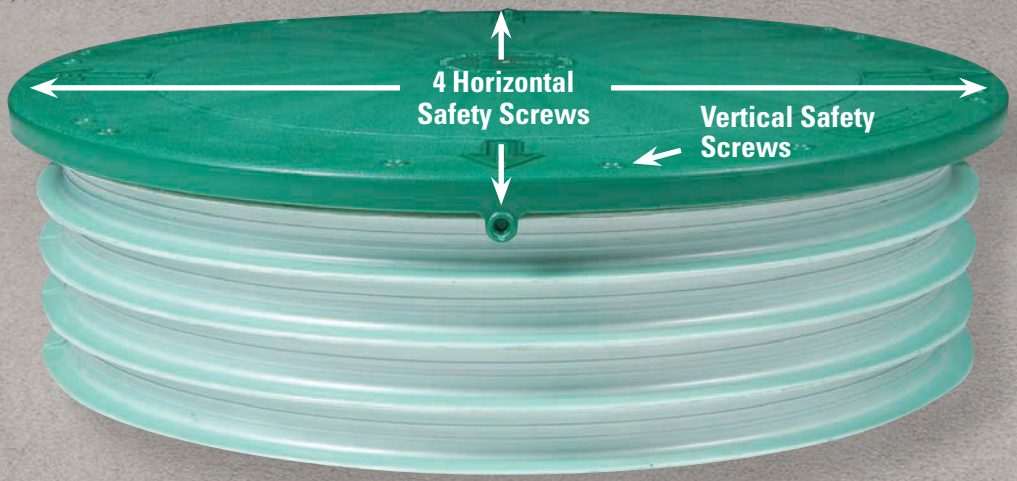

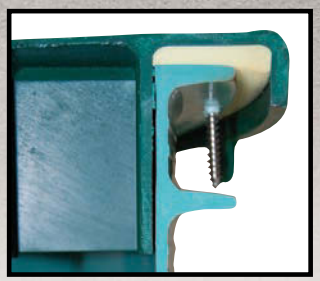

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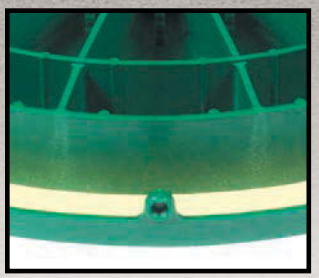

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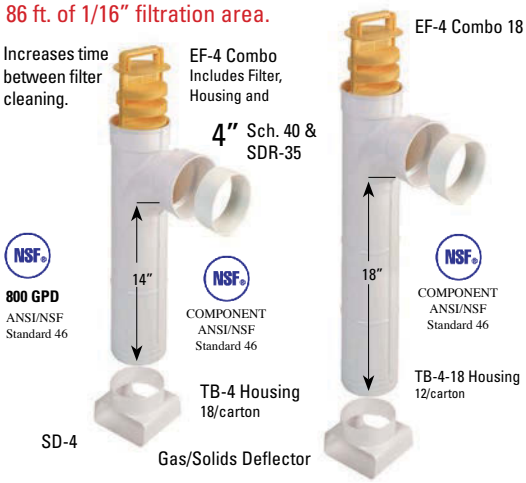

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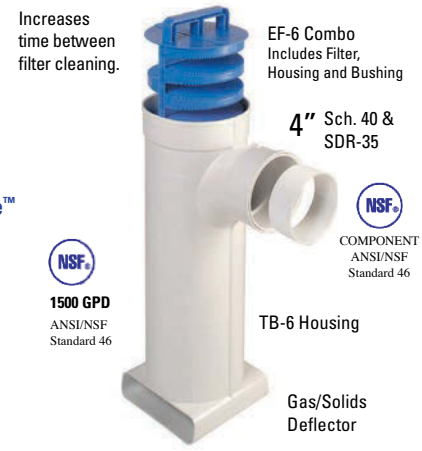

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Call Your Congressman

Installers can join a national lobbying effort to demand more federal money to support onsite wastewater infrastructure improvements

By Jim Kneiszel

A national trade association leader calls the onsite industry the "red-headed stepchild" compared to municipal sewer interests when it comes to obtaining federal infrastructure improvement funding. No offense to redheads or stepchildren everywhere, but Eric Casey, executive director of the National Onsite Wastewater Recycling Association (NOWRA), made a strong case for his claim during a talk at the Water & Wastewater Equipment, Treatment & Transport Show in Indianapolis earlier this year.

Casey says the treatment private decentralized wastewater receives from the U.S. Environmental Protection Agency is fundamentally unfair, and that Congress needs to wake up to the vital role the onsite industry plays in the country's overall wastewater picture. In the talk aimed at motivating the industry to take its concerns to legislators, Casey shared some arguments to prove that – like the late, great comedian Rodney Dangerfield – onsite "Don't get no respect."

There is a big picture to consider. Fighting for greater recognition of the value of onsite systems may ensure a brighter future for decentralized wastewater. Gaining more federal dollars to repair, rebuild and expand septic system infrastructure will help your customers complete expensive projects that improve the environment.

Ponder this from Casey:

- One-third of Americans utilize decentralized wastewater treatment, but only 2 cents of every $5 spent by EPA on wastewater programs go to onsite initiatives.
- The EPA's Decentralized Wastewater office currently has a staff of one person, compared to the hundreds of employees serving Big Pipe concerns.
- Members of Congress – ordinarily concerned with private sector job creation – have been slow to embrace the onsite industry Casey says generates $3.8 to $5.6 billion in economic activity and employs up to 150,000 people.

TAKING ACTION

So what is the industry doing to change all of this? For starters, NOWRA (with the support of a group of industry manufacturers) has hired a lobbyist to mount an education effort in Washington. There's been an initial meeting with Congressional members and staff, and Casey told WWETT attendees they could participate in organized "fly-in" meetings with their legislators in Washington in the future.

Installers are a busy group of people, especially during the peak construction season we're in right now. As the economy improves, contractors I talk to have work stacked up weeks and months into the future. Asking them to shut down the mini excavator and put the crew on hold to meet with their legislators might not be realistic. They might not see how they can benefit from taking the time off.

But there is a big picture to consider. Fighting for greater recognition of the value of onsite systems may ensure a brighter future for decentralized wastewater. Gaining more federal dollars to repair, rebuild and expand septic system infrastructure will help your customers complete expensive projects that improve the environment. Going green is a positive message today, and installers will benefit if they are seen as green advocates.

Expanding public funds for onsite improvements is a major goal of the industry effort. However, some might question why public money should be funneled into private infrastructure projects. You could turn that around and say that users of private wastewater systems are also contributing to the public sewers through their tax dollars. And Casey adds there is precedent for spending public funds in the private sector when it's done for the greater good of everyone, such as college loan programs or public health efforts.

"There are 90 million taxpayers (with onsite systems) who aren't being legitimately served, and that's who we're speaking for," Casey says.

Casey points to Lowndes County, Alabama, where onsite systems are failing and homeowners don't have the means to repair and replace them. This is a public health concern, and the government should step in with programs like loans and grants to fix the problem, he says.

"In many communities there is raw sewage running along the streets. These are very poor people who could never afford to put $7,000 into a new system. Infant mortality rates are sky high, and part of that has to do with public health that is so poor," Casey says. In cases like this, local municipal treatment plants might have access to federal funds for improvements, but not the greater population that uses onsite systems, he says.

BIGGER PIECE OF THE PIE

The NOWRA lobbying effort seeks to have 20 percent of EPA wastewater funding earmarked for decentralized wastewater initiatives. This would be a major change over the current situation, which favors centralized sewer projects by a 250 to 1 ratio, according to Casey.

"We want a bigger piece of the pie," he says. "We're not likely to get 20 percent, but even if we get 2 percent, it will be 10 times what we get now."

His case for more funding is even stronger if Casey is right in asserting that use of decentralized systems will only grow in the future. He contends that continuing to lay pipe for municipal sewers is proving unsustainable in many areas, and that onsite will be perceived as the better way to go in light of overwhelming future maintenance needs for sewer systems.

Rep. Bob Gibbs (R-Ohio), chairman of the House Transportation and Infrastructure Committee, was supportive of NOWRA's early lobbying, Casey says. The first meeting provided an opportunity to educate elected officials and staffers who don't understand what onsite systems are.

"It was eye-opening to most of them. They were surprised that the industry was such a big part of the overall national wastewater infrastructure, yet it gets so little support from the federal government," Casey recalls.

MAKE A DIFFERENCE

With a greater understanding of the onsite industry, Casey believes lawmakers on both sides of the aisle will find ways to lend greater financial support. He says the potential for job creation and green aspects of decentralized wastewater are politically attractive to both Republicans and Democrats.

"Money that comes into this industry to repair and replace systems is going to result in more private sector jobs – more manufacturers will build the tanks and more installers will put them in the ground," Casey says. "That's an important argument that's often overlooked."

It seems clear that an infusion of money is required to support necessary improvements to an aging onsite infrastructure. And the prospect of grants, low-interest loans and other incentives for homeowners – the customers of onsite installers – would be welcomed.

At the WWETT Show, I spoke with a group of onsite contractors and liquid waste haulers from Ohio about long-overdue updates to regulations in their state. I think these onsite professionals understood the need to identify and fix failed systems to create a cleaner and safer environment. But they voiced concern for their customers, worried that pumpers would now be required to report failing systems to the county.

The Ohio contractors said their customers often don't have the funds necessary to pump the septic tank, let alone be forced to pay for a costly system repair or replacement. If the EPA finds a way to funnel more funds to support onsite systems, the burden could be eased for homeowners, and everyone will benefit from safer wastewater treatment and cleaner groundwater.

We can all have an impact on educating legislators who hold the purse strings for these tax dollars. We can start by talking to our local county officials, calling our state representatives and, ultimately, paying a visit to our members of Congress. Remind them how many people in your service area rely on septic systems. Tell them what it would mean for homeowners and onsite-related small businesses to have a little more support from the EPA.

NOWRA plans to keep the pressure on at Capitol Hill.

"We haven't had a voice in Washington, and the situation will not change unless we are in there swinging and playing the game," Casey says. "If we're not going to be there, we're not going to advance the goals of the industry."

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TERRAIN TAMERS

Sand and boulders, foothills and hardpan valley soils provide plenty of onsite challenges for Arizona's Hornick Contracting

By David Steinkraus

In the Arizona desert, Hornick Contracting has made a name and a niche by focusing on a substance more valuable than the gold still hunted by prospectors: water. Now moving into control of a new generation, Hornick's has survived and thrived through hard work and adapting to fit changing times and customer needs. Nor will that adaptation stop if company manager Tim Bottorff has his way.

Much of the company's business is driven by Arizona's geology. When housing was booming, most of Hornick Contracting's installs were traditional septic systems. Now ATUs dominate because many building sites are located high on hills or mountains where good soil is nonexistent.

DIG IT BY HAND

"There are many challenging ground conditions here in Arizona. We have a lot of granite," Tim says. There is caliche, thick deposits of calcium carbonate washed into low areas by rainwater. "Some people call it Indian concrete, and it can be extremely difficult to dig."

Hornick Contracting Co., Laveen, Arizona

OWNER:	John Hornick
FOUNDED:	1973
EMPLOYEES:	7
SERVICE AREA:	Arizona
SERVICES:	Permitting, design, installation, maintenance and repair for commercial, residential and large custom wastewater systems
AFFILIATIONS:	National Onsite Wastewater Recycling Association, National Association of Wastewater Technicians

<<OPPOSITE PAGE: The Hornick Contracting team includes, from left, Jim Ralls, Faye and John Hornick, Tim and Sheila Bottorff, and brothers J.R. and Justin Bottorff. (Photos by Mark Henle)

RIGHT: Tim Bottorff reviews plans on location at the installation of a water retention system in Arizona. Water storage is common in a region where wells are drilled thousands of feet deep and many residents are only there part time.

How Hornick workers dig depends on the conditions. For an extremely hard dig they rent equipment, typically a backhoe-mounted breaker. "On a lot of these jobs, the hillside is so steep you have to be pretty creative to get a piece of equipment up there," Tim says.

Dripline is usually installed by hand. When you hand-dig, the effect on the landscape is minimal, Tim says. Crews can go around trees and cacti without harming them. Vibrating plows won't work in Hornick's area because the soil is too rocky. All the rock also means drip trenches are specially constructed. Hornick's crews dig a foot below grade, make a trench 4 to 6 inches wide, fill that with sand, put in dripline center and cover with native soil. Typically Hornick Contracting installs about 1,100 linear feet of line per job although it has done projects as large as 4,000 feet.

Although systems are designed to use all the wastewater they produce – especially ATUs with drip irrigation to water landscape plants – the sun and dry desert air provide an added benefit by evaporating the treated water. But because the rocky soil can move wastewater quickly, the state of Arizona takes an extra step and requires either chemical or UV disinfection for ATUs in sensitive soils, Tim says.

"We found it was better to hire out the pumping. We didn't have to maintain or insure a pump truck, and we would get references for repair work from the pumping companies we use. This way it's more profitable. Everyone has work, everyone helps and everyone wins."
Tim Bottorff

GETTING STARTED

The company began with John Hornick, Tim's stepfather, who acquired heavy equipment experience in the Army Corps of Engineers during the Vietnam War. He started the business part time in the 1970s and went full time in 1973 with Hornick Contracting. He installed conventional septic systems for builders in the Phoenix area. Evapotranspiration systems were popular. At that time this meant hammering a hole in rock, filling it with sand and gravel layers, and installing 4-inch perforated pipe to drain effluent from the tank. John remains president and owner but is semiretired.

People who know the company may be confused by Tim's last name, because he is commonly known as Tim Hornick. Not only does Tim not mind, he welcomes it. John may legally be his stepfather, but in Tim's mind he is so much more, and has taught Tim so much, that calling John father is more appropriate. And if there's a decision or an idea about the company, Tim talks it over with his dad first.

When he left the Air Force in 1995 and went to work in the business, Tim developed an interest in advanced treatment. He had been an Air Force welder and machinist working on fighter aircraft. He sought training by one ATU manufacturer, then another, and it continued. Now, Tim says, the company is either a dealer or certified installer for all major ATU systems on the market. There are subtle differences in each technology, and Tim believes completing a proper installation requires knowledge about all of them.

With the shifting housing market and increasingly restrictive regulations, Hornick Contracting's business has changed. Once the company installed about 80 percent conventional systems on large housing developments.

From left, Tim Bottorff, Jim Ralls and J.R. Bottorff use a Cat backhoe to place a riser lid over a water tank at an Arizona home.

ATUs are now 90 percent of the work, and 90 to 95 percent of the projects are large custom homes. The other 5 to 10 percent are commercial installations such as golf courses, the Phoenix International Raceway, police training facilities and truck stop gas stations.

The company currently consists of Tim; his wife, Sheila, who handles the office, phones, billing and conventional septic system design and permitting; his brother-in-law, Jim Ralls, who is heavy-equipment operator, driver, maintenance supervisor, maintenance technician and electrician; and his oldest son, Steven, heavy-equipment maintainer and operator, and maintenance technician assistant.

TOOLS OF THE TRADE

Hornick Contracting may do a lot, but it doesn't take a great deal of equipment to make the business go.

(continued)

There's a future in the follow-up

There's plenty of onsite installation work to do in Arizona, but Tim Bottorff, manager at Hornick Contracting, in Laveen, Arizona, sees another opportunity for his business, courtesy of government regulation.

"If you install an ATU on your property, the state wants it to be properly maintained. That means either you, the homeowner, become proficient in maintaining the system, or you sign a contract with someone qualified to do it," Tim says.

When his company installs an ATU, a maintenance contract is a natural extension of that work. Currently the company maintains about 70 systems. Most of these are in seasonal homes. When the houses are not occupied, the systems are shut down. Often the company receives emails from the owners saying they are coming and asking Hornick's to start the system up or check to be sure it is fully operational.

Systems in seasonal homes are checked once or perhaps twice a year. For homes occupied year-round the checks are quarterly. At the moment, this requires about three or four days every three months to check all customer systems in the valley that cradles Phoenix. It also means a long day on the road for someone to make the 150-mile one-way drive to Flagstaff for inspections in that area.

Tim sees this business growing and becoming its own division with its own full-time worker within the next couple of years.

At the training classes he attends through the National Onsite Wastewater Recycling Association and the National Association of Wastewater Technicians, Tim finds more people moving into system maintenance. That obviously cuts into Hornick's business, yet it also means better overall maintenance of systems and a reduction in marginally profitable emergency calls from desperate homeowners.

ABOVE LEFT: Tim Bottorff, at the controls of a Cat backhoe, installs a 10,000-gallon water retention system for a Paradise Valley home.

ABOVE RIGHT: Technician Jim Ralls guides workers moving a lid into place as part of a new 10,000-gallon water retention system.

LEFT: Tim Bottorff, right, instructs delivery workers on the correct placement of a lid for a large concrete tank that will be used to store water at an Arizona home.

There are two Caterpillar backhoes, a 426 and a 416, and a Cat mini-excavator. The company dump truck started as a 1996 International chassis. The Hornick crew rebuilt the engine and had a dump box installed. It doesn't accumulate many miles because it is used only for hauling equipment and excess soil. The service truck is a 2006 Dodge diesel four-wheel drive. Hornick Contracting also runs a 1996 Ford pickup and a 2002 Dodge diesel.

Another piece of equipment much smaller but no less useful is Tim's Panasonic Toughbook. You will find the same model laptop in many police cars and for the same reason. Tim bought his so he has a working computer when he needs one. "The sun in Arizona is intense, especially when the truck is closed up. Standard laptops can't take the heat. I burned through a bunch of them and finally gave up and bought the Toughbook. It was $3,000, slightly more than twice the price of a regular laptop, but I've had it for two years, and it's still working."

The laptop enables him to put his office in the truck. He tried a tablet computer, but it didn't have enough power or flexibility. With the computer tethered to the Internet through his smartphone, he can go online from anywhere there's a cell signal and handle billing or emails.

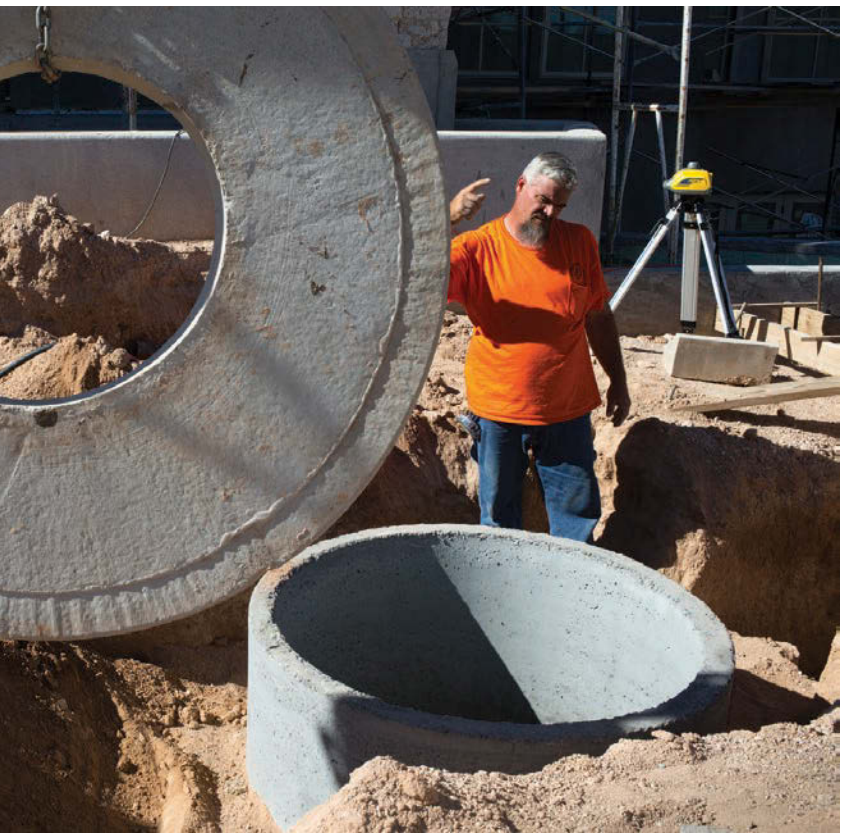
NETWORKING FOR SUCCESS

The reason for the spartan equipment list is the relationships Tim has built with other contractors in his area. He is not in business to put other people out of business. Instead he has cultivated a specialty and takes advantage of other people who have done the same.

"We had a pump truck at one time, but we found it was better to hire out the pumping. We didn't have to maintain or insure a pump truck, and we would get references for repair work from the pumping companies we use. This way it's more profitable. Everyone has work, everyone helps and everyone wins," Tim says.

Effective business networking is not a new goal. It's the attitude Tim's stepfather started the company with.

"When you're dealing with customers, you make an impression by doing a good job. If you do that job very well, when the customer's neighbor needs some work done, your name comes up," Tim says. "If they build another house or if a friend builds a house, we get the word-of-mouth recommendation: 'They took care of us and charged us a fair price.' It makes me smile when I hear that on the other end of the phone."



The same is true for the company's commercial work. Three or four builders in the area will only use Hornick Contracting. These are also multi-generation businesses whose families have known the Hornick business for years.

"I'm not threatened by sewer services to subdivisions. That has always happened, and we have always been able to find enough work. Outside of the city there are many areas where people want a house in the suburbs, and they must have an onsite wastewater system."
Tim Bottorff

MORE PARTNERSHIPS PLANNED

Tim is thinking about where the company can go next. For some time he has been considering household water storage and pressure systems. The Arizona geology that makes it difficult to install wastewater systems has the same effect on water supplies for customers. "Our water table is deep. The areas where our customers build custom homes have almost no water. Their wells have to be around 4,000 feet," he says.

The solution is to haul water in. A home will have a storage tank of a couple thousand gallons. A jet pump pulls water from it to a pressurized holding tank with a bladder to feed the household piping. That's expensive, but it's cheaper than drilling a 4,000-foot well, Tim says. Also reducing the expense for homeowners is the lack of continuous occupancy. Many homes are built for retirees from up north – or snowbirds – and as a result water usage is not heavy.

Hornick Contracting already installs and maintains the storage and pressure tanks and pumps for household systems, and Tim would like to expand his service to providing a well where it is feasible and cost-effective. The plan is to partner with qualified well-drilling companies for that work, and he would take care of the rest of the infrastructure: pipes, pumps and tanks.

watch them in action
To learn more about Hornick Contracting Co., check out a video interview at www.onsiteinstaller.com.

GOING FOR GROWTH

In one respect, Hornick Contracting looks like it's in a vulnerable place. Like other cities of the South and West, Phoenix is growing. In February 2014, it ranked third in the nation in population growth. With that always comes the threat of municipal sewer.

"I'm not threatened by sewer services to subdivisions. That has always happened, and we have always been able to find enough work," Tim says. "Outside of the city there are many areas where people want a house in the suburbs, and they must have an onsite wastewater system. If municipal sewer comes past your property, the city will force you to hook up when your onsite system fails, and I have done that for people, too."

Again, geology works in Hornick's favor. Mountains and ridges separate people from municipal pipes. But the company has a more powerful advantage: a long-standing reputation for excellent service combined with a willingness to explore and harness new opportunities. These make the dry desert a productive place for Hornick Contracting, a family business in every sense of the term.

Ditch the Downtime

Maintenance checklists keep your truck and equipment ready to roll through the busy season

By Ed Wodalski

A heavy workload, long hours and little sleep during the busy season make machine maintenance a challenge. It's easy to put on a few more miles between oil changes or delay repairs until the work slows down. But that's when things often go wrong: A stop for fuel puts you behind schedule, a tire is low on air or the tank you thought was empty still holds waste from the day before.

"It always happens when you have a whole bunch of stuff to do the next day," says Wade Pennau, owner of Packerland Portables in Wautoma, Wisconsin. "It's usually when things get busy. Guys try to stretch oil changes or we don't check tire pressures."

Pennau, who provides portable sanitation, septic pumping and drain cleaning services, has his drivers go through a daily vehicle checklist. Trucks are typically refueled and supplies restocked at the end of the day. Each morning drivers check the engine oil, the signal lights and do a quick walk-around before beginning their routes.

Packerland Portables manager William Pierotti (left) and owner Wade Pennau discuss the day's workload, including providing maintenance for a Kubota tracked excavator. (File photo)

"The portable restroom guys fuel their trucks at night, empty the waste and wash them down so they're ready to go in the morning," he says. "That comes from years ago when a driver came back with a full load of waste. He washed the truck and fueled it up. But the guy in the morning wasn't thinking and didn't look. He got to his first job, the tank was full and he was 45 minutes away. That's a big time-waster."

CREATE A SYSTEM

Pennau says consistency and checklists are his keys to maintaining a smooth-running fleet.

"Establish a system and appoint a person to ensure the work gets done," he says. "It's not 100 percent in place, but we have one guy in charge of the portable restroom trucks and one guy in charge of our septic pumping trucks.

(continued)

Ultimately, if something's not working, they're the ones responsible for getting it scheduled to be fixed, making sure oil changes are done on time, making sure we have good tires on the trucks, and that's made a big difference. It used to be the driver would tell one guy and the other guy wouldn't tell the other guy and pretty soon there's a problem with a truck. Now there's one guy in charge."

Supervisors are also responsible for training drivers, maintaining equipment and ensuring the trucks are stocked with supplies.

"We just started doing that about a year ago and it's starting to fall into place," Pennau says.

Drivers are expected to file a daily inspection report that is handed in at the office. If the brakes aren't working properly or the steering is pulling to one direction, it's noted on the report. Maintenance supervisors also drive each truck to make sure the drivers haven't overlooked something. Each truck has a paper spreadsheet and maintenance record. Stickers are placed on the windshield after each oil change.

"We try to get within 500 miles of that sticker," Pennau says. "We're not perfect yet, but we're constantly trying to make it better."

"We have one guy in charge of the portable restroom trucks and one guy in charge of our septic pumping trucks. Ultimately, if something's not working, they're the ones responsible for getting it scheduled to be fixed."
Wade Pennau

PLAN AHEAD

For Clay Barks, owner of Clay's Septic & Jetting in Nipomo, California, the busy season has more of an ebb and flow, rather than the sudden peaks experienced in colder climates. To make sure equipment is ready to roll when needed, Barks has drivers fill out a daily inspection report that's turned into the office. He also has a mechanic on staff who works Tuesday through Saturday. For larger jobs, such as a transmission repair, Barks tries to plan ahead and have the truck worked on while the driver is on vacation.

"The slow times we have are the end of January through March," says Barks, who offers onsite system replacement, repair, inspections, pumping and waterjetting.

If a mechanical problem occurs during the day, it's dealt with immediately. If it's at the end of the day, the driver places a note on the dash alerting others that the truck requires service.

"All of my trucks back into their slot. If you have a truck that's pulled in, that means something is up," Barks says. "If it's something major, the driver will write a note on the windshield and steering wheel. That way nobody comes in the middle of the night and drives off with that truck."

In California, businesses are required to file a 90-day biennial inspection of terminals (BIT) report for all vehicles with a gross vehicle weight rating greater than 10,000 pounds. At a minimum, inspection items include the brake system, steering and suspension, tires, wheels and connecting devices such as kingpins, pintle hooks, drawbars and chains. The report must include vehicle identification, date and nature of each inspection and repair performed, as well as the signature of the authorized representative attesting to the inspection and completion of repairs.

Clay Barks, owner of Clay's Septic & Jetting in Nipomo, California, performs equipment maintenance, even in the midst of the busy season. (File photo)

For equipment such as excavators and backhoes, maintenance is ongoing, Barks says. Every 90 days, fluids receive a thorough check and oil samples are sent in for analysis. Past samples have shown high levels of aluminum and copper, indicating repairs are needed.

"Everything we own we try to keep busy," Barks says. "For us, it's all about advanced planning."

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SEPTIC TANKS DIRECTORY 2015

	BRAND	MATERIAL	CAPACITY (GALLONS)	DIMENSIONS	WEIGHT (LBS)	COMPARTMENTS	INLET (ALL)/ OUTLET (BLL)	CERTIFICATION
CONCRETE TANKS								
Dalmaray Concrete Products Inc. 405 S Arch St., Janesville, WI 53548 888-222-4541 608-752-6507 Fax 608-752-5671 sales@dalmaray.com www.dalmaray.com See ad page 41	Dalmaray Dalmaray Dalmaray	Concrete Concrete Concrete	1,000 1,300 2,050	91"l x 78"w x 60"h 118"l x 78"w x 60"h 156"l x 96"w x 60"h	9,680 13,009 21,360	1 2 3	47"/42" 47"/42" 47"/39"	Wisconsin DSPS Wisconsin DSPS Wisconsin DSPS
Jet Inc. 750 Alpha Dr., Cleveland, OH 44143 800-321-6960 440-461-2000 Fax 440-442-9008 email@jetincorp.com www.jetincorp.com See ad page 41	Jet	Concrete	500 - 1,500	120"l x 59"w x 69"h	10,000	3	56"/53"	NSF 40 & 245
Wieser Concrete W3716 US Hwy. 10, Maiden Rock, WI 54750 800-325-8456 715-647-2311 Fax 715-647-5181 celseyw@wieserconcrete.com www.wieserconcrete.com See ad page 25	Wieser Wieser Wieser	Concrete Concrete Concrete	1,600 10,000 (Hs20 rated) 40,000	84"l x 145"w x 53 1/4"h 120"l x 192"w x 126"h 168"l x 480"w x 140"h	10,250 base 6,350 lid 35,975/section 70,000/section	3 Adjustable Adjustable	Adjustable Adjustable Adjustable	NPCA Certified NPCA Certified NPCA Certified
FIBERGLASS TANKS								
Xerxes Corporation 7901 Xerxes Ave. S, Ste. 201 Minneapolis, MN 55431 952-887-1890 info@xerxes.com www.xerxes.com See ad page 15	Xerxes	Fiberglass	600 - 62,000 Custom Built	4' to 12'				
POLY TANKS								
Ace Roto-Mold, a Div. of Den Hartog Industries, Inc. PO Box 425, Hospers, IA 51238 800-342-3408 712-752-8432 Fax 712-752-8222 sales@denhartogindustries.com www.denhartogindustries.com See ad page 21	Ace Roto-Mold Septic Ace Roto-Mold Septic Ace Roto-Mold Septic	HD Polyethylene HD Polyethylene HD Polyethylene	500 1,250 1,500	63" x 74" 58"l x 118"w x 72"h 58"l x 137"w x 72"h	197 492 580	1 2 2		 IAPMO 21000, CAN/CSA-B-66 IAPMO 21000, CAN/CSA-B-66
AK Industries, Inc. PO Box 640, Plymouth, IN 46563 800-370-3749 574-936-2542 Fax 574-936-2298 info@akindustries.com www.akindustries.com	AK Industries AK Industries AK Industries	Polyethylene Polyethylene Polyethylene	1,000 1,050 1,300	102"l x 67"w x 63"h 126"l x 66"w x 53"h 113"l x 69"w x 69"h	600 600 675	1 or 2 1 or 2 1 or 2		IAPMO/CSA IAPMO/CSA IAPMO/CSA
Jet Inc. 750 Alpha Dr., Cleveland, OH 44143 800-321-6960 440-461-2000 Fax 440-442-9008 email@jetincorp.com www.jetincorp.com See ad page 41	Jet	Polyethylene	500 - 800	121"l x 62"w x 70"h	1,000	3	59"/56"	NSF 40 & 245
Infiltrator Systems, Inc. 4 Business Park Rd., Old Saybrook, CT 06475 800-221-4436 dfiorentino@infiltratorsystems.net www.infiltratorsystems.com See ad page 3	IM-540 IM-1060 IM-1530	Polypropylene Polypropylene Polypropylene	475 1,094 1,537	65"l x 62"w x 55"h 127"l x 62"w x 55"h 176"l x 62"w x 55"h	169 320 501	1 1 or 2 1 or 2	47/44 47/44 47/44	CSA and IAPMO CSA and IAPMO CSA and IAPMO

SEPTIC TANKS DIRECTORY 2015

POLY TANKS CONT.

	BRAND	MATERIAL	CAPACITY (GALLONS)	DIMENSIONS	WEIGHT (LBS)	COMPARTMENTS	INLET (ALL)/ OUTLET (BLL)	CERTIFICATION
Premier Tech Aqua 1, avenue Premier, Riviere-du-Loup, QC G5R 6C1 Canada 800-632-6356 418-867-8883 ext 6250 Fax 418-862-6642 pta@premiertech.com www.premiertechaqua.com	PTA PST-500	Polyethylene	1,140	115"l x 52 3/8"w x 67 3/4"h	584	2	55 1/8"/52"	SA
	PTA PLT-1000	Polyethylene	2,481	126"l x 92"w x 106"h	1,433	2	83"/78"	
	PTA PLT-5000	Polyethylene	12,258	509"l x 92"w x 106"h	4,768	2	83"/78"	
Roth Global Plastics PO Box 245, Syracuse, NY 13211 888-266-7684 315-475-0100 Fax 315-475-0200 info@roth-usa.com www.rothmultitank.com **See ad page 19**	Roth MultiTank	Polyethylene	750	51"l x 62"w x 103"h	360	1 or 2		
	Roth MultiTank	Polyethylene	1,000	51"l x 62"w x 118"h	450	1 or 2		
	Roth MultiTank	Polyethylene	1,500	51"l x 62"w x 177"h	640	1 or 2		
Snyder Industries, Inc. 6940 "O" St., Ste. 100, Lincoln, NE 68510 402-467-5221 Fax 402-465-1220 sales@snydernet.com www.snydernet.com	Nuconsept	Polyethylene	300 to 500	48"		1		IAPMO
	Dominator	Polyethylene	750 to 1,500	96"-191"l x 60"w x 51"h		1 or 2		IAPMO
	Nuconsept	Polyethylene	1,050 to 1,500	100"-140"l x 64"w x 62"h		1 or 2		IAPMO

"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.

Washington state wineries may be scrutinized for waste disposal processes

By Doug Day

The Department of Ecology in Washington state is looking at regulatory changes due to the growing number of wineries in the state. According to the agency, every gallon of wine produced results in 6 gallons of wastewater. While the DOE says the industry has done a good job in general handling the wastewater, it is concerned that many smaller wineries are disposing of wastewater in domestic septic systems, which aren't designed for these waste streams. The largest wineries have individual wastewater discharge permits, and the DOE is drafting a general permit for smaller operations. Draft regulations are expected in July with a final regulation to follow in November for public comment. Final adoption is scheduled for March 2016. Agency representatives briefed the industry at the February meeting of the Washington Association of Wine Grape Growers and plan to survey wineries through the association.

COLORADO

A proposal to repeal a ban on the purchase and installation of "non-efficient" faucets, shower heads, flushing urinals and tank-type toilets failed by a 6-4 vote in a committee of the Colorado Legislature. The ban, set to go into effect in September 2016, requires the use of fixtures that meet the U.S. Environmental Protection Agency WaterSense standards in new construction and renovations of residential, commercial, industrial and state-owned buildings. In criticizing the new rule, Colorado Rep. Tim Dore (R-Elizabeth) cited what he called the "Denver-centric view" of lawmakers. He said they overlooked the needs of rural areas with septic tanks, private wells or small water and sanitation districts that don't have the water pressure needed to make the fixtures feasible.

FLORIDA

Two bills have been introduced to once again try to overturn Florida's ban on land-spreading septage waste, which becomes effective in January 2016. Passed in 2010, the ban was intended to protect the state's waters from nutrient pollution. Septic wastewater haulers and rural counties tried to change the law last year without success. Companion bills were introduced again in February in the state's House and Senate. Those who oppose the ban say land-spreading is important to rural counties as a fertilizer, noting that many rural areas don't have wastewater treatment plants or, if they do, they may not accept septage. The Department of Health reported in 2011 that about 40 percent of the state's septage was land-applied at 92 licensed sites. During discussions in 2014, the state health department said it would study the issue but has not issued a report.

NEW YORK

A group of town supervisors and village mayors on Long Island are calling for New York to form a $100 million regional initiative to fund upgrades of cesspools and septic systems to advanced onsite systems. The East End Supervisors and Mayors Association, which represents local officials in Suffolk County, made their plea in a letter to Gov. Andrew Cuomo and state legislative leaders. Many properties on Long Island still use cesspools, and many septic systems are decades old. The group would like the state to offer $5,000 rebates for homeowners who update their septic systems, saying it would result in updates to about 25 percent of the county's 81,000 onsite systems. Their proposal also calls for $3 million for a nitrogen management and mitigation plan for the area, along with $2 million to develop nitrogen standards.

OHIO

Some septic pumpers in Ohio are considering a class action lawsuit to overturn new state rules that went into effect in January. The 25 Akron-area pumpers object to having to inspect systems and submit reports to the local health department. The new rules were the result of seven years of discussion at the state level and cleared legislative review last fall, four years after legislation was passed requiring their development.

TEXAS

A Texas lawmaker has introduced a bill to grandfather all existing gravity flow septic systems and permit their use on properties of 10 acres or larger. Current state law requires gravity systems to be replaced with an aerobic system if a major repair is required. Texas Rep. John Wray (R-Waxahachie) had promised to submit the bill (HB 1301) during the 2014 campaign in which he was elected to his first term.

NEW HAMPSHIRE

Designers and installers in New Hampshire can now apply for septic system approvals online. The state Department of Environmental Services announced the Subsurface Systems Program ePermitting system in February. The online offering also accepts payment of fees with a credit card and allows the tracking of application status. The site address is des.nh.gov/onestop/subsurface-epermitting.htm. Registration is required, which can take up to five days for the department to review the license status of the installer.

Kevin Rouse adjusts floats in the Infiltrator dosing tank at Log Providence Missionary Baptist Church. Technicians at Bio-Gard assemble as many components as possible in the shop to make installation move faster on site. (Photos courtesy Bio-Gard/ Kyle Shern)

Answered Prayers

Retooled ATU system design with a large dripfield helps keep the doors open for worship at a rural Missouri church

By David Steinkraus

Gravestones in the cemetery next to Log Providence Missionary Baptist Church testify to the congregation's longevity in central Missouri. Some stones are not the carefully shaped and carved blocks of granite or marble typical today. These gravestones are real stones — rough rocks picked from the ground and dated in the 1830s. All this history was no help to the congregation when it confronted a modern wastewater problem. The church may be old, but it is not wealthy and needed creative help to solve the problem within the budget it had. It found that help in installer Kyle Shern and the generosity of firms in the onsite industry. After sorting out issues and dealing with weather, the new system was completed in October 2014.

WRONG-WAY WATER

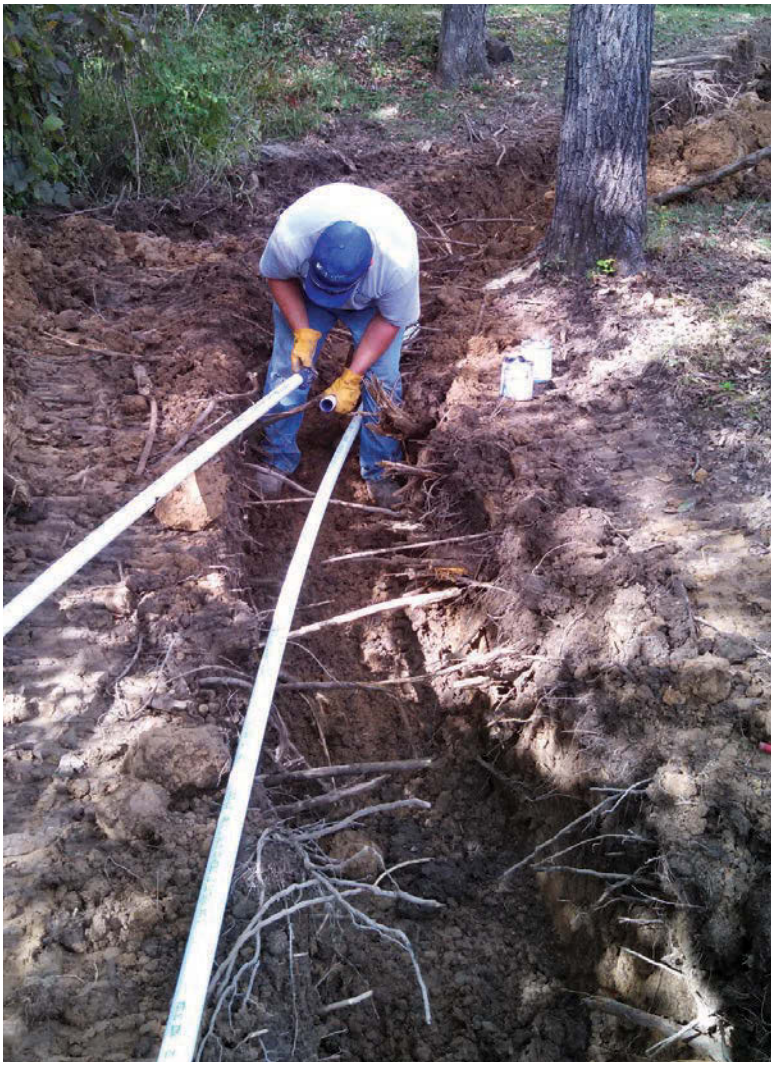
The septic system at Log Providence was not failing. Based on the appearance of the concrete tank he found, Shern, owner of Bio-Gard Inc. in Columbia, Missouri, dated the system to the 1970s. Where the water went created the problem. The ABS discharge pipe from the tank emerged from a slope behind the church, ran along the surface of the ground for about 25 feet and dropped effluent into a sinkhole. The sinkhole had also become a garbage depository. Shern found an old mailbox, a toilet, a refrigerator and other refuse there.

SYSTEM PROFILE

Location:	Columbia, Missouri
Facility Served:	Log Providence Missionary Baptist Church
Designer:	Brush & Associates, Columbia, Missouri
Installer:	Bio-Gard Inc., Columbia, Missouri
Type of system:	Aerated treatment unit with dripline irrigation
Site conditions:	Karst below clay soil, silt loam with 13 percent clay near surface and silty clay loam with 28-37 percent clay down to about 37 inches, solid clay below, 2-4 percent slope, high seasonal water table
Hydraulic capacity:	750 gpd

ABOVE: Ben Maness, left, and Kevin Rouse, on the excavator, maneuver the Jet ATU tank into position at Log Providence Missionary Baptist Church in Missouri. Beyond the trees is a sinkhole, and a few feet away are graves.

BELOW: Ben Maness assembles 1 1/4-inch pipe to form the dosing and return lines between the Infiltrator dosing tank and the drip irrigation field.



Near the church is the Three Creeks State Park, and as part of an investigation the state found that discharge pipe. Sinkholes in Missouri are underlaid with karst, and fissures in the rock structure channel wastewater quickly through the ground. The state found wastewater from the church was running into some of the many caves that draw tourists to Missouri. In addition there are two endangered species in the caves, a type of salamander and a type of bat. Those environmental concerns spelled the end of the old septic system. The state ordered the discharge pipe to be capped immediately, and the septic tank became a holding tank until the old system could be replaced.

There was no effect on the church's water supply or surrounding wells, Shern says. The water table in Missouri runs deep, about 800 feet, and the expense of drilling that far has given rise to cooperatives that drill wells and lay mains to supply nearby properties.

Leaders of Log Providence had a dripline system designed as a replacement, but from somewhere they received an inaccurate cost estimate. "And that's literally all they could afford, and they'd already borrowed the money on top of it," Shern says. Church leaders approached him with their problem, and Shern went to work to make the project affordable.

First he talked to the people at the Boone County Health Department. They're good to work with, Shern says, and they allowed him to reduce the size of the dripfield to the minimum needed. Should the church expand in the future and generate an increased wastewater flow, permits will require the dripfield to be expanded.

Next Shern called a few people he knows: Curtis Cluckey from Infiltrator Systems, Darrin Meyer from Clarus Environmental, and Shelly Wybensinger and Chris Mandich from Jet Inc. He explained the church's financial situation and asked for a little help. The companies gave a lot. Jet donated one of its ATU systems. Infiltrator donated a tank. Clarus provided a control panel. Shern's crew went to work.

THE NEW SYSTEM

From the church, wastewater flows west through a 4-inch pipe for about 40 feet toward the old concrete septic tank. The old tank was left in place. Should the church expand in the future, this tank could become a dosing tank for the ATU. Shern's workers intercepted this and added an extension at about a 45-degree angle to take wastewater another 50 feet to the new Jet

<<LEFT: The manifold for the drip irrigation field was assembled from 1 1/4-inch pipe. Notice the clayish look to the soil. It is common in central Missouri to find a limiting soil layer with 35 percent or more clay about a foot below grade.

ABOVE: With the Jet ATU tank in the ground, Kevin Rouse, left, and Ben Maness fill it with water to hold it down in case of rain. Weather forced a continuing delay in the project.

ATU. This is an 850-gallon J-800PLT three-chamber plastic tank. The first chamber is for primary settling. Next is an aeration tank with a fixed film medium that Shern says he finds ideal for systems where large flows alternate with long periods of inactivity. The third chamber is a clarifier with a sloped bottom. Material that flocculates sinks by gravity along the sloped bottom and moves through an opening back into the aeration tank for further processing.

From the Jet tank, water flows by gravity about 6 feet to a 1,500-gallon Infiltrator poly tank that doses the dripfield. A Goulds pump and about 150 feet of 1 1/4-inch pipe take water to the dripfield. The field is about 125 feet by 64 feet and is composed of 16 lines of Netafim with a combined length of about 2,000 feet. The Clarus panel runs the system. It provides six doses over a period of 18 hours with 125 gallons per dose.

Driplines were installed at a depth of 10 to 12 inches. Freezing is not an issue in this area, and the dripfield is higher than the dosing tank so any excess water drains back to the tank.

Two of Shern's employees, Ben Maness and Kevin Rouse, installed the system in about four days. They used a Takeuchi TL130 skid-steer and a Takeuchi TB145 excavator for the job. To lay the Netafim lines they used a Case Maxi-Sneaker vibratory plow.

INSTALLING

At 1,500 gallons, the dosing tank may seem overly large for this use, but Shern says its size accommodates a factor designers may overlook in church projects: baptisms. As a Baptist church, Log Providence has an 800-gallon font for full-body immersion. This is clean, clear water, but when the font is drained it still means 800 gallons of water hit the system. The big Infiltrator tank gives this volume a place to stop and settle before it is sent on to the dripfield.

For this part of Missouri, dripfields are ideal because the soil may not drain well, Shern says. Even in the biologically active zone just a few inches below grade, soils can still have a significant fraction of clay. Tests at the Log Providence site found about 13 percent clay in the silty loam that occupies the first 8 inches of soil. By 30 inches down clay is about 42 percent of the soil.

When tanks were in place, Shern's crew backfilled with half-inch-minus aggregate. It has helpful characteristics. The stones are small enough so they don't have sharp points and edges that damage plastic tanks, Shern says. Because local aggregate is limestone, this size of stone also includes a fair amount of limestone dust. Those fine particles fill voids nicely, and when it rains they bind together forming an almost concrete-like layer around tanks. This helps hold tanks in the ground and sheds water that otherwise would tend to accumulate around a tank.

Installation went smoothly. Shern's process is to assemble as much as possible in the shop. Technicians put pumps and floats in place, make electrical connections and run conduit. Control panels are mounted on decorative PVC fence posts — which look better, Shern says — and laid on top of tanks. When a crew reaches the job site and has the holes and trenches ready, they drop the tanks in place, set the control panel post upright, make pipe and power connections, and backfill. It's a quick and efficient system, Shern says. Indoor assembly is a great project for rainy days, and technicians do not have to move a lot of material to and from job sites. Everything is at hand in the shop.

Working next to the church provided its own challenge because of the old graves. Trenches and holes for the new system came within a few feet of

four of them, Shern says, but fortunately there was just enough room between the graves and the woods around the sinkhole to maneuver tanks into place and lay pipes and conduit.

PROJECT COMPLETION

Bio-Gard will perform maintenance on the system, too. Missouri law does not require maintenance contracts for ATUs, but Shern says he has found it better for his customers and his company if Bio-Gard takes care of the systems it has installed.

The only real problem was weather. "We had a lot of rain, and then the winter was just horrendous down here. We didn't work for three months," Shern says. Then homebuilding, the company's primary source of income, began picking up, and the demands of other jobs delayed work at Log Providence.

But now the church job is done. After two years, a good deal of creative thinking and simple generosity, this old congregation can remain settled in its historic home.

MORE INFO:

Clarus Environmental Products
800/928-7867
www.clarusenvironmental.com
(See ad page 31)

Goulds Water Technology
315/568-2811
www.gouldspumps.com

Infiltrator Systems, Inc.
800/221-4436
www.infiltratorsystems.com
(See ad page 3)

Jet Inc.
800/321-6960
www.jetincorp.com
(See ad page 41)

Netafim USA
888/638-2346
www.netafimusa.com
(See ad page 21)

Jim Anderson, Ph.D., and David Gustafson, P.E., are connected with the University of Minnesota onsite wastewater treatment education program. David is extension onsite sewage treatment educator. Jim is former director of the university's Water Resources Center and is now an emeritus professor, as well as education program coordinator for the National Association of Wastewater Technicians. Readers are welcome to submit questions or article suggestions to Jim and David. Write to ander045@umn.edu.

Batten Down the Hatches

Match the correct riser and lid to the tank to ensure safety and improved access for maintenance

By Jim Anderson and David Gustafson

We are always receiving questions about installing risers and, by extension, the lids on those risers. One of our common themes for installation of systems is that they must be installed with monitoring and maintenance in mind. This means all components need to be installed so they are easily accessed by professionals and lend themselves to repair or replacement when necessary.

The septic tank is usually the first component other than the sewer pipe in the system and one that requires routine maintenance or inspection typically every three to five years. So convenient access is critical to providing cost-effective service.

This often means using risers to bring the access point closer to the finished grade. This makes the job easier for the service provider or inspector when assessing the condition of the tank, as well as the pumping contractor when the tank is full. By extension, it reduces the cost of maintenance for the homeowner because time does not need to be spent on locating and excavating the tank.

It is extremely important ... that the lid uses nonstandard fasteners or screws to make sure children ... cannot gain access. Every year we hear several reports of children falling into septic tanks and being seriously injured or killed when a lid has not been securely fastened to the riser.

CHOOSE THE RIGHT MATERIAL

Risers and lids are available in a number of materials, including concrete, polyethylene, polypropylene, PVC and fiberglass. No matter the material, the riser and its connection to the tank or other risers needs to be watertight and resistant to root penetration. If roots can get in, it's not watertight! Risers should also be structurally sound and they should not lose their shape when backfilling.

For concrete tanks, in many places a riser is cast in place during manufacture. These risers can be made of any of the materials mentioned above. Cast-in-place risers have an advantage in cold climates, as they are less subject to frost heave, which causes risers attached with joints to separate during the winter and compromises watertightness. However, even cast-in-place risers may require additional sealing or wrapping to ensure watertightness.

Since having risers cast in place can interfere with setting the tank and be in the way as the system is installed, most of what we have seen today involves casting an adapter ring into the tank opening. Then a polyethylene or polypropylene riser is connected to the adapter and secured to the tank. It is important to follow the manufacturer's instructions for sealants required to ensure watertightness. If a concrete riser is used, both the riser and opening are tongue and grooved so there is a good tight fit. Mastic and other sealants are used to ensure watertightness. Any additional concrete risers should have a tongue and groove connection as well.

This configuration is the norm for newly manufactured tanks. As an installer or service provider, however, you constantly deal with older concrete tanks with no built-in riser option. So an upgrade to bring a riser to the surface for future ease of service is in order.

RETROFITS

It is a challenge to make these connections watertight. We often see a riser that is slightly larger or a different shape than the existing opening (round versus square) because this is what can be easily found. It is then set on the top of the tank lid with an attempt to mortar them into place. They become easily dislodged so when the tank is accessed you see that water and soil have entered the tank through this connection.

A retrofit solution may require affixing a butyl rubber connection to the tank top in addition to employing other sealants to ensure the connection becomes watertight. The good news is there are more products available all the time to help with this problem. Work with your local tank and pipe suppliers for help.

In general, polyethylene and fiberglass tanks will have risers built into them at the time of manufacture. Any additional risers should be of similar materials and attached according to manufacturer instructions.

Lids need to be made of sound materials with connections that make them water- and air-tight, and limit access to children and animals. Safety concerns lead some states and permitting authorities to require lids be buried under a few inches of soil to limit access. Homeowners sometimes

object to lids at the surface as well. In these cases, attaching a small metal marker to the top solves the locating problem. Service providers can use a metal detector to quickly locate the tank access point.

MORE SAFETY TIPS

We feel it's better to have the lids brought a couple of inches above the surface so that access is made easy for the service provider. It is extremely important, though, that the lid uses nonstandard fasteners or screws to make sure children, in particular, cannot gain access. Every year we hear several reports of children falling into septic tanks and being seriously injured or killed when a lid has not been securely fastened to the riser.

Additional safety devices are available that attach in the riser or at the tank opening to prevent people or animals from falling into the tank. Discuss this added safety feature with the homeowner/parent. It may be a good insurance policy and worthwhile upgrade to their system.

One other less-than-good idea relative to lids: We have seen numerous instances where concrete lids have been put on risers made of other materials. This usually leads to deformation of the riser and lack of watertightness, and creates an unsafe access concern.

Following these guidelines should make tank access and service easier, which will result in better care for septic systems, extending their life.

Regulations Reboot

Constant turnover of environmental protection officials and a statewide preference for local control make it a challenge for Pennsylvania wastewater associations to promote updated onsite rules

By Doug Day

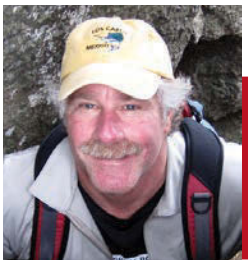
Pennsylvania has no shortage of groups working to promote onsite wastewater systems. Two of them represent installers, pumpers and other septic system experts, while two others are specialized groups for enforcement officers and soil scientists.

The Pennsylvania Septage Management Association (PSMA) was formed in 1984 to represent pumpers, haulers and installers, according to President Kyle Rigby. It now has around 200 members. The Pennsylvania chapter of the National Onsite Wastewater Recycling Association (POWRA) was formed in 2002 to serve a broad range of constituents including onsite system consultants, installers, regulators and soil scientists. President Greg Marshall says it has 35 members.

All four groups hold seats on the state's Sewage Advisory Committee, which advises Pennsylvania's Department of Environmental Protection (DEP) when it comes to regulating the industry. They also share a lot of members. Marshall was on the board of the Pennsylvania Association of Sewage Enforcement Officers (PASEO) before becoming president of POWRA. "We know a lot about each other's business, and our issues affect everyone in our groups," says Marshall.

PSMA and PASEO also have the same executive administrator, Mark Mitman. "We want to work with the sewage enforcement officers so we can correct any problems or issues with onsite systems or installations," says Rigby. "He can help both organizations address the issues."

Kyle Rigby,
Pennsylvania Septage Management Association president, at www.psma.net or 717/763-7762
PSMA



Greg Marshall,
Pennsylvania Onsite Wastewater Recycling Association president, at www.powra.org or 610/582-0605
POWRA

INCREASING ENFORCEMENT

Under state law, townships and municipalities enforce the regulations promulgated by the DEP. As one of the states in the Chesapeake Bay Program, Pennsylvania is stepping up efforts to reduce water pollution from all sources.

"The DEP is asking townships to be more active in regulating and inspecting onsite systems," says Rigby. "Pennsylvania is very local-oriented and delegates a lot of responsibility to local authorities. Unfortunately, that leads to a lot of different interpretations. We try to educate the townships. Most of them require pumpers to be registered with their townships, and some are starting to ask if they are members of PSMA because they know we do a good job of training."

One of the challenges in Pennsylvania has been turnover at the DEP, which has had three different secretaries in three years. With a new governor in 2015 comes a new cabinet. But the DEP secretary position had changed hands in the two years prior, as well. "It slows up anything that is going to be done as far as regulations and approval of new systems," says Rigby. Technologies not included in the regulations have to be approved as they become available.

Marshall says one of the bigger problems is that the Sewage Facilities Act hasn't been updated since 1994, despite an effort about five years ago. "Our Sewage Advisory Committee went through a lengthy process reviewing all the regulations line by line," he says. "We came out with some really good proposed changes. Unfortunately, with the political climate, or it might have been that the fracking issues kind of sidetracked things, there wasn't the will to get things done. We're still stuck in that limbo. Ultimately it needs to be done."

Another change at the top creates uncertainty about direction of the department and even impacts staffing of the agency because other leadership positions, such as deputy administrators and bureaus heads, may also change.

WORKING TOGETHER

The groups were able to push an important bill through the Legislature in 2013 to clarify that properly designed and installed systems adequately protect the watershed. "There were challenges posed by some environmental

groups that were holding up development in what are called special watershed protection areas," explains Marshall. "The Legislature acted rather quickly to pass that act."

The revision was necessary to make it clear that such systems meet the state's antidegradation requirements. Through lobbying efforts by the various groups, they were able to get a bill introduced, and it got a lot of support. "It was probably the quickest environmental regulation I've seen passed," says Marshall. "The Sewage Advisory Committee and the influence our groups have with the Legislature are our biggest asset."

Both PSMA and POWRA focus on education of their members, though their offerings are different. POWRA has two events a year that focus mainly on alternatives to standard septic systems. Recently they explored a wetlands drip treatment system at Stroud Water Research Center and visited the waste recycling facility at Kline's Services.

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Kyle Rigby

Other events have included tours of a large-volume spray irrigation system at Penn State and a visit to Rodale Institute, an organic farming research center, to see its wetlands drip treatment system. The group has also visited different innovative alternative residential systems. "Our group is more focused on that type of training rather than the more formal classroom training for continuing education," says Marshall. "This year, we are visiting sites to see some problem areas, what worked and what didn't, and how to overcome difficult sites. Then we'll have a session detailing the alternative systems that are available in the state."

TIME-OF-SALE INSPECTIONS

PSMA's continuing education includes certification for real estate inspections. While time-of-transfer inspections are not required in the state, most banks are requiring them. There is no state certification for such inspectors, so PSMA offers a two-year certification that requires renewal training.

"There is no mandate to be a certified installer. Anybody can do it as long as they follow the design and the work is approved by the local Sewage Enforcement Officer," says Rigby. Classes for installers and pumpers are offered during its winter conference every January and periodically throughout the year.

"We are really pushing training on the proper installation of septic systems and worked with DEP on that," he adds. "We also do a lot of work on training for confined space entry, safety protocols and vacuum truck operation. Our members spend a lot of time and money sending their employees to our training sessions to provide quality service to homeowners and protect the environment."

PSMA also provides training for installers and inspectors in New Jersey to meet that state's continuing education requirements. PSMA would like Pennsylvania to begin certifying inspectors and installers and has been working to get such regulations. While there may be some interest in the idea, there hasn't been much progress to date. So the groups continue to do what they can so consumers get quality onsite wastewater services.

Other key groups representing those with an interest in Pennsylvania's onsite wastewater industry:

PASEO – the Pennsylvania Association of Sewage Enforcement Officers – has about 460 members, mainly local regulators, typically townships officials, who serve as the enforcement arm for the state Department of Environmental Protection. It was formed in 1986. PASEO and PSMA share the same administrative director, Mark Mitman, who manages the groups' operations.

PAPSS – the Pennsylvania Association of Professional Soil Scientists – founded in 1975, consists mainly of professionals in the field of soils.

wwett spotlight

Anua introduces Eliminite recirculation biofilter to a broader market

By Craig Mandli

As states continue to crack down on the amount of nitrogen released into groundwater, onsite installers need solutions. Anua believes Eliminite offers an answer.

The Eliminite recirculation biofilter is a modular system aimed at areas with high nitrogen sensitivity. Anua rolled out its alliance with Eliminite at the 2015 Water & Wastewater Equipment, Treatment & Transport (WWETT) Show.

"Our products have to fit needs and fill voids in the market," says Colin Bishop, Anua's environmental director North America. "There is a great need out there for a robust nitrogen-reduction system that's also low-maintenance. That's why Eliminite is such a great fit for us."

In the Eliminite system, septic tank effluent flows from the residential or commercial building into the watertight biofilter, where suspended MetaRocks media provides a large surface area for microorganisms to attach and grow. MetaRocks are constructed from closed-cell polyurethane resins with deep-contoured channels that provide large, open pores for passive air transfer. A coating of coarse sand and finely crushed recycled glass enables a thin liquid film to cover the surface to promote even, consistent bacterial growth.

Charles Ray, right, environmental manager North America for Anua, talks with a 2015 WWETT Show attendee about the MetaRocks media found in Eliminite recirculation biofilter systems. (Photo by Craig Mandli)

After filtering through the MetaRocks, effluent is pumped from the recirculation chamber into gravel trenches, chambers, LPP, drip irrigation or other dispersal methods. The biofilter system helps protect local water resources by removing more than 90 percent total nitrogen from the waste stream.

"We thought this was a terrific fit for the WWETT Show audience simply because of the increasing awareness regarding the negative effects of high nitrogen levels in groundwater," says Bishop. "It's obviously something that a lot of our installer customers are concerned with."

According to Bishop, Eliminite benefits Anua by providing a system with superior effluent quality, including total nitrogen reduction, in order to meet stringent state and local regulatory requirements. Eliminite fits into Anua's portfolio of solutions which provide flexibility and fit into the "building-blocks" concept for clean water.

"Eliminite is engineered for residential, community and commercial applications, including high-strength waste establishments," says Bishop. "Any time we can find a product that fits several applications, it's a good thing."

Bishop says his company was pleased with the response Eliminite received at the 2015 show, and the company's plans include increasing its educational offerings even more in the next year.

"We've handed out more information here this year than we ever have, which tells me that installers are very concerned with changing regulations and staying up-to-date on the latest technology," he says. "We'll definitely be back next year with new opportunities for our customers to learn about."

800/787-2356; www.anua-us.com.

Feb. 17-20, 2016
Indiana Convention Center

wwett™16

Water & Wastewater Equipment, Treatment & Transport Show

2016 Day Pattern Shift:

Education Day:
Wednesday, February 17

Exhibits:
Thursday, February 18
Friday, February 19
Saturday, February 20

wwettshow.com

Septic Tanks and Components

By Craig Mandli

Septic tanks come in a variety of construction materials and layouts for various installation requirements. Here are several tank options, lids, risers and filters that give installers plenty of design options.

LIDS

BrenLin Company Seal-r

Seal-r riser lids from **BrenLin Company** create a strong seal between the septic tank and the riser, designed to eliminate water infiltration. They are made of durable materials, range from 12 to 42 inches, and can be personalized with a service provider's company information. The 42-inch lid meets growing demand for bigger risers to accommodate new technology equipment. **888/606-1998; www.seal-r.com.**

Hedstrom Plastics polyethylene cover

Polyethylene riser lids from **Hedstrom Plastics** fit standard 18- and 24-inch double-wall corrugated pipe. Gaskets and safety hardware are included, and a safety net is available. Covers can be filled with sand on site for added weight. Foam-filled lids are available upon request. Covers can be customized with the service provider company name and are available with a tank adapter. **888/434-5891; www.hedstromplastics.com.**

RotoSolutions roto-molded septic tank lids

Roto-molded riser lids from **RotoSolutions** are manufactured out of lightweight and durable polymers for easy handling and transport. They are sold with hardware kits that include stainless steel components. The lids are sold in boxes of six and are made to fit the 12-, 18- or 24-inch I.D. corrugated pipe. They can be filled with sand for added weight. **800/868-0973; www.rotosolutions.com.**

Sim/Tech Filter locking riser lid

Locking riser lids from **Sim/Tech Filter** are mainly for use on systems that are accessed frequently. Rather than screws, a six-point locking web is engaged and disengaged with a push release tool. The web locks and holds the lid in place, eliminating the problems of missing screws and worn-out screw holes. It is fast and easy to access the tank, while impossible for young children to remove. The lid is designed to fit 24-inch-diameter Sim/Tech risers, or double-wall corrugated or ultra-rib pipe. **888/999-3290; www.simtechfilter.com.**

RISERS

Quanics riser access system

Access systems from **Quanics** provide easy access to septic tanks, dosing tanks and basin assemblies. They are available in polyethylene and PVC materials in 22-, 24-, 26-, 30- and 36-inch diameters. The interlocking design is available in 6-, 12-, 18- and 38-inch height increments. Risers and lids interlock with a neoprene gasket and twist-lock design. The risers may be cast in the tank or retrofitted to an existing tank by using a retrofit tank adapter. The PVC access system can be cut for any height from 6 to 120 inches. Sections of riser may also be joined using a specially designed coupler and adhesive. Risers come equipped with UV-resistant, tight-fitting lids and include stainless steel tamper-resistant fasteners. Optional insulation may be added. Watertight pipe penetrations can be achieved by utilizing rubber grommets available in sizes from 1/2 up to 4 inches. **877/782-6427; www.quanics.net.**

Tuf-Tite riser

Tank risers from **Tuf-Tite** have internal supports or ledges to reinforce internal plastic safety lids. The ledges will strengthen the company's plastic internal safety lids or a variety of internal safety devices made by others, such as concrete, fiberglass or rope netting. The riser lids come with all necessary mounting hardware including safety screws. **800/382-7009; www.tuf-tite.com.**

SEPTIC FILTERS

Anua Compact Monafil

The **Compact Monafil** zero-energy biofiltration system from **Anua** uses specialized media to remove odors, VOCs, sulfur and nitrogen-based compounds. The properties of the granular high-density peat media have proven to be a key factor in achieving high-performance removal and extended media life, according to Anua. It also uses recycled shell-based media to maintain a neutral pH within the prepackaged biofilter. The peat and shells ensure optimal odor control while simplifying operation and enhancing system reliability. **800/787-2356; www.anua-us.com.**

Bear Onsite ML2-920

The 9-inch **ML2-920** effluent filter cartridge from **Bear Onsite** enables septic gases to exit through the outlet pipe and allows air to come in, replacing the hydrogen sulfide gas and carbon monoxide with oxygen and nitrogen. It has horizontal and vertical screens with progressively smaller apertures, allowing polarization to take place. The size of the primary screen aperture also increases toward the top to open the flow path. Inward folding pleats in the self-cleaning primary screen allow solids to drop into the tank and prevent plugging during periods of little to no flow. Molded connections allow for use of an alarm system, while molded-in handle couplings assist in filter changing. It provides 165 linear feet of total filtration and 125 linear feet of 1/20-inch final filtration rated for 1,875 to 2,500 gpd of flow, depending on application. **877/653-4583; www.bearonsite.com.**

Bio-Microbics SaniTEE

SaniTEE effluent filters from **Bio-Microbics** are available in 4-, 8- and 16-inch sizes and provide consistent retention of wastewater solids from a septic tank. They can be used as a stand-alone filter in a tank or prescreening with a complete wastewater treatment system. They reduce suspended solids discharged in the septic tank by promoting natural sedimentation and exclude gas-lifted particles from entering the outlet pipe. Installed directly in the outlet tee of the tank, their keyhole weirs provide consistency of flow despite surges. The angled slots resist blinding and prevent clogs inside the filter housing to extend system life, reduce clogging material and improve flow conditions. The slip-in installation design and swabbing feature for cleaning in place make it easy to maintain. **800/753-3278; www.biomicrobics.com.**

Clarus Environmental effluent filters

WW1 and **WW4** effluent filters from **Clarus Environmental** have integral bypass protection screens to keep solids in the tank and out of the drainfield during servicing. The pleated design provides 132 linear feet of 1/16-inch filtration for the WW1 and 528 linear feet of 1/16-inch filtration for the WW4. The WW1 is designed for residential applications with flows up to 1,500 gpd. The WW4 is designed for both residential and commercial applications with flows up to 4,000 gpd. Both may be installed in parallel with additional units for greater flows. **800/928-7867; www.clarusenvironmental.com.**

Fluid Dynamic Siphons Model 216

The **Model 216** dosing siphon from **Fluid Dynamic Siphons** can be installed in an Infiltrator Systems IM 540 tank to create a transportable siphon-dosing tank. The siphon has a 2-inch-diameter trap and has a 16-inch drawdown, allowing the outlet of the siphon to fit through a rib of the tank. A 2-inch bulkhead fitting is installed in the tank through one of the ribs, about 13 inches on center from the bottom of the tank. A short section of 10-inch-diameter PVC pipe is then set in the bottom of the tank. The siphon trap is placed into the 10-inch pipe and the outlet of the siphon is plumbed into the bulkhead fitting. A small batch of concrete is prepared and poured into the 10-inch pipe, around the siphon trap to create mass to prevent the siphon from floating and to further secure the siphon to the dosing tank. Two-inch siphons with 7- or 12-inch drawdowns to provide smaller doses are available. **800/888-5653; www.siphons.com.**

Norweco Hydro-Kinetic Bio-Film Reactor

The **Hydro-Kinetic Bio-Film Reactor** from **Norweco** is an attached growth filtration system designed to reduce BOD and solids from wastewater effluent without using electricity. Installation between a treatment tank and disposal field extends the life of the field. Gravity flow through the reactor eliminates the need for a pump-dosed filter. The lightweight, rotationally molded polyethylene reactor treats up to 800 gpd. It is completely nonmechanical, user-friendly and easy to install and maintain. **800/667-9326; www.norweco.com.**

Orenco Systems Biotube ProPak

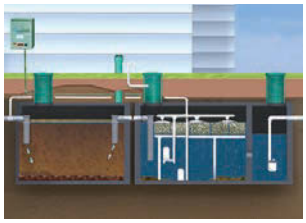
Biotube ProPak ready-to-install pump packages from **Orenco Systems** filter up to two-thirds of solids, and only liquid from the tank's clear zone is pumped. The filter is easy to remove and clean, without pulling the pump vault. It is used for filtering and pumping effluent from single- or dual-compartment septic tanks to gravity or pressurized discharge points. Its pump vault eliminates the need for a separate dosing tank. All components are designed to be quickly installed and easily maintained. The PF Series high-head effluent pump is field serviceable and repairable, and pump controls are designed for the specific package purchases. Free ProPak Select software provides fast, error-free hydraulic calculations and generates system curves. **800/348-9843; www.orenco.com.**

Polylok effluent filter

Effluent filters from **Polylok** are designed to be easy to install, clean and service, prolonging the life of a septic system and leachfield. They can be used in residential and commercial applications ranging from 800 to 10,000 gpd, with filter alarms available to notify the owner when servicing is required. **855/893-5461; www.polylok.com.**

(continued)

SeptiTech STAAR



STAAR filter systems from **SeptiTech** are designed for a simple, automatic and reliable equalization and clarification process to treat high organic loads. The biological trickling filter maintains low levels of nitrate-N with all below-grade components that fit in concrete, plastic or fiberglass tanks. Its smart system is designed to recognize situations dealing with peak, low, intermittent or no-flow conditions, allowing the system to go into a sleep mode that dials down activity and eventually shuts all power off until normal flow conditions are detected, leading to lower operating costs and power requirements. It treats 100 to more than 150,000 gpd. **800/318-7967; www.septitech.com.**

Simple Solutions Distributing Super Wolverine

The solar-powered **Super Wolverine** vent filter from **Simple Solutions Distributing** is designed to eliminate odorous airflows up to 10 cfm, and the solar fan vents the tank, reducing accumulation of sewer gas. It holds between 8 and 10 pounds of activated carbon and is available with inlet sizes between 3 and 6 inches. It can be used for larger aerobic systems found at restaurants or on small commercial buildings. It has an optional saturation indicator for monitoring the life of the carbon bed and uses a 2-inch drain plug for media replacement. **866/667-8465; www.industrialodorcontrol.com.**

SEPTIC TANKS (POLY, CONCRETE, FIBERGLASS)

Containment Solutions Flowtite

Flowtite fiberglass tanks from **Containment Solutions** are available for both aerobic and anaerobic septic applications. They are designed to eliminate leakage problems, and have EZ-Fit adhesive channels on access openings, making the installation of PVC or fiberglass risers easy. IAPMO Z1000-approved tanks are available in various sizes up to 12-foot diameter including fiberglass baffles and other accessories. **877/274-8265; www.containmentsolutions.com.**

Infiltrator Systems IM-Series

IM-Series plastic tanks from **Infiltrator Systems** are lightweight, durable, watertight and provide strength in a two-piece design. Available in a variety of sizes including the large-capacity IM-1530, the line enables a wide-range of installation options including shallow, multiple and serial tank configurations. All tanks have integral heavy-duty lids that interconnect with a TW Riser System, structurally reinforced access ports, reinforced structural ribbing and fiberglass support posts to provide additional strength. Inboard lifting lugs make delivery and handling easy. No special installation, backfill or water filling is required. The two-piece design allows for easy shipping and reduces freight costs. They can be installed with 6 to 48 inches of cover, and can be pumped dry. **800/221-4436; www.infiltratorsystems.com.**

Jet Inc. J-500-800PLT

The **J-500-800PLT** plastic tank from **Jet Inc.** offers a lightweight alternative to concrete J-1500 Series BAT Media Plants. The tank offers variable treatment capacity from 500 to 800 gpd. They are rotational molded using lightweight, polyethylene material to offer a seamless tank for strength and durability. They are easy to transport and can be installed in difficult site conditions, and are supported by local, certified distributors. **800/321-6960; www.jetincorp.com.**

Premier Tech Aqua Large-Capacity Tank

Heavy-duty and lightweight in-ground **Large-Capacity Tanks** from **Premier Tech Aqua** may be used in North American climates and are suitable for a large variety of commercial, community and municipal applications, including rainwater harvesting and fire water storage, septic tanks, equalization tanks, different types of bioreactors (MBBR, MBR, SBR) and complete process lines. Delivered ready to use, the tanks are made of rotomolded polyethylene, easy to handle and available in 4,000- to 12,000-gallon capacities. **800/632-6356; www.premiertechaqua.com.**

Roth Global Plastics MultiTank

The **MultiTank** from **Roth Global Plastics** can be used in water cistern, pump, holding, rainwater or septic tank applications. This is possible due to its inner layer of FDA-approved virgin HDPE, two inside layers of polyethylene for improved stability, plus one outer layer of black and UV-stabilized polyethylene. Features include CSA, NSF and IAPMO certification, a COEX-4 multilayer co-extrusion process, a low-profile design that means less digging and avoidance of a high-water table, lightweight construction, a multi-port inlet/outlet convenient for field piping, the ability to enter and exit the tank on the ends or sides, two 24-inch manways to provide easy access for maintenance and service, a threaded riser system and watertight seamless construction. **866/943-7256; www.rothmultitank.com.**

Snyder Industries Dominator

Low-profile **Dominator** septic tanks from **Snyder Industries** can be buried without ballast water and backfilled with trash-free and free-flowing native soils. They can be used as holding tanks, with pump tank versions available. Their one-piece construction means there are no seams to leak or structurally fail after installation. They are available in 750-, 1,000-, 1,250- and 1,500-gallon sizes (with 1,200- and 1,700-gallon water cisterns), with single or double compartments. Monolithic structure provides top load strength and manway isolation keeps manholes from distorting during backfill and pumpouts. They are available with tees and gaskets preinstalled. **402/467-5221; www.waterandseptictanks.com.**

industrynews

Blue Angel Pumps launches new logo, tagline

Blue Angel Pumps launched a new logo with blue and yellow halo and tagline "Professional Products for the Professionals."

NOWRA recognizes wastewater program manager

The National Onsite Wastewater Recycling Association (NOWRA) presented Joyce Hudson, senior environmental engineer and decentralized wastewater program manager with the U.S. EPA, with a commemoration of appreciation for her work on emerging issues and education/outreach for the onsite wastewater industry.

Watson-Marlow changes name

Watson-Marlow Pumps Group changed its name to Watson-Marlow Fluid Technology Group to reflect its evolution from a niche manufacturer of peristaltic pumps and tubing to fluid path technology. The name change follows the acquisition of BioPure and expanded service to the biotechnology and pharmaceutical markets.

SSPMA elects officers, directors

Jeff Hawks of Champion Pump was elected president of the Sump and Sewage Pump Manufacturers Association (SSPMA). He replaces past president Mark Huntebrinker of Zoeller Co. Other officers include Scott Stayton, vice president, and Jeff Goodenbery, secretary-treasurer. Directors elected at the 2015 Spring Meeting were William Gell, Deron Oberkorn, Kent Ralston and Joe Zimmerman.

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www.onsiteinstaller.com/video

Komatsu hydraulic excavator

The PC360LC-11 hydraulic excavator from Komatsu America Corp. is powered by a Tier 4 Final Komatsu SAA6D114E-6 engine producing a net output of 257 hp. The excavator has an operating weight of between 78,645 and 80,547 pounds. Upgraded cab features include an enhanced power mode for greater productivity. Komtrax technology displays fuel levels, diesel exhaust fluid (DEF) levels, operating hours, location, cautions and maintenance alerts. **847/437-5800; www.komatsuamerica.com.**

CULTEC automated drawing program

The StormGenie v.2.5 automated drawing program from CULTEC is an AutoCAD plug-in tool that enables engineers, contractors and landscape architects to create preliminary stormwater system proposals, final designs and project-specific drawings for Contactor and Recharger stormwater chambers. The software can draw from CULTEC's Stormwater Design Calculator and HydroCAD's Chamber Wizard. **800/428-5832; www.cultec.com.**

Loftness hydraulic oil cooler

The Cool Flow hydraulic oil cooler from Loftness Specialized Equipment reduces the risk of overheating in skid-steers and hydraulically powered attachments. The automatic, thermostat-controlled fan is designed to provide cooling when needed, even when an attachment is not being used. The cooler attaches to the roof of the skid-steer where it is less susceptible to vibration, back pressure, debris and potential impact. Engineered to allow full hydraulic flow to the attachment in either direction, the cooler enables the operator to run the attachment in reverse and protects the unit in case hydraulic hoses are accidently reversed. The oil cooler offers up to 40 gpm flow capacity and is compatible with all brands of skid-steers. **800/828-7624; www.loftness.com.**

Cooper Roadmaster drop-deck trailer tire

The RM272 Roadmaster tire from Cooper Tire is engineered to withstand the demands of drop-deck trailers. The tire features four-belt steel casing and 16/32-inch thread depth, and is available in size 255/70R22.5, load range H. **800/537-9523; www.coopertire.com.**

KOHLER mobile diesel generators

Model 145REOZT4 and 175REOZT4 mobile diesel generators from KOHLER Power Systems are U.S. EPA-emission certified for non-road use and feature a DOT-certified enclosed trailer. Both units have John Deere Tier 4 Final 6.8 liter engines. The 145REOZT4 is capable of a 130 kW standby rating, while the 175REOZT4 is capable of a 154 kW standby rating. Both models have 24-hour runtime fuel tanks, external emergency stop, stainless steel door latches and hinges, 110 percent environmental containment, single-point lifting eye and cold-weather package. **800/544-2444; www.kohlerpower.com.**

Quick-connect preassembled discharge pipe

The preassembled Glentronics PHCC Pro Series quick-connect discharge pipe for sump pump installations includes a 1 1/2-inch rubber coupling and check valve, pre-cemented female adapter, predrilled weep hole to prevent air lock, discharge pipe and pre-cemented male adapter. **800/991-0466; www.stopflooding.com.** □

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

Serving the Industry

Visit your state and provincial trade associations

Alabama

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

Arizona

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

Arkansas

Arkansas Onsite Wastewater Association; www.arkowa.com

California

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

Colorado

Colorado Professionals in Onsite Wastewater; 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.onsitewastewater.org; 678/646-0379

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.net

Indiana

Indiana Onsite Waste Water Professionals Association; www.iowpa.org; 317/889-2382

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

Massachusetts

Massachusetts Association of Onsite Wastewater Professionals; www.maowp.org; 781/939-5710

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

Missouri

Missouri Smallflows Organization; www.mosmallflows.org; 417/739-4100

Nebraska

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

New Hampshire

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

Granite State Designers and Installers 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 Carolina Portable Toilet Group; www.ncportabletoiletgroup.org; 252/249-1097

North Carolina Pumper Group; www.ncpumpergroup.org; 252/249-1097

Ohio

Ohio Onsite Wastewater Association; www.ohioonsite.org; 866/843-4429

Oregon

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

Pennsylvania

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

Pennsylvania Onsite Wastewater Recycling Association;
www.powra.org

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

Tennessee

Tennessee Onsite Wastewater Association;
www.tnonsite.org

Texas

Texas On-Site Wastewater Association;
www.txowa.org; 888/398-7188

Virginia

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

Washington

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

Wisconsin

Wisconsin Onsite Water Recycling Association;
www.wowra.com; 608/441-1436

Wisconsin Liquid Waste Carriers Association;
www.wlwca.com; 608/441-1436

NATIONAL

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

National Onsite Wastewater Recycling Association;
www.nowra.org; 800/966-2942

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

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

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