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**Abandoning
an old system**
Page 18

**Restaurant gets
onsite upgrade**
Page 28

**Pumper & Cleaner
Product-palooza**
Page 36

ON THE ROCKS

Designing residential systems in the Colorado Mountains poses challenges including poor soils, wild terrain and blasting to create drainfields for All Services Septic
PAGE 12



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PAGES 20, 32 & 36

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contents

January 2014



COVER STORY

12 On the Rocks By Scottie Dayton

ON THE COVER: Tim Petz transformed a degree in geology into a gratifying career as a project manager for onsite installations. He enjoys helping residents of Colorado solve their individual wastewater challenges and working with a group of independent contractors and his father, an engineer. On the cover, Petz is shown on a job site with a Caterpillar excavator. (Photo by Tyler Sutherland)

8 Editor's Notebook: Extreme Makeover: Septic System Edition

With an elderly couple drowning in medical expenses and a failing septic system, Wisconsin onsite professionals jumped in to save the day.

By Jim Kneiszel

10 @onsiteinstaller.com

Be sure to check out our exclusive online content

18 Basic Training: Shut It Down

Just like when you install a new onsite system, abandoning an old system requires following a careful list of safety procedures.

By Jim Anderson, Ph.D., and David Gustafson, P.E.

20 Pumper & Cleaner Expo: Let's Make It Great

Taking it all in at the Pumper & Cleaner Expo can be overwhelming. Here is some advice to ensure you make the most of your trip to the industry's best trade show.

By Briana Jones

22 State of the State: They're Active in Iowa

IOWWA partners with government agencies, onsite product suppliers and Habitat for Humanity to educate installers.

By Doug Day

28 System Profile: Menu For Success

Custom components and cooperation on many levels enabled a busy restaurant in south central Wisconsin to stay in business.

By Scottie Dayton

32 Pumper & Cleaner Expo: See the Stars in Indy

NFL Combine gives football fans extra incentive to attend the Pumper & Cleaner Expo.

By Cory Dellenbach

34 Machine Matters: Working Under Pressure

Tire pressure monitoring systems can save contractors money and make their trucks safer to drive.

By Ken Wyszocky

36 Pumper & Cleaner Expo: Come See It All

Onsite system installers will have a look at the top tools and equipment the industry has to offer at the 2014 Pumper & Cleaner Expo.

By Craig Mandli

44 Associations List

46 Rules and Regs: Missouri earmarks funds to replace aging septic systems

By Doug Day and Sharon Verbeten

47 Industry News

Coming Next Month: February 2014

ISSUE FOCUS: Pumper & Cleaner Show Issue

- State of the State: Catching up with Arkansas
- Basic Training: Restore the soil treatment area

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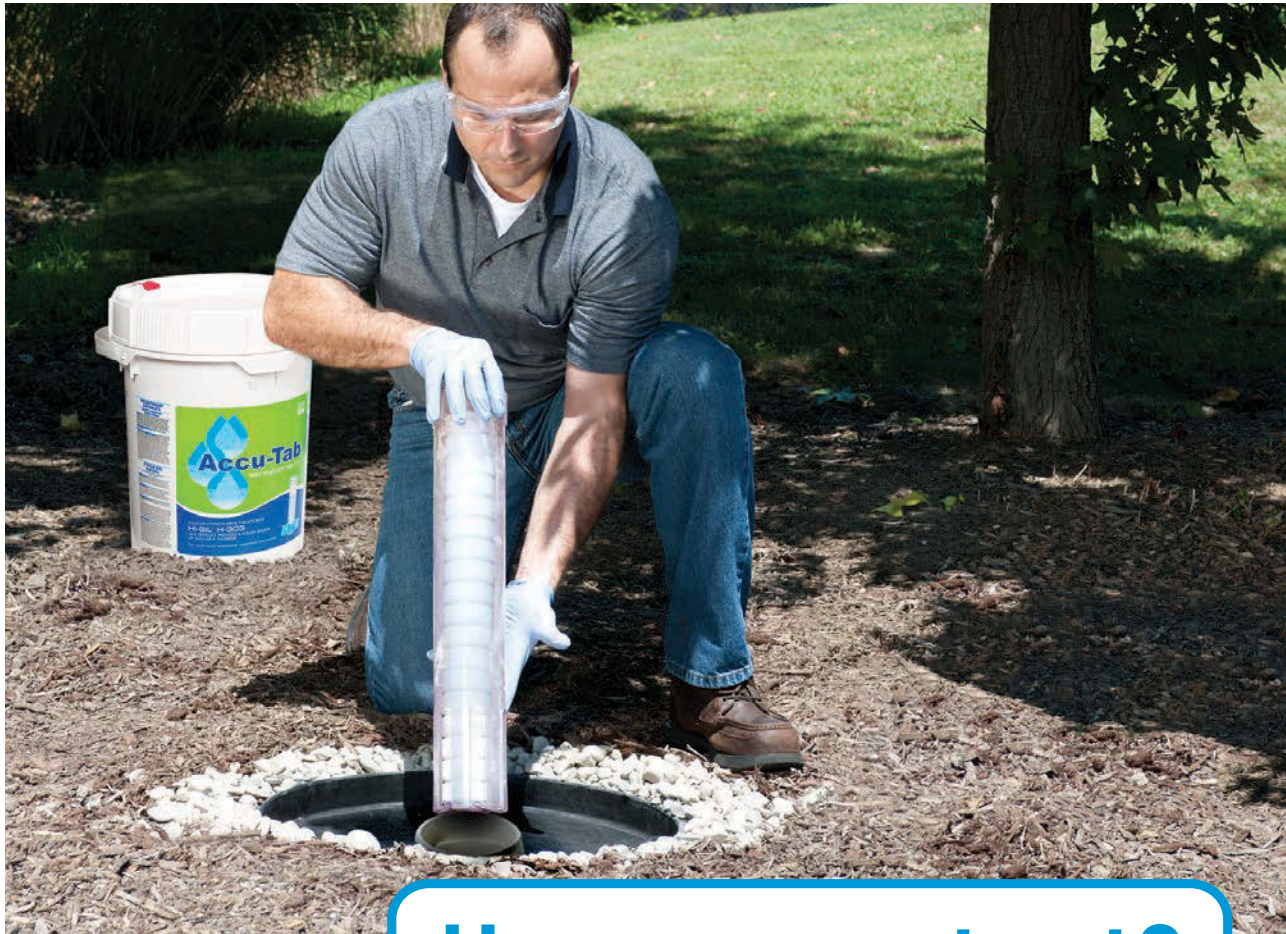


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COMPANY PAGE

	Alderon Industries, Inc.....	35
	Alita Industries, Inc.	35
	Axiall, Inc./ACCU-TAB	5
	Bio-Microbics, Inc.	2
	BrenLin Company Inc.....	16
	BS Design Corp. (The Dirty Bird).....	45
	Clarus Environmental.....	19
	Crest Precast, Inc.	17
	CSI Controls.....	30
	Dalmaray Concrete Products Inc.	45

COMPANY PAGE

	Eljen Corporation.....	33
	Infiltrator Systems, Inc.....	3
	Jet Inc.....	45
	Norweco, Inc.	11
	Orenco Systems, Inc.	23
	Pagoda Vent Company.....	45
	Polylok.....	48
	Presby Environmental, Inc.	6

COMPANY PAGE

	RotoSolutions, Inc.....	45
	Salcor, Inc.....	15
	See Water Inc.	9
	Septic Services, Inc.	31
	Septronics, Inc.....	17
	Sim/Tech Filter Inc.	17
	Simple Solutions Distributing LLC..	45
	SJE-Rhombus®.....	21
	SludgeHammer Group, Ltd.....	10

COMPANY PAGE

	SPI - Septic Products, Inc.....	32
	T&T Tools, Inc.....	31
	The Shaddix Company, Inc.....	45
	Tuf-Tite Inc.....	7
	Wieser Concrete Products, Inc.....	31

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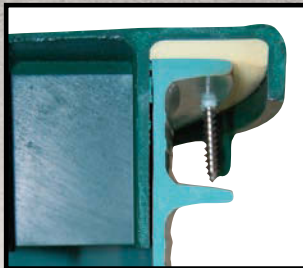
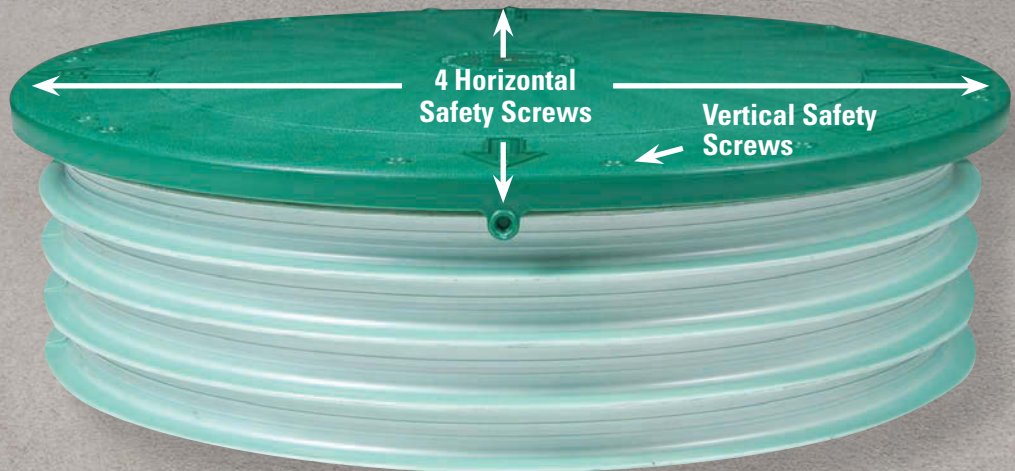
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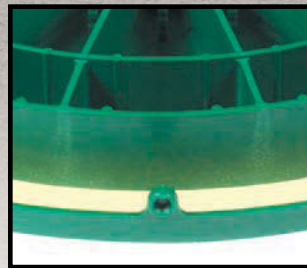
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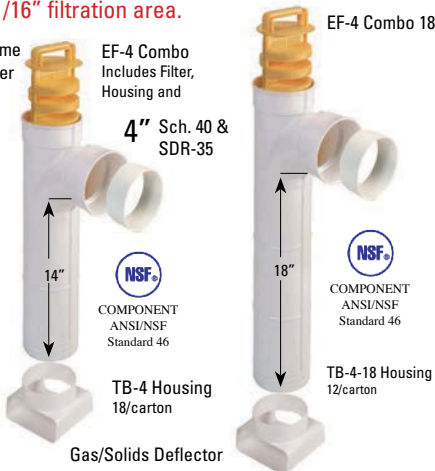


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Extreme Makeover: Septic System Edition

With an elderly couple drowning in medical expenses and a failing septic system, Wisconsin onsite professionals jumped in to save the day

By Jim Kneiszel



Except for the bus pulling away to reveal a gasp-inspiring home improvement project, the Wisconsin Onsite Water Recycling Association Rejuvenate a Family Day had all the makings of an *Extreme Makeover* television show.

A dedicated crew of volunteer WOWRA members worked at breakneck pace to build a brand-new septic system for a family in need. Cameras were rolling from local media watching the project come together. Officials and legislators from the state of Wisconsin were gathered for a ceremony at the completion of the build.

And the appreciation of the family that received the system left everyone a little choked up.

"Seeing Ron and Barb's faces during the entire process was a priceless moment in my 29 years of life," says Aaron Ausen, of Dalmaray Concrete Products and WOWRA president. "It was a proud day for everyone who was on that site. It was pretty amazing."

Ron and Barb are members of the Joslyn family in Cascade, Wis., whose septic system stopped functioning at the same time they were having a difficult time paying off Ron's medical bills. The couple was thankful when WOWRA board member Damon Huibregtse learned of their plight and brought it to the attention of association members.



Participants in the first Rejuvenate a Family Day project gathered for a photo. Shown are (first row, left to right) Aaron Ausen of Dalmaray Concrete Products, Damon Huibregtse of Dirkse and Huibregtse Excavating, system recipients Ron and Barb Joslyn, Dan Diederichs of Madson Tiling and Excavating, and Barry Huibregtse of Dirkse and Huibregtse. In the back row (from left) are Lukas Hengst of Dirkse and Huibregtse, Mark Wieser of Wieser Concrete, Steve Jengtes of Statewide Septic Service, Len LaFrenier of J.W. LaFrenier & Sons, and Chris Fellner of Fellner Soil and Septic. (Photos courtesy of the Wisconsin Onsite Water Recycling Association)

CONVENTIONAL SYSTEM

For some time, WOWRA members were talking about helping a family in need with a new septic system. Members jumped at the chance to help the Joslyn family and replaced an antiquated and failing drywell and leach bed last July.

"God bless WOWRA and the members who saw our needs and decided to do something about it," Barb Joslyn says in a recent press release from the trade group. "It's easy to talk about it, but this group is actually doing something about it." Along with the local press, Dave Ross, secretary of the Wisconsin Department of Safety and Professional Services, State Sen. Joseph Liebham (R-Sheboygan), a local county administrator and the

Joslyns watched as the new system was installed in an afternoon.

The new conventional septic system was designed by Huibregtse to utilize a dual-compartment 1,500-gallon concrete tank, donated by Ledgeview Precast, with effluent moving to a drainfield filled with 88 Infiltrator Systems Quick 4 units. Overwhelmed by volunteer installers, the system was quickly assembled and buried, followed by a ceremony with the Joslyn family. The total value of the donations was \$9,125.

"It was an emotional-type thing," says Huibregtse. "This was different from installing other systems. Here you've got people getting emotional and crying, thanking you and saying they can't believe this happened to them." And the attention from media and officials was a learning experience, too.



While the legislator and others in government wanted to get close to the action, the installers had to monitor a busy work site and explain each step of the process to the onlookers. But it was a good thing to have the attention of decision makers, including Ross, who has jurisdiction over all septic system installs in the state, and have them see a crack team of installers at work.

Aaron Ausen

MAKING A DIFFERENCE

“There are lots of good people in the industry who want to help. We’ll try to move it around the state so everyone has an opportunity to do that,” he says. They put this project together quickly, and received many offers to help after necessary donations were quickly rounded up.

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CHALLENGED!

Are Toilets Water Hogs?

Are toilets still the largest water-using device in a home? Expert Jim Anderson says, "yes," and takes on a reader challenge to explain why even with today's low-flow features, toilets remain a water hog. Do you agree? Take a look at the formulas, the arguments, and then share your thoughts on household water use. www.onsiteinstaller.com/featured

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TROUBLESHOOTING

Worrisome Wastewater

In this case study, a septic system with a clogged media filter shows signs of unusual use. The culprit: tortillas, if you can believe that. A lot of additional cooking and frying by the homeowner had increased FOG in the onsite system. Find out how talking to homeowners about system use pays huge dividends. www.onsiteinstaller.com/featured

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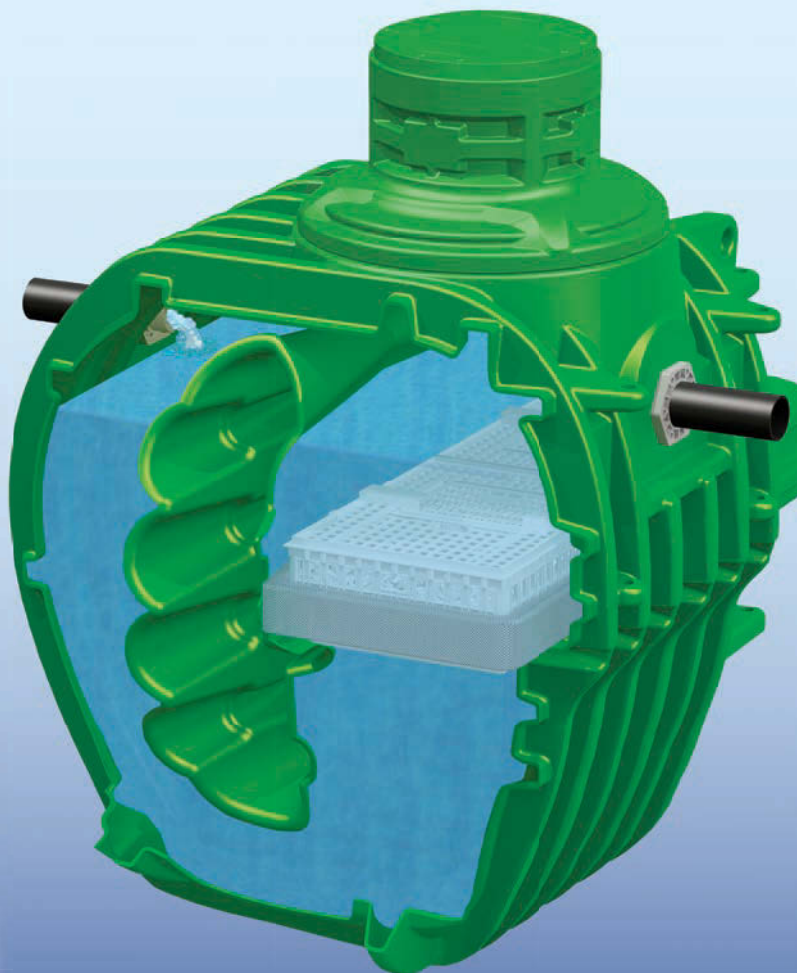


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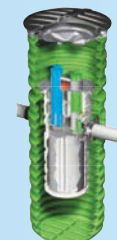


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ON THE ROCKS

Designing residential systems in the Colorado Mountains poses challenges including poor soils, wild terrain and blasting to create drainfields for All Services Septic

By Scottie Dayton

Venturing down holes to evaluate a rock's ability to support building foundations wasn't as appealing to geologist Tim Petz as communicating with people in the onsite wastewater world. When given an opportunity to help solve their problems, he chose a hands-on career with immediate gratification over writing construction reports.

All Service Septic, Arvada, Colo.

OWNER: Tim Petz
YEARS IN BUSINESS: 10
MARKET AREA: Colorado
SPECIALTY: Onsite design, construction management
AFFILIATIONS: Colorado Professionals in Onsite Wastewater, National Onsite Wastewater Recycling Association, National Association of Wastewater Technicians, Association of Engineering Geologists, Colorado Environmental Health Association
WEBSITE: www.allservicesepptic.com



In 2004, Petz opened All Service Septic in Arvada, Colo. It specializes in designing residential onsite systems and construction management, but has no employees. "I subcontract all my labor," says Petz, 43. "When money is available, they get paid. When work slows down, they go skiing." The policy enabled the company to survive comfortably during the economic slowdown a few years ago.

The Rocky Mountains, diverse geology, severe winters and most of the state's 5 million people using onsite systems create unique challenges. The Front Range, or Denver Mountains, is a 415-square-mile area of rock, steep slopes and glaciers. The Western Slope, or Aspen area, has alpine meadows, canyons, plateaus and high desert.

Many sites have no soil, and seasonal snow runoff produces massive high water surges lasting a month or two each spring. The majority of systems Petz designs are conventional gravity flow with two 3,000-gallon septic tanks discharging to gravelless chamber trenches. Careful soil science is critical for these systems to work.

THE BOOM YEARS

After Petz earned his geology degree from Ohio State University, he joined Church & Associates, a geotechnical firm in Wheat Ridge, Colo., which determined the qualities of soil before construction began on sites. It

<< Tim Petz, right, explains onsite plans to Fisher DeRoberts of Bosco Constructors (background) and Erik Hamilton involving the placement of the last few components of the FAST 3.0 system from Bio-Microbics. (Photos by Tyler Sutherland)

was Petz's job to test soils for onsite systems. "I liked wastewater because it was social," he says. "Under the tutelage of owner Ed Church, I became the company's wastewater guru."

The network Petz built over 10 years put everything he needed to open All Service Septic in his back pocket. His father, Richard Petz, P.E., retired as general manager of a robotics company and joined All Service. "Dad shares his time between Ohio and Colorado," says Petz.

"The most critical decision I make, and one that will change a project's direction, is pulling the trigger and saying, 'Don't blow that part of the hill, blow that part over there.'"

Tim Petz

"My contractors and I test soils and design systems, then he reviews and stamps the finished products."

Petz found his niche and most of his revenue designing onsite systems for "starter castles" during Aspen's boom years. These typically 15,000-square-foot single-family residences have 11 bedrooms, guesthouses, spas, pools, community rooms and separate gyms. Engineering systems catering to larger infrastructures differed greatly from single-family three-bedroom homes (one bedroom equals 300 gpd).

Early on, Petz used existing soil data to size some onsite systems, then had to repair them. "I learned quickly that I needed to control all preliminary investigations," he says. "It was a rookie mistake. From then on, I did the soil tests for every system we designed."

IT'S A BLAST

One of Petz's hardest projects involved a couple wanting to build their multimillion dollar mansion on top of a mountain. At that elevation, there was no soil, only rock. Contractors blasted a gigantic hole, then brought in soil to build a 12,000-square-foot drainfield with effluent distributed in fractured bedrock.

"One out of 10 installations requires blasting, and this is where my geology training comes in big time," says Petz. "The most critical decision I make, and one that will change a project's direction, is pulling the trigger and saying, 'Don't blow that part of the hill, blow that part over there.'"

Petz looks for more fractured, softer rock that is easier to remove. Highly fractured rock also provides treatment as effluent wicks into it. Since centuries of freeze-thaw cycles and cracking have stabilized the rock, it won't calve. "During the drainfield's 30 years of life, it is very unlikely for nature to displace the rock," says Petz.



Tim Petz, left, and his father Richard, are shown at the All Service Septic facility in Colorado.

Working on steep mountainsides is another challenge. It's too dangerous for contractors to drive machinery on slopes greater than 30 percent, and narrow, winding, steep roads prevent cranes or boom trucks from reaching sites and setting concrete tanks. Plastic tanks on pickup trucks make those systems possible.

WORKING AS A TEAM

Another element making systems possible are onsite designer technicians and sales personnel Annette Gaschler and Carla Ostberg. Gaschler manages the Denver Mountains area and has been with All Service Septic for five years. Ostberg, who manages the Aspen area, ran the Aspen Health Department and reviewed all Petz's designs before joining the company in 2011. Both subcontractors are NAWT-certified sanitarians. They meet



Tim Pelz, right, confers with Erik Hamilton as the pair install a system.

clients and provide Petz with the information he needs to engineer residential systems.

Commercial designs account for 20 percent of the work and encompass schools and summer mountain camps for scouts and other organizations. The camps, at 10,000 feet elevation, require onsite systems that handle high loading, then dormancy for nine months. "I use Bio-Microbics and Orenco pretreatment units," says Petz. "Just flip a switch to activate them, and flip it again to shut them off."

Petz subcontracts Erik Hamilton, owner of Peak to Peak in Nederland, Colo., to install secondary treatment systems and service 100 two-year maintenance agreements. (Service contracts are mandatory in 50 percent of the counties.) Gaschler, Ostberg and Hamilton also are responsible for construction management – observing other companies hired to set tanks and build drainfields or reviewing county regulations with them to guarantee work passes inspections.

"I trust my 10 regular installers to do things correctly, but occasionally the team finds someone who is still learning and has made a mistake," says Petz. "After they educate the individual, we usually don't have any more problems."

Petz married Debi, a registered nurse working in a Denver-area cardiac catheterization laboratory, in 2003. She now manages the in-home office, while raising their daughter and son, 5 and 7 years old.

The future of tire chips as aggregate material

When a client in Boulder County, Colo., proposed using tire chips for aggregate in his new drainfield, designer Tim Petz of All Service Septic researched the use of tire chips in southern states where soil is sandy and rock quarries are nonexistent. "Rubber has proven to be a better aggregate than stone because a more diverse population of bacteria grows on it; hence, better treatment," he says.

As a one-to-one replacement for washed gravel, tire chips are more porous and three times lighter. However, Petz found the product difficult to install, hard to clean up and not cost-effective. "Metal shards protrude from the chips and workers must wear a full body suit of canvas to avoid injury while installing them," he says. "The chips don't rake out easily, driving on them can damage tires and every stray chip must be removed from the property."

The drainfields where Petz specified tire aggregate are performing well. "It's a very interesting concept and, when manufacturers solve the main issues, tire chips could be major for the industry," he says.

Tim Petz worked with installers Martin and Martin to install this new Bio-Microbics FAST system at an elementary school. The system utilized Infiltrator Systems chambers in the drainfield.

LANDSCAPING CHALLENGES

Another design challenge for Petz is a seasonal high water table. Until recently, pretreatment was not an option, so he engineered mound systems. However, mansion owners did not want to see 12,000-square-foot mounds. "In those situations, I worked closely with the landscape engineer to design the system around the landscaping," says Petz. "The system had to blend with the house scheme or native environment."

"Communication is customer service in my world. I always let clients know what I'm doing. Even if I'm behind schedule, they need to know what is happening. Talk to people and they're going to help by being flexible."

Tim Petz

One way to hide drainfields was to plant them with native, low irrigation, low maintenance wildflowers. Another option used artistically placed boulders and piles of soil to add earthy tones. Observation ports were cut to grade and placed in 8-inch-diameter sprinkler boxes with detectable metal tape. Risers were hidden inside oak half-barrel planters growing wildflowers.

All Service also repairs onsite systems installed during Colorado's population boom in the 1970s. Most one-acre lots have room for replacement drainfields. "Installers prefer gravelless chambers because they're easier to transport up mountain roads, and they install faster than pressure-dosed drainfields," says Petz. Of the 80 systems they design annually, 12 have pressurized drainfields, which Petz prefers because they last longer. The company is too small to handle large installations with sewer infrastructure.

All Service Septic's annual revenue peaked in 2008, just before the economic downturn put an end to construction of huge homes. To compensate, Petz and Hamilton expanded operation and maintenance services, branched into onsite inspections for real estate transfers, accepted low-appeal jobs and worked for less money. As average homeowners began building additions again, Petz and Hamilton returned to upgrading those onsite systems, leaving Ostberg to continue inspections in Aspen where they remained lucrative.



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Heather Chivers rakes dirt in order to cover the leachfield from the installation of the Bio-Microbics FAST 3.0 system.

STAYING LEAN AND MEAN

Besides making physical changes to the company, Petz weathered the economic storm by communicating with his stable client base. "Too many companies don't respond promptly to inquiries, get quotes out on time or follow up," he says. "Communication is customer service in my world. I always let clients know what I'm doing. Even if I'm behind schedule, they need to know what is happening. Talk to people and they're going to help by being flexible."

After the energy exploration boom took off in North Dakota, Petz seized the opportunity to open Innovative Treatment Solutions in Bismarck, N.D., to sell Bio-Microbic products. As a licensed distributor, he meets with engineers designing systems for worker camps, and educates them about FAST treatment units. "When I design systems in Colorado, I give clients a choice of pretreatment options," he says. "I don't design anything in North Dakota, thereby avoiding a conflict of interest."

Petz is content to keep All Service Septic a small, family-owned business specializing in solving the unique wastewater problems of local homeowners. "We're at an ideal size where I can maintain control of the projects, design quality systems and still go skiing in winter." □

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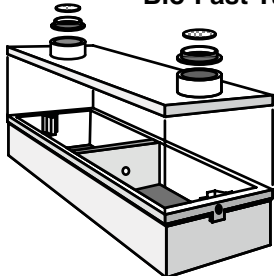
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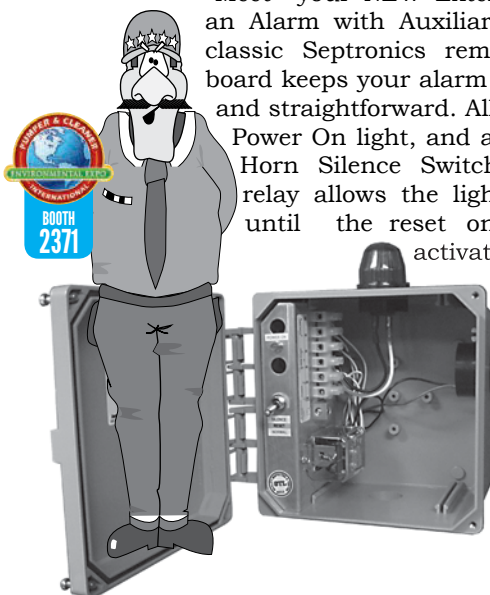
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Jim Anderson, Ph.D., and David Gustafson, P.E., are connected with the University of Minnesota onsite wastewater treatment education program. David is Extension Onsite Sewage Treatment Educator. Jim is former director of the university's Water Resources 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.

Shut It Down

Just like when you install a new onsite system, abandoning an old system requires following a careful list of safety procedures

By Jim Anderson, Ph.D., and David Gustafson, P.E.

As an installer, at some point in time you will be asked to abandon an existing system or part of a system as part of the new installation. Some general guidelines should be followed as a part of this process, and state and local requirements usually dictate how this should be done. The process is designed to focus on protecting the health and safety of people that may come in contact with the area of the system.

Make sure the tank contents fit the septage definition and are not another kind of waste that should be handled differently. Determine this before you have the waste on the truck so you know ahead of time where you are taking it for treatment and disposal.

Added to the accepted and required practices, you must consider the homeowners' desires regarding how they want to utilize that area of their yard in the future.

The first step of abandoning a system properly is to make sure future discharge to the system is permanently denied. This means all piping from the residence or other establishment is either removed or permanently disconnected. The importance of this step was brought home to us a few years ago when a system was not properly abandoned, the tank area left with voids and the piping from the business still intact. There was a huge rain event and the tank area filled with water, which was able to flow back from the tank into the business, flooding the business offices and causing great damage. All this happened because the system was left connected and the tank was not properly abandoned.

The abandonment procedure for sewage tanks, pump tanks, tanks as part of advanced treatment, cesspools, seepage pits, drywells, vault privies, pit privies and distribution devices is the same. Often polyethylene and fiberglass products are removed, while concrete products are abandoned in place.



In this case of an abandoned septic system, the contractor chose to remove the old tank. (Photos courtesy of Jim Anderson)

Any tank should be pumped empty. All solids and liquids should be removed. A note here to the service providers: The contents must be disposed of according to the state and federal rules governing septage. Make sure the tank contents fit the septage definition and are not another kind of waste that should be handled differently. Determine this before you have the waste on the truck so you know ahead of time where you are taking it for treatment and disposal. Installers: Most states require a licensed maintenance business handle this waste. So if you are not licensed for this activity, work with someone who is.

Cesspools, seepage pits and drywells should be pumped empty as well. They should then be filled with clean granular material that is compacted to prevent differential settling and to prevent any cavities in the fill from forming or being left where someone could fall in the future.



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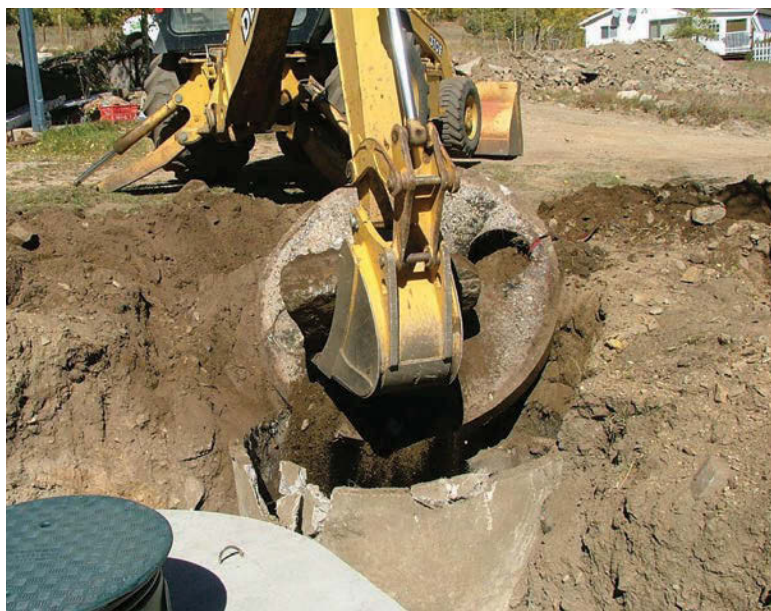
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In this instance, the contractor broke up the old tank and filled voids with a granular media.

Remove all the lids and risers and salvage or recycle them. If recycling isn't an option, take them and any piping removed to a mixed municipal solid waste landfill as determined by local requirements.

If there is a pump or pump tank in the system, disconnect the power at the source, and remove all controls and panels that are not going to be part of the replacement system. Any devices such as floats that have mercury switches should be set aside and handled as a hazardous waste and disposed of

according to state and local requirements. All electrical lines that serviced the pumps, floats and alarms in the system should be removed if they are not going to be reused.

Similar procedures apply for additional pretreatment components contained in tanks, such as ATUs and media filters. The contents, including media, should be removed and disposed of in the appropriate landfill. Distribution networks in the pretreatment device can be included with other piping components for disposal. For ATUs where pumps and blowers or compressors may be involved, they should be removed and recycled or salvaged if possible, or taken to the landfill. As with pump tanks, the electrical components and wiring should be disconnected and removed.

All of these same procedures, including removal of salvageable parts, apply for media filters that consist of some type of modular units, such as peat filters. The peat should be removed with a vacuum truck designed to handle that level of solids. Rock providing drainage at the bottom of the module should also be removed, and the module itself should be removed. This will probably require excavating around the module so a harness can be attached, and then a crane or excavator removes it for reuse or disposal. The cavity or hole from the module should be filled with a compacted granular material to prevent settling and the area graded, topsoil added and vegetation established.

If the tanks are not removed, they must be collapsed or crushed in a manner so that the tank or the cavity for the tank will not hold water. For concrete tanks, this means the bottom of the tank should be broken up to allow water drainage. Fill the tank with a debris-free granular material like sand. The material should be compacted to prevent settling. The rehabilitated area should be graded, topsoil applied and vegetation established consistent with the homeowners' desires.

Next month we will focus on the proper abandonment of a soil treatment area. □



Expo visitors learn about the latest products the industry has to offer. Here a representative of RIDGID demonstrates a new tool in the exhibit hall.

Let's Make It Great

Taking it all in at the Pumper & Cleaner Expo can be overwhelming. Here is some advice to ensure you make the most of your trip to the industry's best trade show.

By Briana Jones

Marking my fifth Pumper & Cleaner Environmental Expo International in February, I still remember my first show, walking into the vastness of the exhibit hall when I couldn't tell a vacuum truck from a portable restroom. (Don't worry, I figured it out pretty quickly.)

The Expo can feel overwhelming for first-time attendees, but the experience and knowledge gained are well worth the time and money spent.

I've been lucky enough to meet many of you because part of my job involves interviewing attendees, seminar leaders and exhibitors for videos. You've probably seen me with a camera guy wandering around the show floor. We're the video crew, and we create videos and post them on the Expo website (www.pumpershow.com), to our Facebook pages and onto exhibitor websites.

And I've also learned a lot from you during my years at the Expo, which runs this year from Feb. 24-27 at the Indiana Convention Center in Indianapolis, Ind. Now it's my turn to pass along some helpful tips to make your show more enjoyable. Here's some advice for Expo goers, whether you're a seasoned pro or a first-time attendee:

Plan of action

As North America's largest trade show for the environmental services industry — with 500,000 square feet of exhibits and new technology — using a virtual floor plan is a great way to ensure you see it all. The online tool — available on the Expo website — will help you plan each day so you don't miss anything.

The floor plan offers a quick and easy way to find exhibits and products.

A graphic layout shows where each company is exhibiting and provides booth number, website, and phone number and address.

Look up companies and products with the "Search the Show" option in the upper left-hand corner of the floor plan page. For example, a search for "Pipeline Rehabilitation/Lining" will highlight all the exhibits on the floor plan that have those products.

You can also create a show planner to save personal information, company and product information, and keep a schedule of educational seminars.

The mobile website on your smartphone is another helpful tool for planning your time at the Expo. You can search exhibitors to quickly find booth numbers, click the calendar icon to see educational seminar schedules and locations, or use the map of Indianapolis to find local restaurants.

Sign up for Facebook and Twitter updates on the mobile site to stay informed on everything happening at the show.

Daily dose

Ensure you have the most current seminar schedules and company list with the complimentary Expo Daily, the official daily publication of the Pumper & Cleaner Expo.

The publication is available each day on stands at the main registration entrance, and includes daily events, news from the show floor, seminar tracks, COLE Pub hours and lunch options in the hall.

Articles sprinkled throughout the publication offer tips and tricks for how to make the most out of your time at the show, including nightlife options,

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Indy attractions, and restaurant suggestions. Exhibitors also like to include specific times for product demonstrations and special offers in their booths.

A great assortment of current photos from the show floor also brings the publication to life. Grab yours each morning and peruse it as you wait for the exhibit hall doors to open.

Meet and greet

The Expo is the best place to meet other contractors and municipal managers from across the nation and around the world who face similar industry issues. Whether you're strolling the show floor or sitting down for lunch, introduce yourself to someone new. You're all there for the same reasons — to gain some knowledge, buy a new piece of equipment and network with your peers.

Articles sprinkled throughout [the Expo Daily] offer tips and tricks for how to make the most out of your time at the show, including nightlife options, Indy attractions and restaurant suggestions.

If you're not the type to just walk up to someone and start a conversation, maybe now is the time to give it a try. What's the worst that could happen? You meet a new friend or colleague who helps you figure out how to make more money or expand your business.

The COLE Pub, located in the back of the hall next to the main concession area, is another great place to build your professional network. Open Monday from 11 a.m. to 2 p.m., and Tuesday and Wednesday from 11 a.m. to 4:30

Expo visitors take a break at the COLE Pub in Indianapolis.



p.m. during the Expo, the COLE Pub is a fun way to relax, have a drink and make a new acquaintance.

As part of the video crew, I interview attendees, which usually involves randomly walking up to some of you. I've learned a lot from having candid conversations about why you enjoy the Expo. I've heard so many words of appreciation from attendees for the COLE staff and the overall show, and I can't thank you all enough for making the show a great and informative experience.

We couldn't do it without you. If you have suggestions or questions for me or any of the editors, stop by and see us at the editors' booth located between registration and the main exhibit hall entrance. See you in February!

About the author

Briana Jones is a digital editor at COLE Publishing.

They're Active in Iowa

IOWWA partners with government agencies, onsite product suppliers and Habitat for Humanity to educate installers

By Doug Day

The Iowa Onsite Waste Water Association is one of the largest in the country, with about 400 members representing installation and maintenance contractors, regulators, engineers, soil scientists, manufacturers and educators. President Steve Darrah says such a broad base has helped IOWWA develop a good working relationship with interested groups to improve the certification program and onsite regulations, and help improve Iowa's water quality.

Darrah, owner of Crystal Heating and Plumbing in Waverly, took over as president of IOWWA at the beginning of 2013 after three years on the board of directors. He has 23 years of experience as an installer and 40 years as a plumber. Darrah talked with *Installer Magazine* about the organization and the state of the industry in Iowa.

Installer: How did IOWWA get started?

Darrah: It began in 1999 to help onsite wastewater people learn more about what we're dealing with here in Iowa as far as our soil conditions and septic systems that work in certain soils. A lot of work has been done on alternative systems over the last few years.

We have a large variety of soil conditions in Iowa. In the northeast, we have solid lime rock with three to eight inches of loam cover, to areas where it's almost wetland. You might run into the water table at three feet in the north. Southern Iowa has coal, southwest Iowa is extremely hilly, very rocky and highly erodible. Plus we have a lot of streams and rivers, including the Mississippi on the east side and the Missouri on the west side of state.

Installer: What have you done to explore the various septic systems?

Darrah: In 2005, we started working with a Habit for Humanity project on an old Air Defense Command radar site just outside Waverly, where I live. They build new three-bedroom homes and revamp some of the old homes that were on the site, now called Heartland Hills. We've installed eight different systems and we maintain and monitor them monthly to see how they work. We hope to do more out there.

It's been real interesting. For each installation, we have a class open to our membership to see how they are installed. We have manufacturers there so it's a good time to see how they're expecting things to be installed and tested. That's been a good piece of knowledge for the association.

We have received a USDA Technical Assistance and Training grant for the development of a training program for the operation and maintenance of the

onsite systems there. We have filmed some of the installations since 2009 and have them in our online library [www.iowwa.com]. It's a really good asset for learning or if installers are looking for a different system for a particular application.

It's been a great place for us, the suppliers and manufacturers to show their wares and the proper way to install and maintain them. We have installed time-dosing systems, mounds, peat filters, aerobic systems and others – and hopefully more are coming. [Installed systems include: AdvanTex, Concrete Peat System, Eco Flex, FAST System, Fusion Tank, Hoot System, Hydro-Action Aerobic Unit and Multi-Flo.]



Steve Darrah is president of the Iowa Onsite Waste Water Association.

Installer: What are the licensing requirements in Iowa?

Darrah: We have the statewide Certified Installer of Onsite Wastewater Treatment Systems [CIOWTS] program. IOWWA proctors the test provided by the National Environmental Health Association (NEHA). The NEHA test is well-respected, very detailed and in-depth.

We give that test twice a year to certify installers and IOWWA manages renewals. As part of that, we offer a [1 1/2-day] Installation Overview course for those taking the exam, though they don't have to take the class before taking the test. Certification requires continuing education credits. So along with the annual conference, where installers can get those, we have meetings throughout the year across the state on different topics where they can get CEUs to maintain their license.

Installer: How does the certification work with individual counties?

Darrah: Requiring certification hasn't been picked up by many counties, but we're working on it and encourage the counties to adopt regulations requiring licensing of installers and certification through IOWWA. Contractors work in a lot of different counties and some work in neighboring states; a good majority of them are getting certified.

But only 10 out of 99 counties require certification. Some counties have sanitarians to make sure perc tests and soil analysis have been done and systems are inspected. Other counties don't have the resources and don't require as much. That's been a focus of the IOWWA board to get better at that in the coming years.

A lot of it has to do with funding. The state would like them to require certifications, and that's part of our efforts to get out there and meet with the county health departments to explain why it's important, what we'd like to see them do, and if they need any help implementing a program for onsite wastewater. The state has been a good partner and we have a good working relationship. They've helped us with the Habitat for Humanity project and gave us a grant for our Trailer of Training.

Installer: What is that?

Darrah: The Trailer of Training can be used by members for things like county fairs, and IOWWA brings it to the state fair. We acquired it through a grant from the Iowa Department of Public Health.

A lot of people don't know anything about their septic systems, so we have displays and handouts about our organization and who to contact. People can learn about the type of system they have, what kind of condition it's in, how often it should be inspected and pumped, and information about the time of transfer law that requires septs to be inspected when a home is sold to make sure it is operating properly.

Installer: Iowa updated onsite wastewater regulations last year. How was IOWWA involved in that?

Darrah: The regulations allow more alternative peat and aerobic systems in places where conventional systems like pipe and rock, sand filters and chamber systems can't be used. IOWWA commented and we were in favor of the changes. We work pretty closely with the Department of Natural Resources and have a good relationship with them as far as regulations; we get along pretty well.

We typically use conventional systems; sand filters, seepage beds, pipe and rock, and chamber systems. Some septic systems are in highly populated areas. The type of system depends on lot sizes and how the lot is laid out. If they are close to streams, rivers and lakes they need a special permit and testing twice as often as other systems.

Lots may seem to be big, but when you try to put a well and septic system on the same lot, all of a sudden they're fighting each other or with a neighbor's well. Now we have alternatives like peat, aerobic and anaerobic systems. There are a number to choose from, but they don't come into play unless a conventional system can't be used for some reason.

Back in the day, septic systems may have had a tank or maybe it went into the front of a '57 Chevy

buried 10 feet under the ground. A lot of them had straight pipes from a homemade tank into a ditch. Between system failures and the time of transfer program, those problem areas are being found and corrected to better protect water quality in Iowa. □

**Do you want to learn more?
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Clearstream Wastewater Systems Inc.
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Cobra Technologies
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COLE Publishing Editors
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Comforts of Home
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Consolidated Treatment Systems, Inc.
Containment Solutions, Inc.
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Crescent Tank Manufacturing
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Crust Busters/Schmitz Bros.
CUES
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EDUCATION DAY

MONDAY FEBRUARY 24, 2014

NASSCO NATIONAL ASSOCIATION OF SEWER SERVICE COMPANIES

- 8 a.m. Lessons Learned During Sewer Rehab on Public and Private Property
- 9:30 a.m. Pipe Bursting a Mature and Diverse Trenchless Technology
- 11 a.m. Resurgence of Chemical Grout Industry: Niche Business Opportunities
- 1:30 p.m. Chemical & Biological Control of F.O.G. in a 2,500-Mile Collection System
- 3 p.m. Lateral Rehabilitation, What's Available
- 4:30 p.m. Fiber Optic Temperature Sensing Technology for CIPP Cure Quality Control

NEHA NATIONAL ENVIRONMENTAL HEALTH ASSOCIATION

- 8 a.m. DEER in the Headlights
- 9:30 a.m. Basic Chemistry of Onsite Wastewater Treatment Systems
- 11 a.m. Making the Most of Experience: Training and Credentials for Wastewater Pros
- 1:30 p.m. Winners Communicate
- 3 p.m. Best Available New Technology
- 4:30 p.m. Best Available New Technology: How to Get Your Regulators on Board

NPCA NATIONAL PRECAST CONCRETE ASSOCIATION

- 3 p.m. 7 Things About Design, Installation & Maintenance of Precast Concrete Tanks
- 4:30 p.m. Grease Interceptors: A Slick Solution to a Greasy Problem

WJTA-IMCA WATERJET TECHNOLOGY ASSOCIATION INDUSTRIAL & MUNICIPAL CLEANING ASSOC.

- 8 a.m. Preparing for your First High Pressure Waterjetting Job
- 9:30 a.m. Vacuum Truck Operation and Safety
- 11 a.m. Hydroexcavation: Getting the Best Bang for Your Buck

SAFETY SESSION JOHN CONLEY

- 8 a.m. Preventing Tank Truck Rollovers

PSAI PORTABLE SANITATION ASSOCIATION INTERNATIONAL

- 9:30 a.m. State of Global Sanitation
- 11 a.m. Industry Image
- 1:30 p.m. Visions of the PSAI and the Education Initiative
- 3 p.m. What's New with OSHA Safety Requirements
- 4:30 p.m. An Introduction to Entering the Federal Government Contracting Arena

SALES & CUSTOMER SERVICE FRANK TACIAK

- 8 a.m. Be Always Profitable: Setting up the Sale
- 9:30 a.m. Be Always Profitable: Your Best Sales Presentation
- 11 a.m. Be Always Profitable: Servicing Your Sale
- 1:30 p.m. Be Always Profitable: Our Attitude to Success

NAWT NATIONAL ASSOCIATION OF WASTEWATER TECHNICIANS

- 8 a.m. CSA 2010 Implementation/Impact on Carriers/Drivers
- 9:30 a.m. DataQ's: When and How to Challenge
- 11 a.m. US DOT Update/Recent, Upcoming and Proposed Regulations
- 1:30 p.m. What is a Good Septic System Inspection?
- 3 p.m. The History of the PSMA Hydraulic Load Process
- 4:30 p.m. Improving Arizona's Inspection Program to Meet Modern Challenge

NOWRA NATIONAL ONSITE WASTEWATER RECYCLING ASSOCIATION

» SITE EVALUATION AND DESIGN OF ONSITE WASTEWATER TREATMENT SYSTEMS

- 8 a.m. Why Do We Care About Soils?
- 9:30 a.m. Design for Dummies
- 11 a.m. How to Do a Good Site Evaluation
- 1:30 p.m. Designing for Tough Sites
- 3 p.m. Wastewater and Soils: Clean It Up AND Get It To Go Away
- 4:30 p.m. Good Installation for Long-Term User Satisfaction

» FROM INSTALLATION TO MARKETING YOUR BUSINESS AND EVERYTHING IN BETWEEN

- 8 a.m. Look Out for Gophers! Taking Care of Mound Systems
- 9:30 a.m. ATU's - How to Make them Work
- 11 a.m. Rest Stops: A Case Study of Challenging Wastewater
- 1:30 p.m. Troubleshooting Onsite Systems
- 3 p.m. Installation Mistakes: How to Avoid and Fix Them
- 4:30 p.m. Marketing & Customer Service for Small Business Owners

SSCSC SOUTHERN SECTION COLLECTION SYSTEMS COMMITTEE

- 8 a.m. Personal Safety
- 9:30 a.m. Understanding the Nuances of a Quality CCTV Inspection Program
- 11 a.m. In the Trenches with Trenchless Pipeline Repair and Renewal
- 1:30 p.m. Nozzle Application: What, Why, Where, When and How?
- 3 p.m. Stop It! A Closer Look at Plugging
- 4:30 p.m. Getting the Most out of Your Combination Unit

BUSINESS TRAINING & MARKETING SUZAN CHIN

- 1:30 p.m. Marketing on a Shoestring
- 3 p.m. Getting Some...Brand Recognition
- 4:30 p.m. The Online Marketing Toolbox

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TUESDAY SESSIONS

February 25, 2014

SSCSC TRACK

- 8 a.m. Don't Fear the Shapefile
- 9:30 a.m. What's Important for Your Company; Is it Size, or Profit or Both?
- 11 a.m. 1 + 1 = 14: Cleaning and Inspection Equipment Working as an Entity

NAWT LAND APPLICATION TRACK

- 8 a.m. Be Ready to Land Apply
- 9:30 a.m. Soils and Cropping Systems
- 11 a.m. Land Application Rates and Nutrient Management

SAFETY COMPLIANCE TRACK

- 8 a.m. OSHA Confined Space and Fall Protection Untangled
- 9:30 a.m. Air Monitoring Application for the Liquid Waste Industry
- 11 a.m. Waterjetting Hose and Nozzle Safety

MUNICIPAL TRACK

- 8 a.m. Sealing - Take Control of Inflow & Infiltration in Manhole Sealing Systems
- 9:30 a.m. DC Water is Utilizing CIPP to Rehabilitate the Nation's Capital
- 11 a.m. Nozzle Explanation and Selections

INSTALLER TRACK

- 8 a.m. Septic Tank Bells and Whistles
- 9:30 a.m. Aeration Units for On-Site Septic Systems
- 11 a.m. Understanding ATU's, their Service Requirement, and Maintenance

GENERAL TRACK

- 8 a.m. Portable - The Best of Both Worlds - Liquids vs. Portion Control Deodorizers
- 9:30 a.m. Vacuum Loaders - Taking the Mystery out of Vacuum Truck Operation
- 11 a.m. DOT Compliance - The Value of DOT Certification for Vacuum Trucks

CUSTOMER SERVICE & EMPLOYEE DEVELOPMENT

- 8 a.m. Gen Y + Gen X + Baby Boomers = #@S%???
- 9:30 a.m. Get and Keep the Best Co-Workers
- 11 a.m. Win, Win, Win in Residential Service Contracting

WEDNESDAY SESSIONS

February 26, 2014

BUSINESS TRACK

- 8 a.m. Improving Profitability through Tracking
- 9:30 a.m. How Paperless Operations Save Time and Money
- 11 a.m. Book More Calls - Wow More Customers

PORTABLE TRACK

- 8 a.m. Deodorizers and Making the Right Choices
- 9:30 a.m. Oh Shift! 6 Future Trends You Must Gear Up For to Compete and Succeed
- 11 a.m. Portable Restroom Service Units

MUNICIPAL TRACK

- 8 a.m. Sewer Cleaning 101
- 9:30 a.m. Underground Coatings - Restore Deteriorated Infrastructure
- 11 a.m. How Small Contractors Can Make Big Money Doing Manhole Rehabilitation

LIQUID WASTE TRACK

- 8 a.m. Right Sizing Your Pump System
- 9:30 a.m. Make More Money by Using a Biological Product with Your Services
- 11 a.m. Septic Drainfield Restoration

ADVERTISING & MARKETING TRACK

- 8 a.m. Advertising and Marketing for Service Companies
- 9:30 a.m. Getting Sales Personnel to Properly Price and Present
- 11 a.m. 7 Incredibly Effective Ways to Improve Your Sales



ONSITE INSTALLER COURSE

- 8 a.m. - 5 p.m. All Day Installer Course
Jim Anderson and Dave Gustafson
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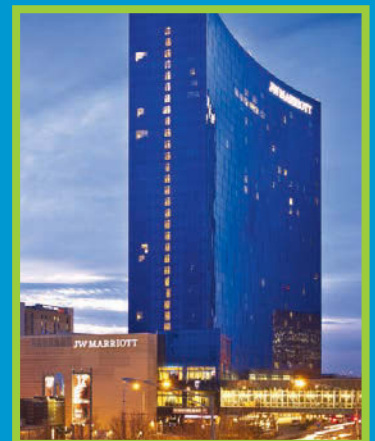
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To the left is an Ecopod E350-D module in the bottom half of a 4,300-gallon concrete tank with the 3,200-gallon equalization tank behind it. The second aerobic treatment unit is in the tank to the right. (Photos courtesy of Aaron Ausen)



Menu For Success

Custom components and cooperation on many levels enabled a busy restaurant in south central Wisconsin to stay in business

By Scottie Dayton

Friday night fish fries, a Wisconsin tradition, were a popular addition to the Aztalan Inn menu. Between 300 and 400 diners arrived those evenings, overwhelming the small sports bar and grill in Aztalan. The new owner then added a Wednesday night fish fry to divert some traffic.

Despite an indoor grease trap, exterior interceptor and twice-weekly pumping, grease migrated to the mound system, creating a 3-inch-thick biomat and subsequent ponding. Certified soil scientist and onsite designer Paul Hardy of Madison, Wis., planned a new mound system

receiving effluent from Ecopod (Delta Environmental) aerobic treatment units.

“The modules are certified NSF/ANSI Standard 40 residential,” says maintenance provider Aaron Ausen. “The Department of Safety and Professional Services rescinded the permit because this was a commercial application and the staff had no protocol to follow.” A year passed before the agency approved the plans.

Site conditions

Soils are loess over glacial till with a loading rate of 0.4 gpd per square foot.

System components

Hardy designed the system to handle 2,565 gpd, which included a future restaurant expansion. Major components are:

- 1,000-gallon single-compartment concrete grease interceptor. Tanks made by Dalmaray Precast Concrete Products.
- Two existing 1,000-gallon dual-compartment concrete septic tanks converted to grease interceptors
- Existing 1,500-gallon dual-compartment concrete pump chamber converted to a septic tank with Orenco Biotube effluent filter
- 3,200-gallon equalization tank with duplex Goulds 0.4 hp submersible effluent pumps
- Two 4,300-gallon tanks with Ecopod E350-D modules
- 1,650-gallon dose tank with duplex alternating Goulds 1/3 hp submersible effluent pumps and Sim/Tech STF-100 effluent filter
- 45- by 122-foot-long mound with two cells
- Two custom control panels from Delta Environmental

SYSTEM PROFILE

Location:	Aztalan, Wis.
Facility served:	Bar and grill
Designer:	Paul Hardy, Madison, Wis.,
Installers:	Dalmaray Precast Concrete Products, Janesville, Wis.; Jeff Levake, Levake Soil Testing, Lake Mills, Wis.
Site conditions:	Loess over glacial till; loading rate of 0.4 gpd per square foot
Type of system:	Pretreatment with mound
Hydraulic capacity:	2,565 gpd

System operation

Wastewater from the kitchen and lavatories empties into a 4-inch PVC lateral, flows by gravity through the grease interceptors to the septic tank, then to the equalization tank. Alternating pumps cycle every 15 minutes, sending 26.5 gallons in two minutes to dedicated fixed film treatment modules set in series.

Effluent gravity flows from the modules to the dose tank. Alternating pumps cycle four times a day, sending 241 gallons at 47.5 gpm through 2-inch force mains to two dedicated 8- by 107-foot-long gravel cells. A manifold distributes the dose to a cell's two 105-foot-long laterals on 4-foot centers. Each 1.5-inch diameter pipe has 36 3/16-inch orifices spaced 36 inches apart. Both ends of the cells have 4-inch observation ports.



"The modules are certified NSF/ANSI Standard 40 residential. The Department of Safety and Professional Services rescinded the permit because this was a commercial application and the staff had no protocol to follow."

Aaron Ausen

Installation

Dalmaray Precast engineers worked with Delta Environmental national sales representative Mike Catanzaro to design custom tanks for the modules. Catanzaro also designed stainless steel baffle weirs on the bioreactors to catch any residual bacteria before they reached the outlet line.

Jeff Levake of Levake Soil Testing in Lake Mills, Wis., installed the system, beginning with the mound in a field. Workers scarified the soil, laid 6 inches of septic gravel, built up the sand mound with 3 percent slope and laid the distribution lines. They covered the piping with 2 inches of stone, geotextile fabric and topsoil.

"Jeff did a wonderful job rounding off the mound and carving it to resemble a natural slope," says Ausen. "He used leftover gravel to build an additional parking lot west of the mound."

Meanwhile, Levake cut the lateral from the building, then installed the new grease interceptor ahead of the converted septic tanks. "Those tanks still drained to the old mound, so the pumper maintained his regular schedule throughout the installation," says Ausen. "However, this was the only day the restaurant had to close."

The second day, Levake dug 9- to 20-foot-wide holes for the treatment tanks and equalization tank. Using a Kobelco 115SR DZ hydraulic excavator, he removed 4 feet of topsoil, then hit an unexpected vein of dolomite

ABOVE: Bedrock rubble surrounds the excavations for the equalization tank, two treatment tanks and dose tank, identified by the riser in the background.

BELOW: Delta Environmental national sales representative Mike Catanzaro designed the stainless steel baffle weir on the bioreactors. The 4-inch airline is in the foreground.



bedrock. Switching to a rock ripper bucket, he chiseled down 6 feet. "This was the most difficult part of the installation," says Ausen. "We had piles of bedrock everywhere." The tanks were bedded on 3 inches of compacted gravel, then plumbed.

As the electrician prepared to wire the control panels, he discovered the power supply from the building was insufficient for the load. To accommodate



the restaurant's schedule, he worked 24 hours nonstop to upgrade the service and complete the job.

Filling the treatment tanks took two weeks, but the high-water alarms went off even before they were half full. "That confused us for several days," says Ausen. "We finally figured out the exhausted electrician had wired the floats backward."

Once the tanks were full, Ausen turned on the blowers, which have a timer. "We're still in the six-month startup phase and have lots of adjustments to make," he says. "After we fine-tune the system, the owner has the option of using the timer to turn off the blowers during slow times.

Installer Jeff Levake of Levake Soil Testing in Lake Mills, Wis., tests a control panel from Delta Environmental.

When the system reaches capacity in another two months, Ausen will draw effluent samples for BOD and TSS testing. "It's not mandatory," he says. "We want to know the treatment levels. Right now, everything looks very promising."

Maintenance

Ausen holds the service contract. Twice a year, he'll check the blowers, influent and effluent quality, and sludge level. Pumpouts occur when the level equals one-third of the tank's volume. He will also inspect the cells every six months for the first two years, then annually.

"Aerobic treatment units occasionally fail due to lack of maintenance," says Ausen. "Because of this system's size and the high-strength waste it's handling, I want to make sure everything is done properly." □

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See the Stars in Indy

NFL Combine gives football fans extra incentive to attend the Pumper & Cleaner Expo

By Cory Dellenbach

So, you're attending the 2014 Pumper & Cleaner Environmental Expo International in late February, you've arrived a few days early and are looking for something to do, right?

You don't have to go too far if you're an NFL fan. Just look to Lucas Oil Stadium where the 2014 NFL Combine will be taking place – the combine and the Pumper & Cleaner Expo overlap by two days.

"Fans will see coaches, general managers and college athletes walking around the hotel, through the convention center and around that area of Indianapolis."

Corry Rush

It'll be the third straight year the NFL will be distributing tickets for the scouting combine that is held each February in Indianapolis and draws the best college athletes hoping to make it onto an NFL roster.

In 2012, the NFL opened the scouting combine to 250 and demand was so high that the NFL increased the number of tickets available to 600 and fans could be allowed in for two days instead of just one.

This year, NFL officials are saying more tickets could be available. Those tickets would either be sold via a ticket outlet such as Ticketmaster or, as done in the past, fans would need to write an essay saying why they deserved the ticket. Those plans weren't finalized by deadline, according to Corry Rush, AFC Football Communications Director.

"The NFL is looking for real, die-hard fans to be a part of this opportunity," says Rush.

Fans getting tickets will get a chance to see some of the top draft prospects – Louisville quarterback Teddy Bridgewater; South Carolina defensive end Jadeveon Clowney; Texas A & M tackle Jake Matthews; and UCLA linebacker Anthony Barr.

"It's the ultimate job interview," says Indianapolis Colts General Manager Ryan Grigson.


Fans could watch the 40-yard dash for quarterbacks, wide receivers, offensive linemen and tight ends, and position skill drills.

The NFL Scouting Combine has been growing in popularity over the last several years. In 2012, more than 6.5 million people watched on the NFL Network and ESPN. Last year, more than 7 million watched.

There aren't too many outdoor activities centered around the NFL Combine, but if you're attending the Pumper & Cleaner Expo and book your hotel room early, you have a chance to stay in the expo's host hotel the JW Marriott – which is also the host hotel for the NFL Scouting Combine.

"Fans will see coaches, general managers and college athletes walking around the hotel, through the convention center and around that area of Indianapolis," Rush says.

The NFL Combine will be held Feb. 18-25 this year, while the first day of the Pumper & Cleaner Expo is Monday, Feb. 24 with Education Day. The Expo is returning to the Indiana Convention Center – connected to the JW Marriott – Feb. 24-27, 2014, showing off the latest products and technologies in the environmental services industry.

Early registration costs just \$50 until Jan. 24. At-the-door registration is \$70 for the full program. To find out more, visit www.pumpershow.com or call 866/933-2653. 




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A tire pressure monitor appears like a traditional tire stem at first glance, but is a high-tech gadget aimed at safety. (Photos courtesy of Truck System Technologies Inc.)



Working Under Pressure

Tire pressure monitoring systems can save contractors money and make their trucks safer to drive

By Ken Wysocky

Most contractors wouldn't mind increasing their vehicle's gas mileage, extending the life cycle of expensive tires, improving driving safety and receiving warnings about certain hard-to-access parts that may need repair. They can do just that in their trucks and wheeled equipment with small, innocuous and relatively inexpensive devices called tire pressure monitors.

Since 2008, the federal government has mandated all cars and light trucks be equipped with tire pressure monitoring systems, which utilize small, pressure-activated sensors to transmit both tire pressure and temperature to a dashboard-mounted display panel. And there's talk that all commercial vehicles may be required to use them sometime in the foreseeable future, says Dan Covington, the chief executive officer of Truck System Technologies Inc., which manufactures the systems.

Tire pressure monitoring systems come in two different configurations for commercial vehicles: external- or internal-mounted sensors. External sensors, which cost about \$50 per tire, are about 1 inch tall and 1 inch in diameter, and mount directly on tire valve stems. The internal sensors, which cost about \$79 per tire and are about the same size as external sensors, mount on the base of a tire stem inside a tire. The system can monitor up to 34 tires at a time.

HOW IT WORKS

Via a radio frequency, the sensors transmit a tire's psi and temperature in real time to a small dash display that flush-mounts with a bracket to a dashboard. A military-grade, seven-year-life battery powers the sensors, while the display can be hard-wired into any 12-volt AC outlet. Contractors also can opt for a display powered by a lithium-ion battery that will function on a full charge for seven days (the battery-powered model can attach to a windshield or dashboard via a suction cup). Most companies with larger fleets prefer the

hard-wired systems so drivers can't turn them off, Covington says.

To avoid cross-readings from sensors on other trucks and trailers, each Truck System sensor has a six-digit alphanumeric code programmed into it and etched onto the unit, and that code is scanned into the display. That

The sensors can alert drivers to heat being created by a damaged part, such as a bad wheel bearing or a hanging brake caliper. That can save contractors money by revealing a problem before it becomes significantly worse.

way, the display only reads and displays information for the tires coded into it. While driving, the display continuously rotates through sensor readings for all the tires, showing data from each tire for about five seconds at a time, and a "map" of the truck or trailer's undercarriage shows which tire is being monitored, Covington says.

"The external sensors look like a black bottle cap – they don't leap up at you," he explains. "The transmitter is located inside the device. The stem is made of brass, which is more durable than aluminum. Some customers prefer external-mounted sensors because they can switch them from trailer to trailer as needed. Others put internal sensors on their trucks and externals on seldom-used trailers."

The system emits loud beeps when a problem arises, and red LED lights flash on the display for a visual alert. In addition, icons on the display panel tell the operator what's going wrong, such as a slow leak, a fast leak, over-



ABOVE: External sensors can be retrofitted for a vehicle that didn't come from the factory with a monitoring system. **LEFT:** An internal monitoring system includes several components to keep track of tire inflation.



inflation and high temperature. The audible alarm goes off continuously, but a driver can silence it for 20 minutes before it retrips and starts beeping again.

BENEFITS ABOUND

Underinflated tires can create several problems for contractors. First of all, they can depress gas mileage. To exactly what extent is debatable, but according to the U.S. Department of Energy, underinflated tires decrease gas mileage to the tune of more than 1.25 billion gallons of gasoline annually.

"Most truckers would be surprised at how underinflated their tires are," Covington says. "We randomly sampled 100 trucks at a trucking company and found 30 of them were underinflated from 10 to 30 pounds below the recommended inflation level. And that number seems to hold consistently true industrywide."

Moreover, air loss occurs naturally; Covington says a typical tire loses two to three pounds a month. Other factors also can contribute to air loss, ranging from a poor tire bead, external temperature variations, bad valve cores, loose valve stems and puncture from nails and other road debris.

"For commercial trucks, replacing tires is one of the biggest operating expenses," Covington adds. "And 90 percent of tire-related issues can be addressed before a tire blows, which forces you to buy another tire or make an expensive road-assist call. Properly inflated tires also extend tire life because underinflated tires wear unevenly and create sidewall damage. Ultimately, that wears them out prematurely."

Worn tires also are prone to dangerous blowouts, which can cause serious accidents that can result in injuries/fatalities and raise insurance rates.

In addition, the sensors can alert drivers to heat being created by a damaged part, such as a bad wheel bearing or a hanging brake caliper. That can save contractors money by revealing a problem before it becomes significantly worse – and more expensive to repair, he says.

"Catastrophic tire failures still can occur without any warning signs," Covington notes. "But 85 to 90 percent of tire failures exhibit warning signs, like loss of pressure and rising heat. Typically tire temperatures run about 25 percent above the ambient outside temperature."

In Truck System monitors, a temperature alert is preset at 158 degrees, but operators can change alert parameters on a per-axle basis. "We encourage people to leave it where it is," he says.

Companies that invest in tire pressure monitoring systems need to educate drivers and mechanics about installation and maintenance procedures, which Covington says are not overly complicated, but do involve time and labor.

"Sometimes when a guy rotates tires, he'll forget to put the sensors back on, or break them without knowing it," he points out. "But monitoring systems can actually reduce maintenance costs because you don't have to take time to manually put a gauge on tires every month to check their air pressure. In fact, we have a wand device for fleet applications that you just wave over the sensor – you can even catch trucks and trailers [and check tire pressures] as they're driving in or off the lot." ■



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COME SEE IT ALL

Onsite system installers will have a look at the top tools and equipment the industry has to offer at the 2014 Pumper & Cleaner Expo

By Craig Mandli

The Pumper & Cleaner Environmental Expo International Feb. 24-27 will fill the Indiana Convention Center with an array of the newest and best products and services the onsite system installation industry has to offer.

To make sure you don't miss out on any of the breakthrough industry offerings in Indianapolis, be sure to check out the interactive floor plan on the Expo website (www.pumpershow.com). Whether you're a first-time visitor or long-time attendee, you're guaranteed to bring home new product knowledge that will help build your business in the coming year.

Here's a look at some of the products and services set to be highlighted this year.

2014 PRODUCT PREVIEW



1.



2.



3.



4.

TREATMENT SYSTEMS

1. Advanced Drainage Systems Inc.

The GEO-flow HDPE pipe-leaching system from Advanced Drainage Systems Inc. promotes an oxygen-rich environment for increased biomat activity. It is comprised of a combination of a 10-inch-diameter, single-wall high-density polyethylene (HDPE) corrugated pipe, surrounded in a polypropylene grid, both of which are encased in geotextile fabric. This design creates equal distribution and enhances the biological reduction of wastewater before it leaves this gravelless pipe system. Its test-proven treatment capability supports system sizing reductions required by many state health departments. **800/821-6710; www.ads-pipe.com; Booth #6119.**

2. AK Industries

The Hydro-Action aerobic treatment system from AK Industries is NSF 245 certified at 400 and 500 gpm. It uses suspended aeration and an activated sludge design with engineered recirculation to achieve consistent denitrification without media filters or carbon additives. **800/370-3749; www.hydro-action.com; Booth #1228.**

3. Anua

Compact Monafil from Anua is a zero-energy biofiltration system utilizing specialized media for the removal of 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. It also uses recycled shell-based media to maintain a neutral pH within the prepackaged biofilter. The peat and shells ensure optimal odor-control performance while simplifying operation and enhancing system reliability. It is based on technology that has been successfully used for over 20 years in odor control applications. **800/787-2356; www.anua-us.com; Booth #4200.**

4. Bio-Microbics Inc.

The STAAR (Smart Tricking Anaerobic/Aerobic Recirculating) Filter System from SeptiTech, a subsidiary of Bio-Microbics Inc., utilizes an enhanced, unsaturated media filter technology for a biological trickling filter system that's designed to treat wastewater with minimal operator oversight while delivering consistently high-quality treatment even during peak, low or intermittent flows. EPA-ETV and NSF/ANSI Standard 40/245 certified, it maintains low levels of Nitrate-N, and has a 500 to 18,000-plus gpd treatment capacity, treating high organic loads while efficiently removing ammonia. **800/318-7967; www.septitech.com; Booth #2006.**



5. Eljen Corporation

The Geotextile Sand Filter (GSF) product from Eljen Corporation is an advanced wastewater treatment and dispersal technology that provides treatment and dispersal in the same footprint, while keeping installations easy and maintenance minimal. Independent testing has shown that its performance is compliant with NSF/ANSI Standard 40 Protocol and provides advanced treatment of septic tank effluent to better than secondary levels. **800/444-1359; www.eljen.com; Booth #4259.**

6. Geoflow Inc.

In-tank drip headwork from Geoflow Inc. fits neatly inside the pump tank riser. Connected directly to the pump with strategically placed quick-disconnect fittings, it can easily be removed, with or without the pump, for comfortable servicing above ground. The preassembled headworks is available with either a Vortex screen filter or a BioDisc filter. The BioDisc filter features Geoshield discs that are crush-free and protect the filter from slime growth. **800/828-3388; www.geoflow.com; Booth #6132.**

7. Jet Inc.

The Illumi-Jet UV disinfection unit from Jet Inc. is capable of reducing fecal coliform bacteria levels to below U.S. treatment standards. It uses a germicidal lamp, which emits 95 percent of the ultraviolet energy at the wavelength of 254 nanometers, the region of maximum germicidal effectiveness lethal to virus, bacteria, protozoa and mold. The disinfection chamber couples directly to a 4-inch discharge pipe, and is permanently installed below grade. When fully inserted, the lamp housing is properly positioned by an integrated keyway near the top of the disinfection chamber, creating a well-defined flow path ensuring system effluent has the proper ultraviolet exposure time. Under standard operating conditions, fecal coliform reduction exceeds 99.9 percent. **800/321-6960; www.jetincorp.com; Booth #2275.**

8. Norweco Inc.

The Hydro-Kinetic Bio-Film Reactor from Norweco Inc. is a nonmechanical device that employs filtration technology to produce clean, consistent effluent quality. As liquid flows up through attached growth filtration media, final polishing takes place insuring only the highest quality effluent is safely returned to the environment. Constructed of high-density polyethylene, it can be used behind any type of system and is easily installed with minimal disruption to the yard. It eliminates replacement of failed systems and prevents problems in new installations. Odors, pollution, costly maintenance and system failures are reduced and/or eliminated. **800/667-9326; www.norweco.com; Booth #2456.**

9. Premier Tech Aqua

The Ecoflo Biofilter from Premier Tech Aqua is compact, permanent and scalable, increasing the number of buildable lots and keeping upfront costs under control. No electricity is required for the treatment and no excavation or relocation of the unit is ever required. The unit has proven effective in more than 55,000 system installations over the past 20 years. **800/632-6356; www.premiertechaqua.com; Booth #4118.**

10. Presby Environmental

Advanced Enviro-Septic (AES) from Presby Environmental is an affordable treatment and dispersal nonmechanical onsite system designed for residential, commercial and community use. It has been proven to remove up to 99 percent of wastewater contaminants without the use of electricity or replacement media, and is approved to the highest levels of treatment resulting in significant reductions in size due to the proven performance and third party certifications from NSF Class-1, Cebadeau and BNQ. More than 150,000 systems are in the ground. **800/473-5298; www.presbyenvironmental.com; Booth #6001.**

11. Salcor Inc.

The 3G UV Unit from Salcor Inc. is proven for residential use, and a reliable building block for larger wastewater disinfection systems. Rated at 9,000 gpd gravity flow, it features a fouling-resistant Teflon lamp covering, two-year lamp warranty, speedy installation, minimal (annual) maintenance and low energy use. Parallel/series arrays for larger flows are easily assembled with readily available ABS pipefittings. Gravity flow is equalized without the need for distribution boxes. Identical modular units increase plant reliability, reduce the need of spare parts and facilitate plant expansion when necessary. Systems of up to 100,000 gpd capacity have been installed. **760/731-0745; Booth #3000.**

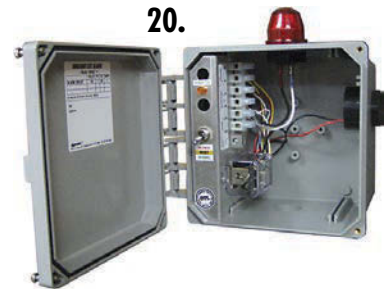
SEPTIC SYSTEM COMPONENTS

12. Containment Solutions Inc.

Flowtite watertight fiberglass water storage tanks from Containment Solutions Inc. allow a water storage system to be watertight between the access collar and the access riser. A watertight enclosure protecting an access opening is the only way to eliminate infiltration and exfiltration contamination, as the access opening is the most vulnerable entry point for contaminants into any water storage system. The system deserves to be watertight, not simply water resistant, and a tank with watertight access collars is an effective way to protect an investment. **877/274-8265; www.containmentsolutions.com; Booth #2460.**

13. Hedstrom Plastics

Polyethylene septic tank covers from Hedstrom Plastics fit standard 18- and 24-inch double-wall corrugated pipe. Gaskets and safety hardware are included, with a safety net available. Covers can be filled with sand on site for added weight. Foam-filled lids are available upon request. Covers can be customized with a company name, and are available with a tank adapter. **888/434-5891; www.hedstromplastics.com; Booth #1319.**



14. Infiltrator Systems Inc.

The IM-1530 large-capacity tank from Infiltrator Systems Inc. is lightweight, durable and watertight. It provides exceptional strength in a two-piece design, and enables a wide-range of installation options, including shallow, multiple and serial-tank configurations. It also features integral heavy-duty lids that interconnect with the TW Riser System, structurally reinforced access ports, reinforced structural ribbing and fiberglass support posts to provide additional strength. No special installation, backfill or water-filling procedures are required. **800/221-4436; www.infiltratorsystems.com; Booth #5248.**

15. Orenco Systems

Biotube ProPak pump packages from Orenco Systems are complete, ready-to-install packages used for filtering and pumping effluent from single- or dual-compartment septic tanks to gravity or pressurized discharge points, with no pump tank required. Each includes a 20-year, high-head effluent pump and Biotube filter with 14.5 square feet of total surface area to reduce biological loading and protect downstream components, including drainfields. Packages are designed to be easily installed, cleaned and maintained. **800/348-9843; www.orenco.com; Booth #4010.**

16. Polylok

The High Vent Air Pump Enclosure from Polylok measures 24 inches long by 15 inches high, and utilizes an air vent (independently tested to 330 cfm) on a 24-inch flat cover with mesh air inlets to dissipate heat and extend the life of the air pumps. It's green-colored UV-protected weather-resistant enclosure that blends with the environment and can be used above or below grade on new or retrofit applications. Accessories include risers to adjust the height to fit most applications, and a full line of air pumps ranging from 1.41 to 5.29 cfm. **877/765-9565; www.polylok.com; Booth #2000.**

17. Roth Global Plastics

The MultiTank from Roth Global Plastics can be used for water cistern, pump, holding, rainwater or as a septic tank. This is possible due to its construction of an inner layer of FDA-approved virgin HDPE, two inside layers of PE for improved stability, plus one outer layer of black and UV-stabilized PE. Features include CSA, NSF and IAPMO certification; a COEX-4 multilayer co-extrusion process; a low-profile design that leads to less digging and makes it easier to avoid a high water table; lightweight construction; a multiport inlet/outlet; two 24-inch manways; a cylindrical shape that requires no water for backfill; a threaded riser system; and watertight seamless construction. **866/943-7256; www.rothmultitank.com; Booth #4124.**

18. RotoSolutions Inc.

The 24-inch septic lid from RotoSolutions Inc. is made of heavy-duty, rotomolded plastic and weight-rated for 3,500 pounds. **800/868-0973; www.rotosolutions.com; Booth #4237.**

19. Septic Services Inc.

The Flagg-Air 340HP shaft-style aerator from Septic Services Inc. features a high-torque continuous-duty motor. It is available in two models — Model 340HP-J has 12-inch mounting brackets and fits a 10-inch tank riser opening, and Model 340HP-N has 13.5-inch mounting brackets and fits 12-inch openings. Both offer low rpm (1,750) with high airflow at lower noise levels. It has a 2-foot power cord with plug, prelubricated and sealed bearings, powder-coated steel brackets with rubber vibration restrictors for mounting stability and strength, high-impact plastic suds restrictor, a stainless steel shaft and bronze counter shaft, an integrated T-bar handle and a 7-amp mini-breaker included. **800/536-5564; www.septicserv.com/store; Booth #3118.**

20. Septronics Inc.

The removable terminal board from Septronics Inc. keeps alarm wiring effortless and straightforward. All units contain a power-on light, a manual-reset and a horn-silence switch. The latching relay allows the light to remain on until the reset on the toggle is activated. It can be tied into a security system or auto dialer. Mounting brackets are included, with optional pedestal mounts available. This multifunctional exterior alarm is adaptable for many applications. **262/567-9030; www.septronicsinc.com; Booth #2371.**

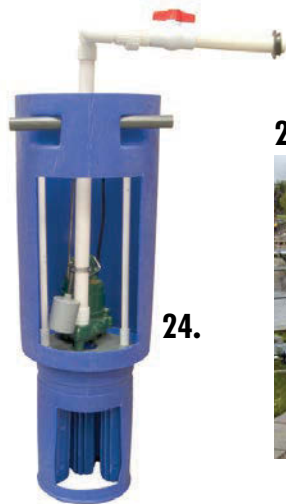
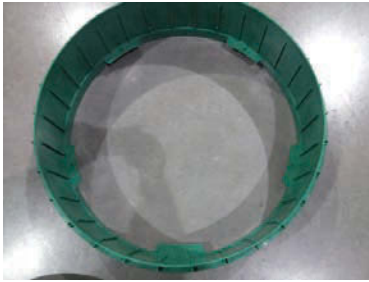
21. Sim/Tech Filter Inc.

The No-Vault pump filter from Sim/Tech Filter Inc. protects turbine pump intake screens. Filtration is achieved through a choice of a 6-inch PVC or 316L stainless steel screen with 1/16-inch perforations. The shorter model has 139 square inches of open area, while the tallest model has 325 square inches. The increased area reduces the frequency of screen and pump cleaning. The interior sealing sleeve allows it to adjust to different pipe heights. The smallest unit handles pumps up to 26 inches tall, while the largest unit handles pumps up to 50 inches. It is easily installed in new systems or retrofit onto existing systems. **888/999-3290; www.simtechfilter.com; Booth #2206.**

22. SJE-Rhombus

The Tank Alert EZ indoor/outdoor alarm system from SJE-Rhombus features a removable cover that provides greater access for easier field wiring while the internal circuitry remains protected. The two-color molded enclosure integrates the red translucent LED beacon; the upper half illuminates and the horn sounds when an alarm condition occurs. Once the condition is clear, the alarm automatically resets. It meets Type 3R watertight standards, and features a sound chamber to amplify the horn while helping prevent moisture from entering. External mounting tabs offer quick, easy installation. It includes an alarm test/horn silence switch, green LED power-on indicator and auxiliary contacts for remote devices. **888/342-5753; www.sjerrhombus.com; Booth #2305.**

23.



24.

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23. Tuf-Tite

Septic tank lid risers from Tuf-Tite feature internal support ledges that support the company's internal plastic safety lids, or a variety of internal safety devices made by other companies, such as lids made of concrete, fiberglass or a rope net. Every riser lid comes with all screws needed, including safety screws. Any internal safety lid can be replaced and then screwed to the riser. **800/382-7009; www.tuf-tite.com; Booth #6108.**

24. Zoeller Products

The Clarus Environmental Centrifugal 5040 STEP system from Zoeller Products is a filtered pump system for low-head applications. Its versatility enables the end user to turn their ordinary septic tank into a pump tank, saving additional excavation and storage capacity. It has multiple pump options and comes equipped with hanger pipes. Options include extended vault versions, a stand-alone stand and multiple discharge assemblies for an out-of-the-box install. **800/928-7867; www.clarusenvironmental.com; Booth #5106.**

PUMPS

25. Ashland Pump

Heavy-duty effluent pumps from Ashland Pump available in multiple horsepower for various performance requirements, and feature low amp drawing, efficient PSC motors. The oil-filled pumps feature upper and lower ball-bearing design and handle solids up to 3/4 inch. They are made of heavy cast iron, feature cast-iron impellers and are equipped with a piggyback switch (20-foot standard cord) or in manual configurations. **855/281-6830; www.ashlandpump.com; Booth #2268.**

26. Boerger LLC

Mobile Rotary Lobe Pumps from Boerger LLC are self-priming, valveless, positive-displacement pumps used for rapid deployment of flood water, stormwater, domestic wastewater, industrial effluents and sludges, spill situations (oil, gasoline, diesel, etc.), digester and lagoon clean up. Twenty pump models in six series are offered with pulsation-free operation, fully reversible rotation, dry-run capabilities and flow rates up to 5,000 gpm. All wear parts can be easily replaced through the front cover, without the removal of pipe or drive systems. Suction and pressure hoses can be installed in minutes. **612/435-7300; www.boerger.com; Booth #2461.**

27. Champion Pump

The 2 hp grinder pump from Champion Pump provides up to 133 feet total dynamic head and flows up to 42 gpm. It features a double-seal configuration with a seal-failure alarm option. The starting components are optional, eliminating the need for expensive control panels. Also available in a three-phase system, its quick-disconnect cord is readily available up to 50 feet, allowing it to be replaced without disturbing the wiring in the panel and conduit. It is offered as a packaged system complete with guide rails built to specifications. **800/659-4491; www.championpump.com; Booth #2377.**

28. Franklin Electric

Duplex grinder package systems from Franklin Electric are turnkey and job-ready to handle demanding residential and light commercial sewage removal applications. Designed for easy installation, they feature a heavy-duty fiberglass basin, commercial-grade stainless steel rail system or rigid discharge piping assembly, MGPD duplex control panel and 2 gpm Series 2 hp manual grinder pumps. **800/701-7894; www.franklin-electric.com; Booth #5365.**

29. Fruitland Manufacturing

Fruitland Manufacturing is offering a biodegradable oil for use with all rotary vane pumps. It is both environmentally and user operator safe. Biodegradable oils help reduce emissions and are nontoxic. They are also cost-efficient. **800/663-9003; www.fruitlandmanufacturing.com; Booth #6007.**

30. Liberty Pumps

The ProVore grinder pump from Liberty Pumps is designed for use in residential applications where the addition of a bathroom or other fixtures below sewer lines requires pumping. It features the same V-SliceCutter technology utilized in Omnivore series 2 hp grinder pumps. Powered by a 1 hp motor, it is designed to operate on a standard 115- or 230-volt circuit requiring a 20-amp breaker. No special wiring is needed. Compact factory-assembled systems are available in both simplex and duplex versions. **800/543-2550; www.libertypumps.com; Booth #2434.**

31. Moro USA

The PM3000 liquid-cooled vacuum pump from Moro USA is capable of pumping nonvolatile liquids and sludge from long distances, with a suggested tank capacity of 3,000 to 6,000 gallons. It includes an integrated check valve, changeover valve, automatic oiling system, industrial-duty bearings, Viton seals and high-flow-rate asbestos-free spark-proof vanes. Its onboard liquid cooling system incorporates a forced circulation external water pump. It is capable of 43.5 psia and a continuous vacuum of 24 inches Hg, along with a flow rate of 1,000 cfm and 1,200 rpm rotating speed. It also features 4-inch flange connection. **800/383-6304; www.morousa.com; Booth #3122.**



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32. VARCo

The Patriot 300 from VARCo is a ballast-port-cooled, continuous-duty pump with over 300 cfm of vacuum. It features auto-lubed front bearings, an auto oiler, diesel flush port, and an external oil tank for easy viewing of oil levels. **866/872-1224; www.varcopumper.com; Booth #5150.**

VACUUM TRUCKS/ TANKS/COMPONENTS

33. Amthor International

The new vacuum tank truck from Amthor International is a 2014 Ford F-550 with a 1,250-gallon, two-compartment aluminum portable rest-room tank with a Masport HXL4 pump package. The body will include an aluminum fold-up gate, D/S workstation, two tank-mounted toolboxes and an epoxy-lined waste compartment. **800/328-6633; www.amthorinternational.com; Booths #4327, #4331, #4332, #4335.**

34. Banjo Corp.

The VSFMT220SS 2-inch NPT stubby valve from Banjo Corp. features a 2-inch full port male adapter, 100 percent polytetrafluoroethylene ball seats, a compact design, Teflon TFE seals with no elastomers and a maximum pressure of 1,000 psi. **765/362-7367; www.banjocorp.com; Booth #1325.**

35. Ditch Witch

The FXT50 Truck Vac from Ditch Witch is mounted directly to a truck's frame rails, allowing the system to flex independently of the truck, promising stability and confidence. It can be mounted to the single-axle truck of customer's choosing, and can be customized with toolboxes and other support equipment (e.g. 1,020 cfm blower, 3,000 psi water system flowing 5 gpm.) It is quiet and offers quality filtration. **800/654-6481; www.ditchwitch.com; Booths #5214, #5216.**

36. GapVax

The HV Advanced Series from GapVax is the company's most popular hydroexcavator, with a CANbus system control allowing the operator to observe and troubleshoot the entire system. It has a 15-cubic-yard debris body and water tank options ranging from 350 to 1,200 gallons. Features include a positive displacement vacuum pump rated at 3,500 cfm with 28 inches Hg. The tailgate is fully opening with a field-adjustable hinge and dual cylinders. Options include cold-weather recirculation package, sludge pump, auger unloading, body pressurization system, remote pendants and wireless remotes, high rail package, washdown system, stainless steel body and high-dump system. **888/442-7829; www.gapvax.com; Booth #6004.**

37. Kuriyama of America Inc.

Tigerflex Amphibian AMPH Series hose from Kuriyama of America Inc. features a highly abrasion- and oil-resistant polyurethane inner liner that better resists internal wear than rubber hoses, especially in the bends where the material hits, leading to less costly downtime. It is effective vacuuming above ground in normal temperatures, or hard-to-reach areas in extreme subzero temperatures. Its highly flexible Cold Flex materials and corrugated outer cover allow for ease of use. **847/755-0360; www.kuriyama.com; Booth #3021.**

38. Logan Clutch Corporation

The self-adjusting Bell Housing PTO Clutch from Logan Clutch Corporation is ideal for use in industrial waterblasting and vacuum excavation equipment. It replaces mechanical, hand lever-engaged PTOs with a fluid or air-actuated unit. Clutch engagement is smooth and consistent, eliminating the need for mechanical linkage, lever arms and yokes. Also, since it's air or fluid activated, the clutch can be engaged with the push of a button from the control panel or cab. They are available with or without pilot bearings, for diesel and gas engines in the 60 to 1,600 hp range. **440/808-4258; www.loganclutch.com; Booth #1464.**

39. Muncie Power Products Inc.

The CS24 from Muncie Power Products Inc. is a clutch shift PTO designed for Allison World and Caterpillar automatic transmissions. It is engaged by means of a solenoid-activated, wet clutch pack. The engagement solenoid is built into the PTO, and installation is simplified by the requirement of only one hose connection. It features four remote-mount output shaft options, rotatable direct mount flanges, is compatible with PTO shaft extensions and includes the Muncie output shaft brake. **800/367-7867; www.munciepower.com; Booth #2010.**

40. Omega Liquid Waste Solutions

The Remote Control Powered Hose Reel from Omega Liquid Waste Solutions offers the ability to slash the time required to lay out and stow either 3- or 4-inch vacuum hose, what can typically take 10 to 15 minutes is achieved in seconds. It is also hinged to swing away from the back of the tank in order to facilitate rear dumping and to deploy hose in the direction of the job site. With universal mounting to any truck frame, the install is simple and secure and only requires a 12-volt connection for operation. Operators have complete control of "reel in and reel out" and "swing open and swing close" functions via a small hand-held remote with a range of 200 feet. **450/651-0444; www.exprolink.com; Booth #6167.**



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41. Piranha Hose Products

Brutus and Lil' Brute portable hydraulic hand swagers from Piranha Hose Products can be taken anywhere to install hose ends. Lil' Brute is designed for hose sizes 1/4, 3/8 and 1/2 inch. Brutus is designed for hose sizes 3/4, 1 and 1 1/4 inch. Both machines include a drawer that holds up to three sets of dies and pushers to provide the complete package. They are sold either as a kit with one unit, one die and one pusher, or as individual components. **800/250-5132; www.piranhahose.com; Booth #3017.**

42. Progress Tank

The DOT 407 code hoist and door lift unit from Progress Tank features a 4,200-gallon aluminum tank equipped with a front hoist and full rear-opening door. It features a Robuschi 65 blower package. High-mount taillights offer improved visibility while providing less obstruction with equipment storage. The rear door is equipped with dual hydraulic cylinders and a swing arm door prop has been added for safety. It is mounted on a Western Star 4700 tandem-axle chassis with 20,000-pound front axle and 46,000-pound rear end that offers a 450 hp Detroit Diesel engine combined with a Fuller eight-speed transmission. **800/558-9750; www.progresstank.com; Booth #6224.**

43. Scorpion Protective Coatings Inc.

The three-part polyurethane X02 batch mix system from Scorpion Protective Coatings Inc. is a professional-grade liner that protects truck beds from abuse. This liner is virtually impenetrable and resists both moisture and rust. It is UV stable and will not fade. **765/653-1736; www.scorpioncoatings.com; Booth #1420.**

44. STAC Inc.

Mobile hydraulic drive systems from STAC Inc. eliminate the need to use the drive shaft of the vac truck to power a blower or vacuum pump, which can sometimes be difficult due to tight space and angles. Benefits of a hydraulic system include safety, longevity, reduced downtime, added value and reduced maintenance. **800/334-7699; www.thermaflow.com; Booths #2457, #2458.**

ADDITIVES/CHEMICALS

45. Arcan Enterprises

Septic-Scrub from Arcan Enterprises is a chemical treatment that oxidizes sulfides and releases oxygen into the drainfield. It is designed to remove sludge in the biomat, restoring drainage to a system that has slowed down. It allows companies to offer an add-on drainfield cleaning service in addition to regular pumping. **888/352-7226; www.arcan.com; Booth #4239.**

46. Avanti International

AV-100 from Avanti International is an ultra low-viscosity chemically reactive gel available as either granules or liquid. Having the same viscosity as water, it permeates anywhere water can travel and cures within a controllable timeframe from 5 seconds to 14 hours. Once cured, it creates an effective, long-lasting water barrier while providing soil stabilization. It is used to stop water infiltration in manholes, sanitary and storm sewer mainlines, joints, laterals and underground structures by stabilizing external substrate. It can also be used in tunnels and mines to control groundwater. **800/877-2570; www.avantigrout.com; Booth #5218.**

47. Biodyne Midwest

ENVIRONOC 301 liquid inoculant from Biodyne Midwest allows for the specialized degradation of simple/complex organics in wastewater, grease control, reduction of hydrogen sulfide and other odors, and algae control in ponds and aquaria. It features 29 strains of fresh, viable and natural microbes selected for their capabilities to handle degradation of common organics in wastewater, and the reduction of grease and hydrogen sulfide. It has a viable cell concentration of over 1 billion microbes per mL. Microbes are comprised of 100 percent naturally occurring (nonpathogenic or genetically modified) bacteria/fungi that have been selected for their special degradation or biostimulation abilities. **888/970-0955; www.biodyne-midwest.com; Booth #5453.**

48. Cape Cod Biochemical Co.

AfterShock soil absorption restorative from Cape Cod Biochemical Co. restores drainage to clogged and sluggish drainfields and drainage structures. It also prevents backups and eliminates odors. It contains a naturally occurring, USDA-approved bacteria, as well as a bacteria-friendly, time-release oxidizer that accelerates the bacterial activity. It biologically digests solid material that normally clogs soil absorption areas. It is effective in residential and commercial drainfields, cesspools and seepage pits, and is ideal for use in conjunction with high-pressure water jetting and soil fracturing equipment. It can be applied in one day, eliminating the need to keep the system exposed for repeated site visits. **800/343-8007; www.septiconline.com; Booth #6101.**



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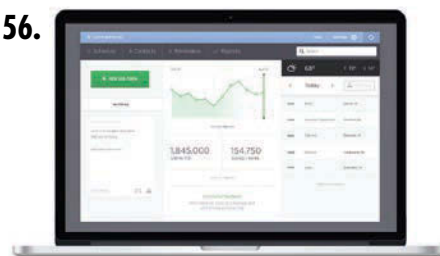


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49. Ecological Laboratories

PRO-PUMP/HC liquid live bacteria from Ecological Laboratories are a blend of microorganisms selected for broad-spectrum application in industrial and wastewater treatment. The blend contains over 30 strains of bacteria to resolve the difficult problems that occur in grease traps. Its use results in the rapid breakdown and removal of fats, oils and greases that build up in drainlines and grease traps. It is a consortium of vegetative non-spore-forming bacteria that exhibit performance in low-oxygen facultative anaerobic environments. Regular treatment reduces trap surface solids, bottom solids and odor. **800/326-7867; www.propump.com; Booth #5247.**

50. Lenzyme/Trap-Cleer Inc.

Premium High Count from Lenzyme/Trap-Cleer Inc. can be used for heavy grease breakdown, drainfield rejuvenation, municipal plants, sewer and lateral lines, sewage ponds, settling ponds, grease traps, pump stations, organic spills or wherever a problem area is detected. It is available in 5-gallon pails and 50-pound totes. Both products can be private labeled. **800/223-3083; www.lenzyme.com; Booth #3026.**

51. One Biotechnology

BioOne from One Biotechnology contains bacteria selected for their ability to consume animal and vegetable fats, oils and greases (FOG), with no unwanted byproducts. It does not contain any added enzymes, surfactants or fragrances, so FOG does not flow out of the system into municipal wastewater treatment systems. It has also been recognized by the EPA's Design for the Environment program. **800/951-4246; www.onebiotechnology.com; Booth #4245.**

OFFICE TECHNOLOGY

52. CallSource

DealSaver from CallSource is a lead-recovery tool designed for any appointment-driven company in the home services industry. Incoming lead calls are analyzed within minutes, and those not ending with an appointment are promptly sent back to a manager in order to recapture the lead, usually within the hour. The alert contains the lead's name and phone number, along with the company rep that handled the call, all giving the team a second chance at converting the lost prospect into a new customer. **818/596-6949; www.callsources.com; Booth #5455.**

53. EZTrakR Systems Inc.

iButton technology from EZTrakR Systems Inc. verifies services on a driver's route are completed with electronic service validation. It tracks the date and time of each service, delivery or pickup per unit. Operators can quickly access customer history to verify services completed for resolving billing discrepancies. It offers reports such as inventory count, employee productivity and missed services. It combines this technology in one simple program for improved customer service and more accurate billing. **866/529-1938; www.eztrakr.com; Booth #3005.**

54. GPS North America

Smart Antenna vehicle tracking hardware from GPS North America is a tamper-proof and scalable device providing standard GPS tracking. It can also interface with third-party hardware for job dispatch, navigation and electronic driver logs. The company also specializes in the development and support of paperless forms for hand-held, mobile data collection, and enables companies to control fuel and labor costs by locating and monitoring fleets and assets through their SignalTrack Web portal. **888/760-4477; www.gpsnorthamerica.com; Booth #5415.**

55. Magnets by Stamp Works

Magnets by Stamp Works is now offering a magnetic tandem-axle pumper truck decal. The all-vinyl decals are weatherproof and suitable for outdoor display. They are approximately 0.35 mm thick, and are printed in full color. **800/758-2743; www.pumpertruckmagnets.com; Booth #6025.**

56. Tank Track LLC

Tank Track is a business management program specifically for the septic industry. The simple, user-friendly design allows users to manage customer information, track property details, upload plans, schedule appointments, assign trucks, map routes, manage reminders, and generate pumping and dumping data for reporting. Users can customize job form fields and print any page easily. The program is securely accessible from any computer with an Internet connection, and customer service is included. Optional integration with QuickBooks lets users enter customer information only once. Users can import contacts from other programs. No contract is required. A mobile app is coming soon. **888/732-4882; www.tank-track.com; Booth #6243.**

57. Trade-Serve

The Trade-Serve system allows technicians to make a professional and consistent presentation of bundles and options to customers in just under a minute. In addition to eliminating paper in the field, service managers have the ability to coach every call from the office, owners control margins with the click of a button and warehouse managers monitor inventory quickly and efficiently. It takes ordinary and familiar business models and makes them easy to use and relevant to technological advances. **636/222-2222; www.trade-serve.com; Booth #5354.**



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58. US Fleet Tracking

The AT-X5 live GPS tracking device from US Fleet Tracking is compact, discreet and easy to install. It assures turn-by-turn monitoring of mobile assets, and features 5- and 10-second tracking, historical playback and virtual fences. It comes standard with weather overlay and traffic features for safety and efficiency, plus the ability to create and edit up to 20 different logs while in the field. The Web-based system is compatible with every mobile platform. **405/749-1105; www.usft.com; Booth #5452.**

WORK SITE TOOLS/COMPONENTS/SAFETY

59. AlturnaMATS

Ground protection mats from AlturnaMATS protect turf/subsurface, while providing access for heavy equipment without a risk of getting stuck. They are sold throughout the world, to a wide variety of industries, and provide a fast, effective way to build a temporary road that is durable enough to withstand the weight of very heavy equipment. They offer a cost-effective way for construction and septic companies to quickly prepare a site, complete the work and move onto the next project. They have a load rating of 120 tons. **888/544-6287; www.alturnamats.com; Booth #6229.**

60. BW Technologies by Honeywell

The GasAlertMax XT II multigas detector from BW Technologies by Honeywell features IntelliFlash, the flashing LED compliance indicator that indicates whether the gas monitor is functioning correctly. Workers feel safer and incidents are minimized. That means savings realized from business continuity and productivity. It is compatible with the MicroDock II automated testing/calibration/docking station for intelligent fleet maintenance and simplified recordkeeping. **888/749-8878; www.gasmonitors.com; Booth #4138.**

61. Crust Busters/Schmitz Brothers LLC

The Crust Buster hand-held power agitator from Crust Busters/Schmitz Brothers LLC has an 80-inch shaft and two- or three-blade propeller that mix a 1,000-gallon septic tank in five minutes. Features include 2-, 4- and 6-foot extensions, and short three-blade shaft that adapts to the two-blade unit. **888/878-2296; www.crustbusters.com; Booth #4051.**

62. RKI Instruments Inc.

The lightweight GX-2009 personal confined-space gas monitor from RKI Instruments Inc. weighs only 4.6 ounces, and monitors combustibles, oxygen, hydrogen sulfide and carbon monoxide using individual sensors for each gas. All four gas readings are displayed on an LCD display that has auto backlighting. Gas alarms are adjustable, and alarm types include a 95 dB audible alarm with dual speakers, vibration alarm and bright visual alarms on three sides of the instrument. It is also waterproof and dustproof with an IP-67 rating. Also included is a large-capacity data logger. **800/754-5165; www.rkiinstruments.com; Booth #2062.**

63. Safety Corporation of America

The corrugated aluminum ultraSHORE trench shoring system from Safety Corporation of America features stackable panels that can be used horizontally or vertically for bury depths to 12 feet in Class C soils. Extra features include leg and wheel kits for OSHA regulations. Easily transported in a pickup, the system can be closed off on one or both ends with quick-release, spring-loaded end-closure panels. **800/746-7464; www.shoring.com; Booth #5005.**

64. Soil Surgeon

The Soil Surgeon X2 tool is designed to effectively clean manway storm drains and their filter separator screens. It fits any sewer combination truck equipped with a telescopic 6- or 8-inch boom, and has a 1-inch water connection. The operator controls water pressure and power with truck controls. Six jets are angled up and outward to dislodge caked solids from screens and filters. Bumpers on the bottom protect the jets. **949/363-1401; www.soilsurgeoninc.com; Booth #6231.**

65. SVE Portable Roadway Systems Inc.

TRAKMATs from SVE Portable Roadway Systems Inc. are lightweight full-size ground protection mats. Its "Power Cylinder" surface creates superior traction, while allowing the mats to slide apart smoothly for easy loading/unloading. Hand cutouts are standard for safe lifting. Mats are available in Utility Black or Cool Green to prevent burnt grass. They come in several sizes to help work smarter and save money by reducing weather delays and protecting customers' property from damage. **800/762-8267; www.mudtraks.com; Booth #6316.**

66. T&T Tools

The Mighty Probe from T&T Tools features a 3/8-inch hex rod, which is approximately 20 percent stiffer than a round rod, or a 7/16-inch hex rod, approximately twice as stiff as the standard round rod. Stiffer hex rods bend less to make the probe easier to push into the ground, especially when probing at deeper depths. Lengths are available from 36 to 78 inches, in 6-inch increments. When the probe is combined with a slide adapter, an integrated mini slide-hammer probe is created, allowing the technician to pound through difficult spots. **800/521-6893; www.mightyprobe.com; Booth #6000.**

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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.maineese.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

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

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.pisma.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

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

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;
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Missouri earmarks funds to replace aging septic systems

By Doug Day and Sharon Verbeten

Grant funding for the repair or replacement of residential septic systems is available in the upper White River watershed of southwest Missouri. Through early October, the Ozarks Water Watch had replaced 75 systems in the area, funded by \$1 million the not-for-profit organization received from the Missouri Department of Natural Resources, Table Rock Lake Water Quality and the Department of Conservation.

The program will pay 60 percent of the cost, with as much as 98 percent available for low-income homeowners. Originally, the maximum a homeowner could receive was \$10,000 but that has been increased to \$25,000, with half available as a grant and the rest as a no-interest loan. Repaid funds will go to a revolving loan fund for future replacements. Funds will be available through July 2015 or until they are exhausted.

Ohio

Funds are available until May 2014, or until they run out, for residents in five counties facing pollution issues that feed toxic algae bloom into Lake Erie. Residents of owner-occupied homes in Erie, Wyandot, Sandusky, Ottawa and Seneca counties can access funds to assist with replacing or repairing their onsite systems.

Property owners must meet income guidelines, and the projects will go out for bid to all contractors registered with the county's health department. Funds will not cover installation of a new home's sewer system, connecting a failing system to the public system or abandonment of drinking water wells, even if it is required by the local health department.

New York

Nitrogen polluting Long Island's waters has long been a concern – rising levels have worried scientists and residents for three decades. To help raise awareness, the Long Island Clean Water Partnership has launched a \$3 million, three-year advertising and education campaign about protecting Long Island's waters.

What's to blame? Experts point to aging sewage treatment plants, antiquated septic systems, storm runoff and fertilizer use. According to one study, between 1987 and 2005 nitrogen in the aquifer that supplies most of Long Island's drinking water increased by as much as 200 percent. While those numbers are below the U.S. Environmental Protection Agency limit for safety, some remain concerned about the effect of nitrogen on groundwater and surface water.

According to the EPA, nitrogen pollution is one of the most widespread environmental problems in the country, affecting 15,000 waterways, including 2.5 million acres of lakes and reservoirs, and 80,000 miles of rivers and streams. □

"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.

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Franklin Electric relocates headquarters

Franklin Electric relocated to its new World Headquarters and Engineering Center in Fort Wayne, Ind. The 118,800-square-foot facility houses the company's headquarters staff of 245 with room for future growth, as well as a 24,000-square-foot, state-of-the-art testing lab. □

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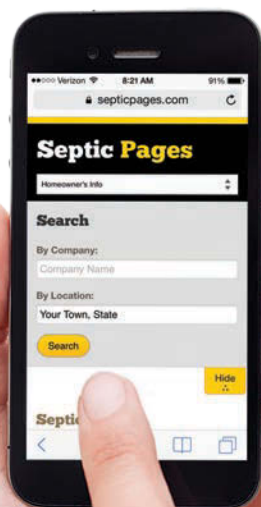
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