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By Gil Longwell

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ONSITE installer

Published monthly by

COLEpublishing

1720 Maple Lake Dam Rd. • PO Box 220
Three Lakes, WI 54562



Call toll free 800-257-7222;
outside of U.S. or Canada call 715-546-3346
7:30 a.m.-5 p.m. Central time, Mon.-Fri.

Website: www.onsiteinstaller.com

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Send to Editor, *Onsite Installer*, P.O. Box 220, Three Lakes, WI, 54562 or email editor@onsiteinstaller.com.

REPRINTS AND BACK ISSUES

Visit www.onsiteinstaller.com for options and pricing. To order reprints, call Jeff Lane at 800-257-7222 (715-546-3346) or email jeffl@colepublishing.com. To order back issues, call Nicole at 800-257-7222 (715-546-3346) or email nicolel@colepublishing.com.

CIRCULATION

Circulation averages 21,421 copies per month. This figure includes both U.S. and International distribution.

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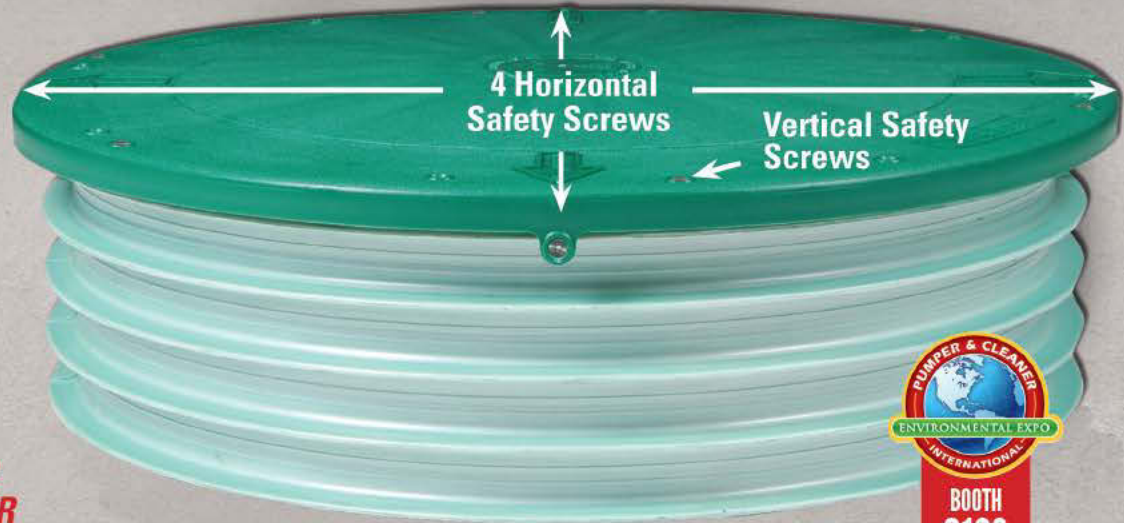
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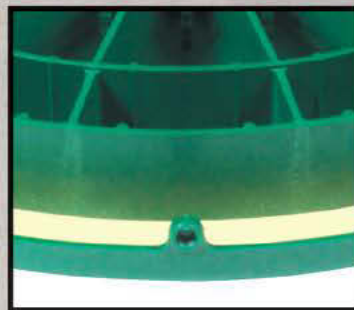
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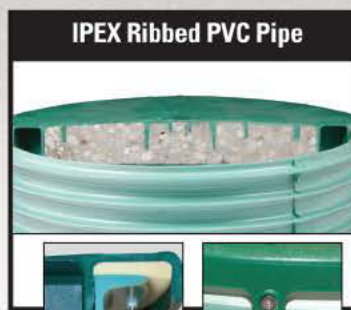
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SOS (Save Our Septic)

Proper care of septic systems includes educating visitors. Here's a thought for installers (or pumpers) to consider.

By Ted J. Rulseh, Editor



Septic system care seems so simple: Much depends on what you flush or don't flush. In my capacity as editor of *Treatment Plant Operator* magazine (for operators of municipal treatment plants) I've learned about a problem for septic and sewer systems alike: All those disposable wipes we use these days.

It started with baby wipes. Then hand towelettes. Then makeup remover wipes. Disinfecting wipes for the kitchen. Furniture wipes. Protectant wipes for vehicle tires. On it goes. A search on the Wal-Mart website brings up nearly 600 wipe products.

Where do all these wipes go? Some of them – not an insignificant number it appears – get flushed down toilets, where they contribute to home plumbing blockages, septic system trouble, municipal sewer overflows, and increased loading on headworks in wastewater treatment plants.

Is it a problem?

First off, I'd like to know from onsite practitioners: Are these wipes an issue? Do they cause a meaningful number of home plumbing and septic system trouble?

Folks on the municipal side say that some of these wipes are labeled as "flushable," when in fact they are not in the true sense – meaning they do not disintegrate in water the way toilet tissue does. And, as such, they can be problematic if flushed.

I can't say from experience whether flushing wipes causes problems – although as the owner of a septic system for a year, I'm quite serious about taking care of it. I do know that products other than wipes, when flushed down a toilet, can do harm.

So my wife and I have a rule that I'm sure is familiar to onsite professionals: We put nothing in the toilet except toilet paper. It's a simple rule we easily follow. But then I thought, "What about our grown-up kids and other visitors from the city? What are their habits? Will they just automatically abide by our rule?" I concluded: Probably not.

Just a sign

So we framed a little 3- by 5-inch sign (the size of an index card) and hung it just above the paper holders in both bathrooms. It says:

SOS
(Save Our Septic)
Please flush nothing except toilet tissue.

The best rules are usually the simplest, and the best forms of education are usually clear and direct. These little signs pass both tests.

It's friendly and unobtrusive, yet its message is simple and clear. And people who see it are likely not just to observe it when they visit us but also to remember it when they visit other people in country homes.

In my humble opinion, this is far more effective than trying to get this message to people through the news media or brochures or websites. And it's certainly easier than trying to teach people which wipes and other products are flushable and which are not.

Giveaway item?

And so, there's an idea. What if as an installer (or service contractor) you gave away little signs like these to customers? Create a clever design and include an inexpensive wooden frame.

With this simple device you could help customers avoid potentially costly nuisances, and help prevent emergency calls for you and your team.

The best rules are usually the simplest, and the best forms of education are usually clear and direct. These little signs pass both tests. And they have plenty of utility on the municipal side, too – except there the SOS stands for "Save Our Sewers."

You probably know better than I do whether this idea has merit – you're the professionals and I just edit a magazine. So I offer you this for the good of the order. Ignore it if you wish – or use it in good health!

CLARIFICATION

The "Breaking Ground" column in the December issue of *Onsite Installer* suggested that onsite professionals offer their customers signs to post next to their toilet tissue holders saying: "S.O.S. (Save Our Septic): Please flush nothing except toilet tissue."

A representative from Bio-Microbics, a manufacturer of treatment units for onsite systems, has since notified the magazine that "S.O.S.- Save Our Septic" is a registered trademark for a prevention and remediation program that company offers with its RetroFAST septic system enhancement product, a remedy for failed septic systems.

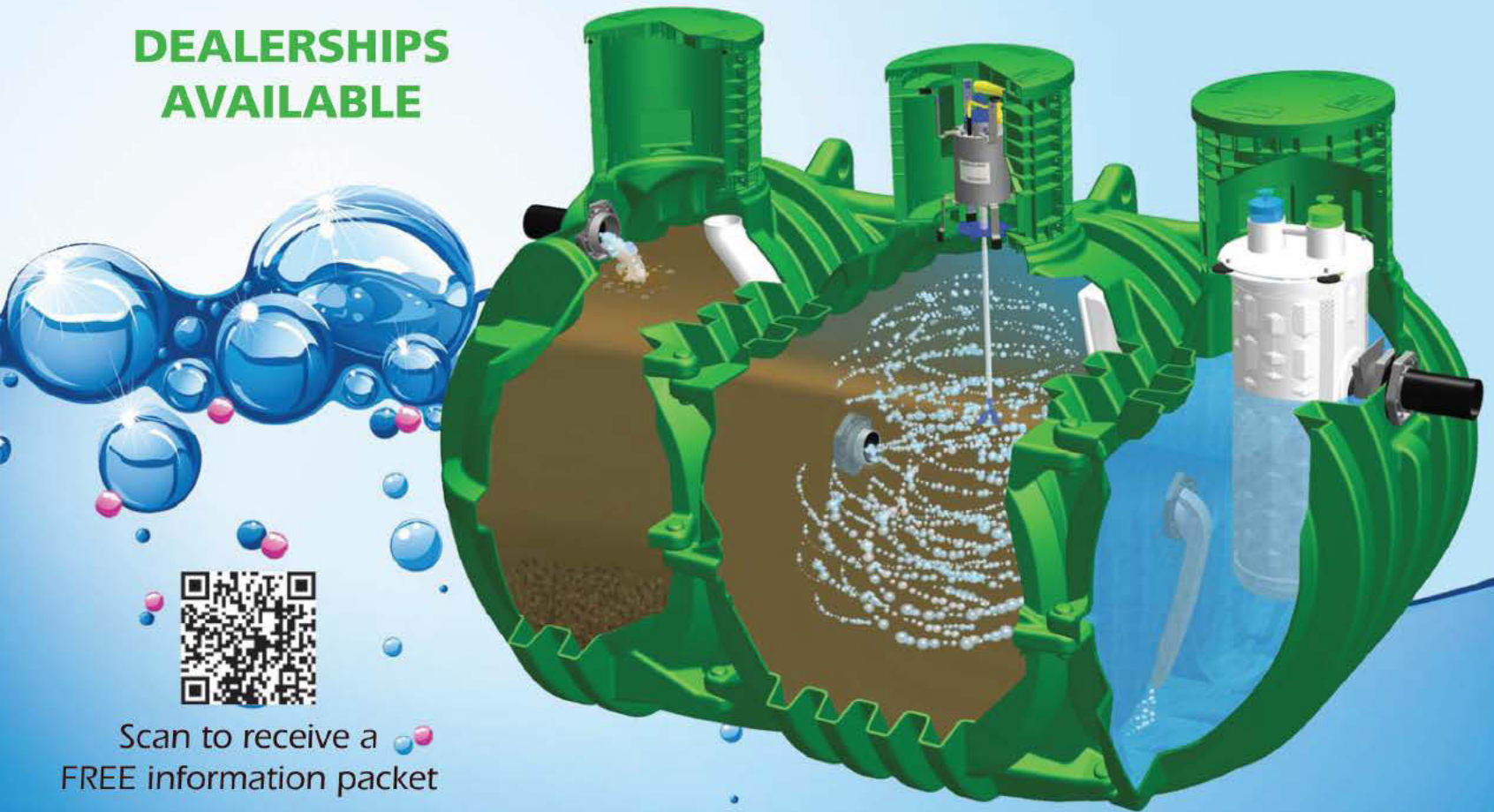
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Company owner Andy Damiani discusses the positive results of a water pressure test with environmental health specialist and sewage enforcement officer Vince Smith of the Montgomery County Health Department. (Photos by Susan Keen)

Constantly LEARNING

From septic tanks, to treatment units, to electrical connections, Andrew Damiani is always looking for ways to do things better in his onsite-only business

By Gil Longwell

Trial and error may have led Andy Damiani to the practical techniques he uses every day, but his strict adherence to proven methods are also key to his success.

Damiani's constant desire to learn and grow professionally has enabled him to rack up a growing list of "first installations" in his southeast Pennsylvania service area. "These installation jobs came my way," he says. "I did not

seek them out. I do appreciate how they have helped me grow. They have opened other doors for me."

"I never considered anything else. I am blue collar through and through and never wanted an office job."

Andrew Damiani

Before Damiani's dad was a contractor, he was an installer. Even after contracting was the predominant business focus, father and son dug basements and installed onsite systems to serve the homes dad was building. "I never considered anything else," Damiani says. "I am blue collar through and through and never wanted an office job. During and after high school, I was able to work with Dad through the school's co-op job training program. Heck, I was operating a backhoe by my 12th birthday."

In 1984, he married Gwen, now his business partner, and bought his dad's equipment, going into the excavation business on his own. Most of the early jobs were in support of his dad's projects. "In the early days I dug it all, but by the early 90s, I had focused exclusively on onsite system installations," Damiani says.

Andrew Damiani Septic and Site Contracting, Inc., Telford, Pa.



- OWNERS:** Andrew and Gwen Damiani
- YEARS IN BUSINESS:** 28
- MARKET AREA:** 40-mile radius
- ANNUAL REVENUE:** \$350,000
- SPECIALTY:** Advanced onsite systems
- EMPLOYEES:** 2 plus contract laborers as required
- WEBSITE:** www.damianisepticssystems.com



ABOVE: Andy Damiani helps guide a septic tank (Stauffer Concrete Products) into the ground. RIGHT: Damiani lays mastic concrete sealer around the openings in the tank top.

Different yet the same

At that time, about 95 percent of his work was installing systems for new construction in subdivisions. Operating from Telford, about 40 miles northwest of Philadelphia, Damiani saw his 40-mile-radius service area booming. However, one subdivision was significantly different from its neighbors.

"It was about the turn of the century when one of the builders I'd been working with decided to try a cluster plan for a 35-home development," Damiani recalls. "The bulk of the land would be a common open space, but it would not be completely open. In that common land, we installed 35 individual onsite systems."

Each served a separate house, and each was placed on a use-restricted portion of the common space. The homeowner association would be responsible for periodic inspections, maintenance and tank pumping. Homeowners would take charge of individual system repairs.

"Each house was on a separate tract and deed, and each had its own 1,000-gallon, two-compartment septic tank within its boundaries," says

Damiani. The septic tank effluent was directed to an elevated sand mound absorption area. When possible, the delivery was achieved by gravity propulsion; at times, a lift pump was needed to transport the effluent up to 2,000 feet to a dosing pump close to the mound-type absorption areas.

"While the cluster concept was new, we were familiar with the basic components," says Damiani. "Nonetheless, it was a first and it served as a model for the concept in the county. Those systems are still performing well today."

"I am always looking for a better way to do things and, more important, a way to successfully prevent problems."

Andrew Damiani

When the homeowner association asked for a management proposal, Damiani bid \$50 per system. "The association leaders decided they could do the management themselves, and today they still are responsible for periodic inspections, scheduling pumping and assuring repairs are made as needed," says Damiani. He sees change coming in the management arena: Maintenance requirements are growing, and the skills needed to perform effective management are elevating. Management and maintenance needs are different from 10 or even five years ago.

Today, Damiani sees these as areas ripe for business growth. Mandatory, time-driven pump-outs, which many municipalities near him are requiring, is not management, in his opinion. He is looking for a management program that addresses far more, combining system monitoring with need-based pumping and periodic maintenance.

His own drummer

He likes doing design and installation his own way, too. "I'm a fanatic about design details, installation processes and proven brands," he says. "I am loyal to Goulds products because they have delivered what I consider outstanding performance and service life. They exceed my expectations – some continue in productive service well beyond 20 years."

The Unexpected Customer

Regardless of the grandeur of their existing or dream home, some owners want to go far beyond the minimum requirements found in the local onsite regulations. "I was recently approached by an individual as ordinary as anybody I know," says Andy Damiani, owner of Andrew Damiani Septic and Site Contracting. "From outward appearances, this was someone who was comfortable in life," but not self-important. The man showed Damiani plans for an elaborate, outsized home.

"Wanting to avoid future problems, and having heard of my success with an Orenco unit, he sought me out," Damiani says. "In addition to stream discharge systems, we can use an Orenco as a treatment unit in a variety of soil-based onsite systems."

Damiani never expected the answer he received when he asked why this customer was interested in something so advanced: Because that technology would do a better job. "The experience of a customer wanting to go beyond minimums and do a better job is not a first, but it is certainly beyond the norm," Damiani says.

“Goulds used to offer an extended warranty for pumps, and I consistently bought it. Well, I discovered that the pumps were outliving the basic and extended warranties, so I quit buying those warranties, since I never needed them.”

He also believes in precast concrete tanks. “Isolating effluent and groundwater is essential to a system’s success,” he says. “Watertight tanks are critical. Drip systems can be overloaded by inwardly leaking tanks.” For similar reasons, he uses only concrete risers. He believes a secure, watertight connection between the riser and tank can best be achieved with an appropriately bonded concrete-to-concrete connection.

“My tanks are not from the closest vendor,” he says. “They are from the vendor with the best product and customer service that meets my quality expectations and scheduling needs.”

He also looked for watertight performance in junction boxes and wire-splice protection. He tried heat-shrink materials, found them wanting, and today he makes his own electrical connections in a multi-step process.

The connection starts with traditional wire nuts. Each nutted connection is encased in plumber’s putty: It is easy to shape and squeeze into small places, and gaps are easily spotted and corrected. Next, 2 1/2-inch-wide PVC tape is wrapped around the putty, further compressing it into a ball shape. Finally, that ball is enclosed using underground splice coating material (3M). “It works, and until I have one fail, I will continue using this method,” Damiani says.

“The systems are becoming more complex, site conditions more stringent, and technology manufacturers are trying to assure the installer is knowledgeable on their product. Certification makes sense.”

Andrew Damiani

“I am always looking for a better way to do things and, more important, a way to successfully prevent problems.”



Pete Damiani lays and straightens tubing from American Manufacturing on a dosed system installation.



The Damiani family outside the company office in Telford, Pa.: From left, office manager and wife Gwen Damiani, husband and owner Andy, son Drew, Andy’s father Pete and son Anthony.

Knowledge opens doors

The pursuit of better ways also leads him to new and better technologies. “When I first heard about drip irrigation systems, I resisted the technology,” Damiani says. “I didn’t want to get ‘My system is frozen’ calls in the dead of winter.” After their introduction in Pennsylvania, drip systems spread rapidly, and Damiani knew he had to learn to install them to stay competitive. After studying the technology and recognizing that at-grade drip systems are fragile, he knew that during installation he could incorporate safeguards.

“In at-grade drip systems, the drip lines and portions of the manifold (delivery lines) and return lines are installed above prevailing grade on a placed bed of sand and are covered with additional sand and topsoil,” he says. To protect the delivery and return lines, he began covering that area of the system with inch-thick blue-board insulating material before backfilling. He firmly believes this added layer of protection has prevented winter calls.

Damiani also embraced AdvanTex advanced treatment units (Orenco Systems), Eljen’s Geotextile Sand Filter (GSF), and a nonproprietary system design approved by state Department of Environmental Protection a few years ago, known locally as an A-B system. “Used on shallow, slow-piercing soils, the A-B system is a long, narrow system built on and parallel to contour,” Damiani says. “It is in many ways a modified elevated sand mound.”

Exclusively onsite

Damiani believes these opportunities were brought to him based on his exclusive focus on onsite systems. Word has gone out in the installer and real estate communities and among homeowners that he is the local go-to guy when others cannot offer a viable solution. “I am a good craftsman but my business promotion skills are terrible,” he admits. “My equipment and trucks are clean and dependable and not lettered.”

Damiani posts signs on his job sites and has a modest Yellow Pages presence. Word-of-mouth is both steady and effective; a website is under development.



Andy Damiani adds concrete to balance an Environment One grinder pump.

He strongly believes installers need state-level certification and credentialing. "The systems are becoming more complex, site conditions more stringent, and technology manufacturers are trying to ensure that installers are knowledgeable on their products," he says. "Certification makes sense."

Certification will likely not come soon, although home improvement contractor registration is already in place in Pennsylvania. "I had to register, but being registered has no relationship to being judged or declared competent," Damiani says. He knows some contractors represent their registration as a sign of qualification, and that, he feels, is not appropriate.

A requirement for inspection of existing systems before a real estate transaction is also needed, he believes. Two things keep him from doing these inspections: a lack of state-approved or other recognized inspection standards, and the potential for misrepresentation.

"I am convinced that inspecting a system and then selling the repair work is a conflict of interest, which I want no part of," he says. Nevertheless, he does inspect systems for performance issues.

When called to solve a performance problem or repair a component, he first diagnoses the symptoms to identify the underlying cause. This, he believes, is an inspection process that presents no conflicts. Indeed, it is one he needs to perform to do the repair correctly.

Well-equipped and growing

Helping to coordinate all this work is Gwen, who, as office manager, handles all purchasing and

billing and some customer contact. Damiani learned backhoe skills as a kid from his father, Pete. "I learned installations and a lot more from him, and when work load demands, he fills in as a contract laborer," Damiani says. "I can pretty much count on his availability year-round – except during hunting season."

The Damianis' oldest son, Drew, is another contract laborer: His work schedule gives him the freedom to help out as needed. He also grew up on a backhoe and is a skilled worker. Father and son would like to join forces: a management technician slot could help fulfill that goal.

The equipment inventory includes a Komatsu D31P dozer with swamp tracks – very wide tracks "that exert lower pressure on the soil than I do when I walk across the site," Damiani says. Other machinery includes a Komatsu PC 120 excavator, a Cat 953 track loader, a KX057-4 Kubota tracked mini-excavator, a Case 580 Super L backhoe, and a Cat D3 dozer.

As new technologies become approved for use, Damiani will likely find himself on the installation frontier. Being on innovation's front line is a familiar, comfortable and desirable position, one that preserves and sharpens his exclusive focus on onsite treatment. □

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2013expo



Sharing for Success

Through Expo Roundtable discussions, contractors network their way to better use of emerging technologies, improved customer service and marketing ideas that produce results

By Jim Kneiszel

You make the annual pilgrimage to the Pumper & Cleaner Environmental Expo for a variety of reasons ... surely to see the latest equipment the industry has to offer and to learn the latest technologies through Education Day seminars.

Effective networking with your industry colleagues is another key to making the most of your visit to the 2013 Pumper & Cleaner Expo in Indianapolis. Taking part in the Breakfast Roundtable discussions — set for 8 to 10 a.m. on Thursday, Feb. 28 — is the best way to accomplish that goal.

"All of them have something to share with the group. All perspectives are helpful to come up with a good answer. I think sometimes the guys who don't think they have something to offer, we don't give them the credit they deserve."

Dave Gustafson

Just ask Mike Stephens, of SCS Stephens LLC in Haslett, Mich., who participated in a Roundtable discussion about maintenance contracts for wastewater treatment systems at the 2012 Expo. He'll tell you he came away with practical advice from fellow service providers who work across the country.

"I was able to exchange maintenance agreements with other contractors from the Roundtable discussion. We showed each other what we use for contracts and that was really beneficial," Stephens says. "If somebody else is doing something that's working, why do we have to reinvent the wheel? If someone's already drafted a really good service contract and good marketing — or a clever idea in another state — why not use it?"

Stephens and other contractors at his table explored some of the ideas they've used to promote maintenance contracts among their customers. Then they exchanged business cards and delved deeper into the topic in the weeks following the Expo. Eventually they were faxing their agreements to each other for critique, looking for ways to improve the documents.

The result is improved service for customers through regular system checks, and an improved environment for everyone, Stephens says. He would like to stay on the topic of maintenance at the upcoming Expo.

"Different people have different perspectives," he says. "I enjoyed being able to talk to companies that were maintaining twice as many systems as I do and those doing a smaller number. It was a really good experience."

Maintenance contracts were one of many timely business topics explored at the 2012 Roundtable discussions. And many more are in the works for 2013. After grabbing a buffet breakfast, participants will choose a topic and start networking. You are invited to move from table to table to discuss a host of topics ranging from providing services to social media marketing.

Hot topics

Dave Gustafson, a University of Minnesota Extension Service engineer and regular speaker at Pumper & Cleaner Expo seminars, led a 2012 Roundtable that veered into a fascinating hot topic: hydrogen sulfide deterioration in concrete tanks.

The discussion wasn't what Gustafson expected, but it brought to light valuable information about an issue that helped inform his table participants from California, Ohio, New Jersey, New York and Virginia.

"Part of the value of the Roundtable discussions is trying to deal with topics that contractors are working on right now. What are the issues we're wrestling with today?" he says. "I was able to talk to contractors about what they were seeing and interpret it from the research standpoint."

Florida

Ten of 19 counties with first-magnitude springs (flows exceeding 64.6 million gpd) have voted to opt out of having septic tank inspection programs, according to the state Department of Health. A measure in 2011 allowed the 19 counties to opt out with a super-majority vote.

Maine

In a demonstration for local officials, dogs were used to track down septic system failures, sewage leaks, and illegal connections to storm sewers in Maine and New Hampshire. The dogs are from Environmental Canine Services in Vermontville, Mich., the only company that trains dogs to track bacterial contamination in stormwater.

The state Division of Environmental Health approved the Busse system for treating residential wastewater. The system, 90 percent smaller than typical drainfields, organically breaks down 100 percent of the waste and installs above ground in hours. It uses 0.4 percent micron filtration and aerobic and anaerobic treatment. Effluent, which exceeds recommended clean water standards, is recycled in the house, reducing freshwater demand by 30 percent. Busse has more than 600 such systems in 15 countries worldwide. An average system costs \$21,600.

Pinpointing important trends in service and maintenance helps participating contractors keep pace with an evolving industry, Gustafson says. As technologies to treat and transport wastewater change and improve, a well-informed contractor will provide better customer service and become a more effective steward of the environment, he says.

And Gustafson says the networking efforts he begins at the Expo Roundtables continue throughout the year, adding tremendous value to his work and, he hopes, to the advancement of the contractors he's befriended.

Gustafson and other industry educators take part in the Roundtables as moderators, keeping the discussions on topic and adding their expertise wherever possible. As a moderator, Gustafson has a message for all Expo attendees considering taking part in the Roundtables in 2013: The more the merrier.

"Sometimes guys are worried they're not going to have anything to say. But everyone has a perspective. They've all been involved in the industry, so all of them have something to share with the group," Gustafson says. "All perspectives are helpful to come up with a good answer. I think sometimes the guys who don't think they have something to offer, we don't give them the credit they deserve. If you don't come, your reference is missed. We don't have your insights, experiences and understanding." □

The Pumper & Cleaner Breakfast Roundtable discussions will be held from 8-10 a.m. on Thursday, Feb. 28. Go to www.pumpershow.com for updates and more details.

Michigan

The State Senate approved a bill to ease restrictions on development of property near the Great Lakes sand dunes. Current law requires people who want to build or install septic systems to get a permit and prove the construction will not harm the environment. The proposal from Senator Arlan Meekhof would shift the burden to the state Department of Environmental Quality. The proposal would affect 70,000 acres of protected sand dunes in Michigan. The House had not yet addressed the bill.

Minnesota

As of August, Douglas County instituted a new septic ordinance that includes additional permit requirements and fee adjustments. The ruling affects standard and alternative onsite systems, holding tanks and privies, and restaurant/bar/hotel systems. It also requires soil verification for all new systems. The ordinance is at www.co.douglas.mn.us.

Pennsylvania

Gov. Corbett issued an executive order requiring the Department of Environmental Protection to assess how to make timely permitting decisions. The department issues permits covering municipal plans for individual onsite systems. The agency also issues permits under the NPDES program after permitting municipal plans that allow stream discharge for sites where unsuitable soils rule out drainfields.

Rhode Island

Implementation of amendments to state rules for onsite systems in salt pond areas were postponed to November 2014. They would require property owners to install denitrification technology when building additions smaller than 600 square feet. Other changes extend the deadline for replacing non-failing cesspools in areas where sewer extension projects are planned to 2020. The deadline for replacing non-failing cesspools near the coastline or other tidal features remains Jan. 1, 2014.

Washington

Two years after the Whatcom County Health Department allowed homeowners to inspect their onsite systems, officials say the evaluation submittal rate dropped from 66 percent to 22 percent. Therefore, officials proposed adding \$25 to property taxes for 28,000 homes in the county with onsite systems. The new tax would replace a \$35 fee for submitting inspection reports and a three-cent-per-gallon septage tax. Pumpers would pay the tax, which would add about \$30 to the cost of pumper-outs.

Wyoming

According to officials with Sheridan County and the Sheridan County Conservation District, more than half the septic systems within 300 feet of Big and Little Goose Creek are not permitted. County Public Works director Rod Liesinger drafted a resolution waiving the \$250 permit fee to encourage homeowners to call the department to locate their systems. The state Department of Environmental Quality considers the creeks contaminated with fecal coliform. □

Jim Anderson and David Gustafson are connected with the University of Minnesota onsite wastewater treatment education program. Dave 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 Dave. Write to ander045@umn.edu.

Ensuring Access

A long-lasting system depends on good maintenance, and that means service people must be able to reach all components conveniently

By Jim Anderson, Ph.D., and David Gustafson, PE.

Previously, we discussed how installing good systems is a key to enabling management for the long term. Without the ability to access the components, systems cannot properly be maintained, and their lifespan can be significantly reduced.

There have been entire manuals written on providing access, so we will address some of the highlights and most important areas we see.

Access to a clean-out

Starting with the house sewer, there should be a clean-out between the house and the tank. It is desirable to have a clean-out outside for a couple of reasons. First, the piping can be worked on without entering the house. Cleaning up outside is usually easier than inside.

Second, access is convenient. Inside clean-outs, particularly in basements in the Midwest, often get hidden behind walls when the basement is finished or remodeled. (One comment we received during earlier discussions of clean-outs was that many installers saw the need for two directional clean-outs, or one clean-out near the house and another near the septic tank.)

There should be access from the surface to all parts and compartments of the septic tank. This includes being able to reach baffles and effluent screens. Baffles should be accessible so that they can be inspected for any blockages.

Removing and cleaning effluent screens periodically is a key maintenance function. If the only way to access the baffles or effluent screens is to remove the tank cover, the necessary maintenance will probably not occur.



Risers brought to the surface make maintenance of septic tanks easier.

Accessible yet secure

Access should be provided to all compartments of multi-compartment tanks. At a minimum, this means having a 20-inch-diameter manhole access within six feet of all tank walls and edges.

In the past, we have made a point that one of the key access items is to bring the manholes to the surface through the use of risers. The good news is that we see this practice increasing as we go around the country.

However, bringing the manholes and covers to the surface creates some additional safety concerns. It seems like every month we read about a child, or even an adult, who opened a tank, fell in, and was seriously injured or died. So while creating access to tanks, it is important to apply "danger" labels and secure the lids against unauthorized access, particularly by children.



Here are two examples of clean-outs at the end of pressure distribution laterals in treatment mounds. One uses rock media and the other uses a synthetic aggregate.

If you are an installer, work with the homeowner to discuss the security arrangements. If you are a service provider, do not leave a lid without fastening it securely. A number of the accidents lately have resulted from missing lid fasteners or screws.

We increasingly see two lids: one at the surface on the riser and another on the tank lid. This makes access more difficult, and accidental entry less likely. A variety of safety products on the market are installed below the lid to prevent things or people from falling into the tank. Consider these during installation or if conducting a repair or system upgrade.

There should be access from the surface to all parts and compartments of the septic tank. This includes being able to reach baffles and effluent screens. Baffles should be accessible so that they can be inspected for any blockages.

Screening the effluent

Many states now require effluent screens for both new construction and retrofits. Effluent screens are designed to keep larger solids in the tank, to control the outflow rate, and to protect downstream system components. These screens typically replace the outlet baffle, although in cases where they cannot be retrofitted in the tank, they can be placed in a sump outside the tank.

(continued on page 17)

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Pumping and System Maintenance

By Briana Jones

Stubby valves

Full port stubby valves from Banjo Corp. include stainless steel bolts, ball, handle and stem. The 2- and 3-inch valves have 100 psi padlock-capable handles, PTFE ball seats, glass-filled polypropylene body and end plates, and FKM (Viton type) body seals. 765/362-7367; www.banjocorp.com.



Vacuum pumps

Jurop RV series vacuum pumps and packages from CEI – Chandler Equipment are designed for applications that require the highest performance from tank truck equipment. The RV360 and RV520 packages are available in multiple drive configurations including gearbox, hydraulic or belt drive. The RV series operates at or near 73 dBA while producing 18 inches Hg.



The RV360 has a recommended input speed of 1,100 to 1,300 rpm with an output of 360 cfm at free air and 332 cfm at 18 inches Hg. The RV520 has a recommended input speed of 1,100 to 1,300 rpm with an output of 520 cfm at free air and 466 cfm at 18 inches Hg. Both models are designed for easy, low-cost self-maintenance. 800/342-0887; www.chandlerequipment.com.

Dump chute truck

The Mastervac 5327 DC (dump chute) vacuum truck from Cusco, Wastequip's brand for mobile vacuum equipment, adds functionality with the ability to self-clean the cyclone/bag-house filtration system when emptying product from the waste tank. This eliminates manual cleaning of the filtration system and gives users the option to choose which method is better suited to their operation.



The unit handles wet and dry materials. The truck is equipped with air cannon pulsation cleaning, pressurized air for off-loading, and vibration off-load assistance. 800/490-3541; www.wastequip-cusco.com.

Vacuum head

DrumIT from Elastec/American Marine detours unwanted contaminants from the vacuum truck and eliminates decontamination. The stainless steel vacuum head mounts on a 55-gallon open-head drum and connects to any vacuum truck. There are no moving parts, and it weighs 50 pounds. The unit is convenient for changing leaking drums, eliminating overpacks, recovering chemical, oil or hazardous materials, suctioning wet and dry materials, and cleaning oil sumps and separators.



When the drum is full, a shut-off ball lifts in the unit's sight-glass tower automatically stopping suction. An adjustable bypass valve controls vacuum levels on the drum. The unit comes with 3- or 4-inch camlock fittings to clamp the vacuum head onto the drum. It is ready to use on delivery (drum not included). 618/382-2525; www.elastec.com/vacuums/drumit.

Continuous-duty pump

The Fruitland RCF500 vacuum pump from Fruitland Tool & Manufacturing is a commercial and continuous-duty pump that offers efficient performance in a small package. The pump provides low oil consumption and includes an automated oiling system with all steel lines, pump oil level sight gauge, anti-shock design, three primary cooling phases, and integral air-intake filter, designed to work on vacuum and pressure. The unit comes in configurations for any vacuum truck or trailer. Hydraulic and gearbox drive adapters make vacuum pump hookup easy. 800/663-9003; www.fruitland-mfg.com.



Combo unit

The MC Series Combination JetVac unit from GapVax is made of 3/16-inch ASTM A572 Grade 50



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(continued from page 15)

Providing access requires a riser to grade over the screen, or at least close enough to grade to allow access from the surface.

We always recommend using an alarm with an effluent screen. If the early warning system that the screen is plugged is a backup in the house, that just about guarantees that a homeowner will remove and discard it. In a two-compartment tank, the screen should be installed at the outlet of the second compartment. At that location, it will require less cleaning.

The screen should be secured in place so that it cannot float or otherwise obstruct the outlet. Bypass flow in case plugging occurs should not be allowed. For retrofits, the installation of an effluent screen should not interfere with a pumper's ability to clean the tank.

Reaching the pumps

As we have mentioned several times, there should be easy access to any pumps in the system. The pumps should be securely elevated off the tank bottom. There should be a quick disconnect in the piping to allow for removal of the pump. There are some very good camlock connections on the market for that purpose. A service person should be able to remove any pump or alarm float without having to remove the piping. Again, a variety of products make removing and setting floats a lot easier than in the past.

Access to the soil treatment unit is also important. In new installations, we recommend having inspection ports in the drop or distribution boxes of gravity distribution systems. This first of all identifies where these components are, making inspection, maintenance and troubleshooting much easier.

Access to these parts allows a service person to shut off part of the system or switch use to another area. It also provides a way to evaluate whether solids or other materials are entering the soil treatment unit and, along with

inspection ports within the sewage treatment trenches or beds, it allows a professional to estimate how much of the system is being used.

Enabling inspection

Inspection pipes or ports should be installed at the media-soil interface in a sewage treatment trench and brought to the surface. Holes should be drilled in the pipe to the depth of the media to allow effluent to enter the pipe if there is ponding, and then solid pipe should be brought to the surface and capped.

There are several ways to secure the inspection pipes, depending on the type of media used. In gravelless chambers, two stainless steel screws placed at the top of the chamber where there is a cutout for the pipe will secure the pipe in place.

If rock is used, a 12- to 18-inch piece of rebar at the bottom of the pipe under the rock will hold the pipe in place. A variation on this approach is to use a smaller-diameter piece of PVC pipe, making a T. Another method is to use a toilet flange at the bottom of the pipe under the rock.

For aboveground and pressure distribution systems, there should also be inspection pipes at the bottom of the bed or trench. They should not be connected to the pressure distribution system. In addition, access should be provided to the distribution laterals. This will allow for checking for equal distribution and for any plugging of the pipes.

Access is provided by attaching sweep 90s to the ends of the laterals. These are then capped and brought to the surface in a protective box – usually an irrigation valve box. This enables a service provider to brush or jet the lines to remove any solids buildup that is plugging the perforations in the laterals.

That was a quick view of what we feel are some of the important aspects to consider as a part of installing systems for management and longevity. □

Exten steel. The debris body ranges from 5 to 12 cubic yards (stainless steel also available). The stainless steel water tank holds up to 2,000 gallons. The unit has a unitized water and debris tank with a double subframe, and a heavy-duty, double-acting, single-lift cylinder provides a stable 50-degree dump angle. Vacuum pump options range from 3,000 to 5,000 cfm with up to 27 inches Hg.

As a wet-only vacuum truck, the unit includes an 8-foot front-mounted, telescopic boom with dual-lift cylinders, reaching 26 feet with a 270-degree rotation. The front-mounted hose reel has an 800-foot by 1-inch hose capacity. The standard water pump is rated at 80 gpm at 2,000 psi; other water pumps are available. Various options include a washdown system, hydroexcavation package, extra storage space, heated boxes, liquid level load indicators, remote pendants and wireless remotes for boom, vac break, water controls, additional work lights, and tube racks. 888/442-7829; www.gapvax.com.

Industrial units with waterjetting

LC2000 industrial units with onboard waterjetting from Ledwell & Son deliver continuous-duty performance coupled with durable components. The units meet ASME/DOT 412 standards and are made of carbon or stainless steel. Features include 3,000-gallon capacity, front three-stage hoist, aluminum storage cabinet, tank and door prop, roll-over protection, coated tank interiors, full-length hose trays, auxiliary transfer capability, continuous-duty pump options, variable vacuum pump capability, and full-opening, hydraulically operated rear door. 888/533-9355; www.ledwell.com.



Heavy-duty hose

Tigerflex Amphibian AMPH series heavy-duty polyurethane handling hoses from Kuriyama of America are designed for wet or dry applications where severe abrasion is a factor. The abrasion-resistant hose provides long hose life and low operating costs. Its static dissipative cover is formulated to help prevent buildup of static electricity for added safety and to help keep material flowing smoothly. Cold-Flex material allows the hose to stay flexible in subzero temperatures. The oil-resistant liner resists most animal and petroleum-based oils. It is designed for industrial vacuum applications involving heavy-duty abrasive materials and slurries. 847/755-0360; www.kuriyama.com.



Preassembled pump units

Conde PowerPaks from Westmoor Ltd. are state-of-the-art preassembled gasoline- or diesel-powered vacuum pump units. They simply bolt down and attach to the tank. Units include diamond-plate base guard trim and belt guard. Rigid assembly allows for minimum vibration and maximum power. The units are available with vacuum/pressure pumps or economical vacuum-only pumps.

A wide range of cfm ratings lets users choose the right pump for the application. Units can be transferred with ease to another tank system when required. All gasoline units are powered with Honda GX commercial series engines. Diesel units use Yanmar electric-start engines. The 230 cfm Conde Ultra unit uses the Briggs & Stratton Vanguard Twin. 800/367-0972; www.westmoorltd.com. □





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EDUCATION DAY SEMINARS

MONDAY
FEBRUARY 25TH

NAWT

National Association of Wastewater Technicians

- 8 a.m. Introduction to Pressure Distribution
- 9:30 a.m. Designing Systems, Boundaries and Barriers from a Soils Perspective
- 11 a.m. Pump Choices and Settings: Decisions for Proper Operation
- 1:30 p.m. Operation and Maintenance of Pressure Distribution Laterals
- 3 p.m. Installing with Management in Mind: How to Get the Most out of Your System
- 4:30 p.m. Design and Maintenance of Grease Interceptors

NEHA

National Environmental Health Association

- 8 a.m. What Makes a Professional in Onsite Wastewater Systems?
- 9:30 a.m. Part One: The Science and Engineering of Onsite Wastewater Treatment
- 11 a.m. Part Two: The Science and Engineering of Onsite Wastewater Treatment
- 1:30 p.m. Education and Training: Professionalization of the Practitioners
- 3 p.m. Management Models: Management and Becoming a Management Entity
- 4:30 p.m. The Future of the Onsite Wastewater Industry: How to Make it Work for You!

SSCSC

Southern Section Collection Systems Committee

- 8 a.m. Seven Powerful Tools for CCTV Inspection Perfection
- 9:30 a.m. Easements – A Collection System Maintenance Nightmare
- 11 a.m. Nozzle Science – The Next Generation of Tier 3 Nozzles and Beyond
- 1:30 p.m. Pass or Fail – Is Your Company Going To Make It? How to Ensure Success
- 3 p.m. Social Media and Web-Based Promotion: Is it Right for Your Business?
- 4:30 p.m. Pipeline Relining and Rehabilitation Solutions

NASSCO

National Association of Sewer Service Companies

- 8 a.m. Ultraviolet Manhole Rehabilitation
- 9:30 a.m. Convey Your Stormwater and Plug Your Holes!
- 11 a.m. Jet Up! Sewer and Storm Water Cleaning
- 1:30 p.m. Rethinking Collection Maintenance with Sewer Line Rapid Assessment Tool or SL-RAT
- 3 p.m. Case Study of Cleaning Large Diameter Sanitary Sewers and Siphons
- 4:30 p.m. Pipeline Assessment Certification Program (PACP) 2013 Update Workshop

NOWRA

National Onsite Wastewater Recycling Association

- 8 a.m. Time Dosing ... Why? How? And How Much?
- 9:30 a.m. Loading Rates – How Much Can the Soil Take?
- 11 a.m. Troubleshooting Pumps, Floats and Panels
- 1:30 p.m. The Dirty Dozen – Toxins That Kill Septics
- 3 p.m. How Installers Can Use the Poor Economy to Increase Profits
- 4:30 p.m. Are Seepage Pits Really Bad?

- 8 a.m. Designing Drip Dispersal Systems
- 9:30 a.m. Soil Erosion Control During and After Septic System Installation
- 11 a.m. Decentralized Wastewater Collection System Maintenance

NOWRA Room 2

SCOTT HUNTER

Business Coach

- 8 a.m. - 5:30 p.m. | 2013 - Your Best Year Ever

WJTA/IMCA

WaterJet Technology Association

- 8 a.m. Safety and Efficiency – You Don't Have to Choose!
- 9:30 a.m. Selecting the Best Jetting Tip Doesn't Have to Be Scary
- 11 a.m. Hydroexcavation – The Non-Destructive Solution

PHIL STEIN

Vacuum System Information

- 1:30 p.m. | Understanding the Power: Physics of Vacuum and How it Works

NEXSTAR

Independent Residential Service Contractors Association

- 1:30 p.m. | The Art and Science of Business Management
- 3 p.m. | The Business of Contracting

PSAI

Portable Sanitation Association International

- 4:30 p.m. | GAP: Good Agricultural Practices



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FEBRUARY 25-28, 2013

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TUESDAY TRACKS

FEBRUARY 26TH, 2013

TRANSPORTATION AND LAND APPLICATION

- 8 a.m. Driver Compliance and Certification: How to Meet DOT Requirements
- 9:30 a.m. Staying in Compliance with 503 Regulations for Land Application
- 11 a.m. Land Application: Case Study of a Long-Term Operation

INDUSTRY SAFETY

- 8 a.m. One Piece Nozzles Enhance Performance and Safety
- 9:30 a.m. Confined Space Entry Permit and Equipment Review
- 11 a.m. Utility Line Locating

SSCSC

- 8 a.m. Making Emergency Response Your Business
- 9:30 a.m. How to Protect and Maintain Sewer Hose From Mini Jetters to Combination Units
- 11 a.m. How to be Successful in the Cleaning/CCTV Business

GENERAL BUSINESS

- 8 a.m. New Untapped Techniques to Capture Today's Customers
- 9:30 a.m. 10 Steps to Marketing Success
- 11 a.m. Cloud Computing for Small Business and the Field Service Industry
- 8 a.m. Don't Win the Price Game
- 9:30 a.m. Make the Phone Ring with Low-Cost Marketing
- 11 a.m. Local Marketing on the World Wide Web

Business Room 2

SEWER COLLECTION & REHABILITATION

- 8 a.m. Chemical Grouts and Grouting Methods
- 9:30 a.m. Watch Your Assets – Remote Monitoring Can Save You Big Bucks
- 11 a.m. Lateral Connection Rehabilitation: Biggest Bang for the Rehabilitation Buck

SPANISH/ESPAÑOL

- 8 a.m. Floods in Mexico City
- 9:30 a.m. Best Practices for Working in Confined Spaces
- 11 a.m. How to Overcome the Difficulties of Doing Business in South America

WEDNESDAY TRACKS

FEBRUARY 27TH, 2013

SEWER COLLECTION & REHABILITATION

- 8 a.m. Cash for Compliance: The New Boom in Home Sewer Replacement
- 9:30 a.m. Trenchless Point Repairs, a Low Cost Permanent Solution
- 11 a.m. Penn State University Performs Manhole-to-Manhole Lining In-House

GAS, OIL & MINING

- 8 a.m. How to Decide What Dewatering Option is Best for You
- 9:30 a.m. Blower 101: The Basic Operation of the Positive Displacement Blower
- 11 a.m. Principles and Equipment of Hydro-Pneumatic Vacuum Excavation

GENERAL BUSINESS

- 8 a.m. Save Money – Move Your Business to the Cloud
- 9:30 a.m. Morally Bankrupt
- 11 a.m. Measuring Success Matters: Your Ads, Your Agents, Your Technicians

MUNICIPAL

- 8 a.m. Benefits of Digital Side Scanning Inspection Camera Systems
- 9:30 a.m. Application for Sewer and Storm Nozzles
- 11 a.m. Grinder Pumps & Application

PORTABLE LIQUID WASTE

- 8 a.m. A View from the Receiving End: Regulatory Challenges in FOG Programs
- 11 a.m. Now You Smell Me, Now You Don't: Deodorants

NEW TECHNOLOGY

- 8 a.m. Improving Safety and Technology with Wireless Technology
- 9:30 a.m. New Technology for Locating Sewer Line Leaks
- 11 a.m. Solve Decentralized System Malfunction Issues and Site Challenges

ADVANCED INSTALLER COURSE

- 8 a.m. - 5 p.m. Presenters: Jim Anderson and Dave Gustafson
Sponsored by Onsite Installer and COLE Publishing
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Network with your peers over a 25¢ tap beer and enjoy a private concert just for Pumper & Cleaner Expo attendees! The Tuesday Night Industry Appreciation Party is a must attend Expo event and it's included when you pre-register before January 25th, 2013!

Tuesday, February 26th

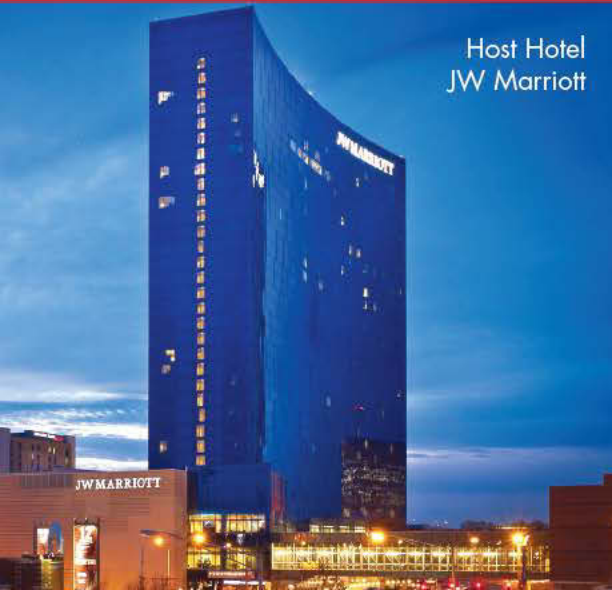
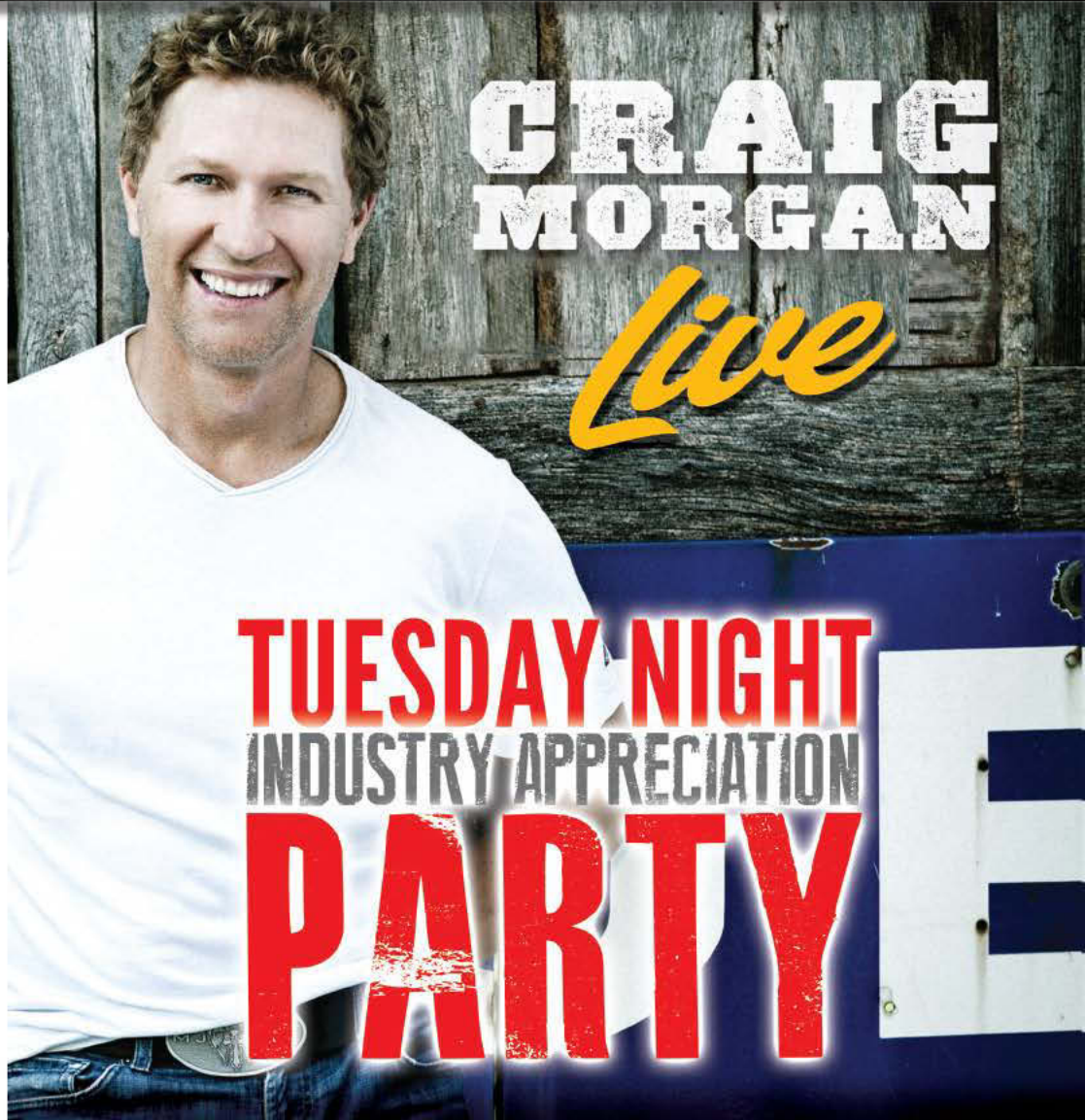
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Craig Morgan: ... 7 p.m.

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Attendees enjoying the live concert at last year's event

Fix Up, Clean Up

A Missouri program provides loans to help homeowners make onsite system repairs and help protect environmental quality

By Ted J. Rulseh

Missouri homeowners with financial need can now get loans to help cure failing onsite treatment systems.

The Missouri On-site Wastewater Improvement Loan program, funded by the state Department of Natural Resources and delivered by the state's regional planning commissions and councils of government, helps owners improve or replace their systems with the goal of protecting water quality.

The state has allocated an initial \$1 million as a revolving loan fund – enough to help fund about 100 system repairs or replacements statewide, according to Steve Etcher, executive director of the Boonslick Regional Planning Commission in Warrenton. He and other proponents believe that, if successful, the program could be expanded and could serve as a model for other states trying to deal effectively with failing systems.

Missing equity

The program, authorized in July and available in all 114 Missouri counties, grew partly out of the recession and real estate crash of 2008. "It's not designed as a grant program for low-income people who may not have the resources available to make improvements," Etcher says. "It's designed to be a form of gap financing.

"What we've found within our region since 2008 is that home values have declined sharply. Many homeowners who are in a position where they have to make improvements to their onsite systems can't go get home equity

lines of credit because of collateral shrinkage in their properties. We will come in and take those loans so that the improvements can be made and we can avoid that water quality degradation.

"It's a pilot project," he says. "We hope we can demonstrate that this is an effective use of resources and does provide an impact on water quality. If so, we'd like to see it expand within Missouri and hope other states would consider and try to replicate this model. A lot of people are watching to see if we can make this work."

"We hope we can demonstrate that this is an effective use of resources and does provide an impact on water quality. If so, we'd like to see it expand within Missouri and hope other states would consider and try to replicate this model."

Steve Etcher

A key to the program is to document the impacts by estimating the amount of untreated effluent being kept out of watersheds, based on information about typical onsite system flows. "We will chart every loan we make using our geographic information system," says Etcher. "So over time we can look and see where we've made investments and make some assumptions about water quality impact."

The mechanics

The program is by no means a giveaway – loan recipients have to prove both that their systems have failed or are failing and that they are financially worthy. The system's condition must be documented by a certified installer or local health agency, and the owner must show evidence of financial need in the form of a "turn-down letter" from a bank or other conventional financier.

Homeowners must have a high enough credit score and have the income to make the loan payments and maintain the new system.

Loans can cover repair or replacement of systems for single-family houses and multi-family housing with no more than four units. Loans can finance only approved systems installed by contractors and approved by the



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county health department. Costs for services such as soils investigation, engineering and surveying can be included, but the loans cannot be used for connecting to a cluster or public sewer system or installing a system for new construction.

Borrowers must procure all services related to the project and must certify that they will maintain the system over the life of the loan, take training on operation and maintenance, and have the system inspected periodically. The inspection interval depends on the type of system but cannot be longer than five years. Owners installing advanced systems must execute a maintenance agreement with a service contractor.

Terms and conditions

Loan terms are based on the homeowner's ability to repay. Amounts can range from \$3,000 to \$15,000 with a term of up to 10 years at interest rates no higher than 5 percent.

Loans require security, such as a lien on the property. Borrowers pay a loan origination fee of up to 1 percent of the loan amount and are responsible for all closing costs and related fees. Loans must be repaid at the time a property is sold.

Borrowers must get at least three bids for all project-related expenses. The owner must choose the lowest bidder or provide justification for not doing so and request approval from the local regional planning commission.

Loan application packets and basic program information are available at regional planning commission offices in Missouri and online at www.macogonline.org/onsite. □

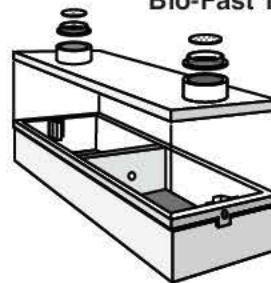
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Pumping Up Profits

Installers turn to septic tank cleaning as a relatively simple way to expand into a new service line that offers business synergies and steady revenue

By Doug Day

An old adage says, “If you’re not growing, you’re dying.” Growing a business in a down economy is challenging, and onsite installers face the added difficulty of a slow housing market.

In such times, most business advisors would suggest owners stick to their core business. For installers, a move into septic tank pumping provides potential for growth within the basic area of expertise. While contractors say pumping may not be a high-profit-margin enterprise, it remains attractive in various ways – chiefly as a steady source of revenue and another way to attract customers for installations and repairs.

Les Harris, owner of Mr. Ed’s Advanced Septic in Grants Pass, Ore., reports a quick boost from pumping: “In the first 18 months, our installing and repairing has gone up 20 percent.” Since the company added a vacuum truck in 2011, it has added about 5 percent in new revenue with two or three pumpouts every day. “Having the pumper truck also gives you first contact with your customer,” says Harris. “It’s a service we provide that refers work back to us to keep our excavators busy.”

“Having the pumper truck also gives you first contact with your customer. It’s a service we provide that refers work back to us to keep our excavators busy.”

Les Harris

While the barriers to entry are relatively low, owners need to consider a few key factors before making the move. They include capital costs, the demands of emergency calls, and the need for qualified employees, along with the issue of building a customer base.

Business builder

“When it’s slow, there is always pumping,” notes Brian Miller of Brian’s Septic Service in Tallahassee, Fla., a third-generation installation and pumping contractor. Pumping of septic tanks and restaurant grease traps now makes up about 25 percent of his sales. “The profit margin on a pumpout isn’t real good, but it pays off if you can keep busy,” he says.

He looks at pumping as something he can count on, because even when installation work is slow, septic systems still need regular service: “I have a lot of customers on a routine maintenance schedule. We’ll come out every



Les and Stacy Harris, owners of Mr. Ed’s Advanced Septic in Grants Pass, Ore. (Photo by Tim Bullard)

three to five years, depending on the size of the household.”

In Gloucester, Mass., Ralph Hobbs gets about 60 percent of his business from pumping and the rest from installation and maintenance. “Pumping is probably not going to produce a great deal of income if you’re just pumping residential,” says Hobbs. “There is more money in commercial pumping. But that’s difficult to get into because most of the commercial accounts are already with another company.”

He adds that pumping serves as a business builder for the rest of the company: “One of the assets of pumping is that you have a foot in the door for repairs, maintenance or installation of systems. When you show up on a job and there is a problem, you have the opportunity to correct it.”

Harris pondered for a year before expanding into pumping. “We were going to wait a little longer, but one of the local pumpers decided to retire, so the opportunity came up. Within three months, we had the pumper up and running.”



Johnathan Stalvey, Brian Miller and Tim Goodwin of Brian's Septic Service. (Photo by Ronald Gardner)

He finds about 60 percent of pumping calls involve some kind of repair or replacement. "It's going to make your business grow extensively the first two years, then it's going to level out," he says. "I wasn't prepared for the expansion that took place. That's something you have to be ready for."

Along with more work, Miller says, pumping means emergency calls: "When somebody calls, you have to answer the phone and you have to go. If someone is backing up, they want you there with a pump truck. If you don't answer the phone, you're going to miss that call and potentially miss a repair bill or an installation."

Kennedy Lee, owner of Metro Septic in Cartersville, Ga., started his business in 2005 with one vacuum truck. "Now we have three trucks and are planning to add a fourth next fall," he says. "They stay pretty busy every day; three to four calls a day per truck, about half that during the slow time in summer."

He added septic installation and repair to his business last year and now wished he had done that from the start instead of subcontracting that work. "It's hard to do one and not the other," says Lee. "If it's not done in-house, you lose control of the quality of the work to someone else."

He observes that customers don't want to have to deal with two companies. "I like being the guy they call whatever is going on," says Lee. "If it needs to be pumped, we'll take care of it. If the drainfield needs repair, we'll take care of it. If they're having a septic system issue, they call me because they want to get it resolved."

"They don't want to hear, 'We don't do that, you'll have to talk to somebody else.' Our customers are a lot happier now that we do everything in-house. Pumping is the front line. The homeowner isn't going to say, 'I need fill lines fixed.' They just know they have problems and want them resolved."

Lee also finds that the pumping season runs opposite to repair and installation. That helps keep his company busy and evens out cash flow over the year. "Normally, we do enough pumping in the winter to save up for the summer when it gets slow," he says. "Doing installation and repair work this past summer, there was a little bit of a downturn, but it wasn't near what it used to be. Everything kind of leveled off. It opened my eyes."

Harris has had the same experience: His pumping work peaks in the rainy winter season. "A lot of the systems that are on the verge of failing will start backing up when the rains come in," he says. "We typically don't do repairs in the middle of winter; we do them in the summer. Last winter, business did not slow down one bit."

Lee also finds that grease trap pumping can fill valleys in the workload. In his territory, traps have to be pumped every three months. He knows that money will be there, but he can do those jobs on slow days. "You don't make a lot of money off grease traps, but it pays the bills, and it's work you can do whenever you can get to it," he says. By scheduling grease traps a few weeks before they're due, he can shuffle them around and still keep customers in compliance. "If you're busy doing something else, you can push it off. If you don't have anything else to do, you can move them up in the schedule."

Meeting challenges

Of course, expansion into pumping is not without hurdles. The capital cost is a prime decision factor. Contractors advise looking at used equipment initially. Miller found a good selection of used trucks at appealing prices in *Pumper* magazine listings. "I started with one old, used truck and kept it for a few years," he says. "Business got good and I traded it for a brand new one. And now I have three."

Harris suggests adding a good camera and cable machine and warns owners to prepare for a spike in the workload, especially for smaller operations that have a limited crew. Harris began with a part-time pumping employee, who is now full time. "More business is more work, and I guess that's a good problem to have," adds Harris.

It does take a while to build up a pumping business. "You're not going to see a revenue turnaround on the truck until the word gets out," says Harris. "I would put some money into good advertising. Definitely do the Internet. That's going to bring the business in."



Kennedy Lee, owner of Metro Septic. (Photo by Collin Chapelle)

Installers also need to analyze operating costs, mainly tipping fees and fuel, both on the rise lately. "Dumping prices have tripled around here," says Miller. "That has taken a big toll on our profits. We can't pass on that much cost; we had to absorb a majority of it. And we have a lot of contracts that have set prices."

Tipping fees at wastewater treatment plants vary greatly with geography. Land application of septage can be an alternative, although it requires knowledge of and compliance with regulations and in some areas is impractical or restricted by regulations.

Given the cost of fuel, Hobbs advises looking at travel distance for disposing of septage. "One of the big problems is finding a place within a relatively

(continued on page 27)

ABOUT THE AUTHOR

Tom Fritts is president of NOWRA and a co-owner of Residential Sewage Treatment Company in Grandview, Mo. For more information about NOWRA or to join, visit www.nowra.org, or call 800/966-2942.

Who's the Best?

2013 NOWRA National Backhoe Roe-D-Hoe at the Pumper & Cleaner Expo promises tough competition and fun times for everyone

By Tom Fritts

The NOWRA National Backhoe Roe-D-Hoe is just around the corner. Pack your bags and make your reservations to attend the annual Pumper & Cleaner Expo Feb. 25-28 at the Indiana Convention Center in Indianapolis, where backhoe operators from across the country will compete to be crowned the best of the best.

The winner takes home bragging rights with a picture of him/herself wearing the NOWRA Roe-D-Hoe belt, as well as a "champion" belt buckle and \$1,000 cash – all this for the \$5 entry fee.

day or even previous years hanging around the arena talking with other operators and event volunteers, looking for ideas and comparing their strategies with others'.

Some are hoping to calm those tense muscles before they climb on the machine. A few are mustering the nerve to compete in the national Open Division and the chance to take home the \$1,000 prize. And still others who have already turned in Top 5 qualifying times come by from time to time to be sure they haven't been knocked out of a trip to the finals.

It is not uncommon to see low-time competitors from earlier in the day or even previous years hanging around the arena talking with other operators and event volunteers, looking for ideas and comparing their strategies with others'.

Keep on trying

In years past, we have seen several techniques used to get the times down. It is not uncommon to see low-time competitors from earlier in the

Many times we welcome those who have slipped to sixth place to take another run through the games and try to get back into the Top 5.

Bigger and better

The competition runs Tuesday and Wednesday from 10 a.m. to 4 p.m. in the exhibit hall, where the Open Division entrants aim to finish in the Top 5. The finals will be Thursday at 10 a.m. There the Top 5 Open Division operators will compete to decide who goes up against the winner of the State Champion Division (all NOWRA-sanctioned state champions receive an automatic entry in the finals).

This is an event loaded with fun for all, from the competitors to the spectators and even the event volunteers, who are quick to comment on just about anything in or around the event.

The 2013 competition promises to be even bigger than 2012. Competition will likely be tougher with more competitors and more state champions. To get a better sense of what's involved in the Roe-D-Hoe, visit www.youtube.com/user/NOWRAVIDEO. Join us in Indianapolis for the 2013 National Backhoe Roe-D-Hoe – and good luck! □

Get Your State Involved

Last year, NOWRA sanctioned five state Roe-D-Hoe events, and you can have one in your state, as well. Any state that would like to hold a Roe-D-Hoe at its annual conference may contact NOWRA and get the ball rolling.

NOWRA will work to locate an electric machine that can be used inside the exhibit hall. We will also provide the official rules booklet, release forms, equipment for the games, a computer program to track the leader board, and advice on how to make the event a success.

For those who would like a turnkey Roe-D-Hoe, we'll provide all this along with a representative and master of ceremonies to give the event the look of professional showmanship. Contact NOWRA at 800/966-2942.

(continued from page 25)

small radius of where you are working," he says. "If you have to drive a long distance, it might not be worth it."

"Normally, we do enough pumping in the winter to save up for the summer when it gets slow. Doing installation and repair work this past summer, there was a little bit of a downturn, but it wasn't near what it used to be. Everything kind of leveled off."

Kenney Lee

Add to those issues the need for qualified help. Vacuum truck operators need a commercial driver's license (CDL). Hobbs says that can limit the pool of prospects: Many people prefer not to live under CDL restrictions.

CDL drivers also need the interpersonal skills to serve as the face of their company, along with sales skills. They need a neat, clean appearance, a pleasant personality, and the ability to relate to customers, many of whom are women.

"The sales portion is really critical," adds Hobbs, and that requires more skills than just pumping a tank. If there's a problem and they know what they're doing and how to fix it, you're going to benefit from that. Some tanks

need repairs and troubleshooting. You have to take customers by the hand and educate them."

If the vacuum truck operator isn't qualified and certified for septic system repair, the company loses the ability to help customers on the spot. "It's hard to find a certified individual," says Hobbs. Truck drivers are the most obvious source of potential vacuum truck operators, but most lack knowledge of septic systems and would need to become licensed or certified. In addition, says Hobbs, pumping is still viewed as a low-skill job, which means pay levels may not attract experienced truck drivers.

Taking the leap

To the bottom-line question of whether to take on pumping, Miller responds, "Yes, absolutely."

Lee adds, "If you're doing one side of the business and not the other, you're missing out. If you're doing installations and don't think there is room to grow, there's a whole separate division you can get into. There's revenue to be made. It doesn't take much to put one truck on the road to take care of your customers."

And then, be prepared, adds Harris: "This could escalate into something bigger and bigger, and that's what's happening with us. It forced me to go out and get another machine to keep up with the repairs you find with a pumper truck." □

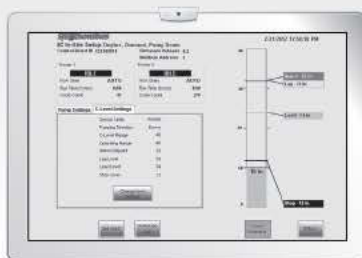
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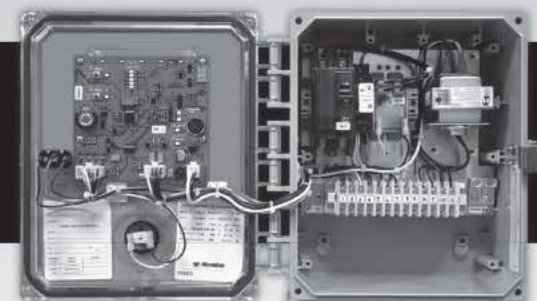
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LEFT: Fountain Square is just south of the city. It is home to artists, galleries, boutique shops, restaurants and bars, and the Fountain Square Theatre Building, which has the only two authentic duckpin bowling lanes in the Midwest – Action Bowl and Atomic Bowl. ABOVE: The phrase on the Fountain Square website says it all about the district: “Funky. Artsy. Retro,” with vibrant lights, nightlife and fun-loving crowds. (Photos courtesy of Visit Indy, www.visitindy.com)

Culture Club

Six historic Indianapolis neighborhood districts showcase thriving art and music scenes

By Sharon Verbeten

Founded and platted in 1821, Indianapolis (population 876,804) is known for being located at the “Crossroads of America.” Its unique and varied tourist attractions are just part of what makes Indy, well, Indy.

According to Visit Indy conventions and meetings communications manager Lisa Wallace, “Visitor favorites include the green space, canal and attractions conveniently located in White River State Park steps away from hotels. Two new attractions include the Dallara IndyCar Factory and our Cultural Trail, an innovative project connecting visitors on bike or foot with hotels, restaurants and eclectic neighborhoods throughout the city. The Indianapolis Museum of Art is also popular, with prominent works of art inside and 152 acres of gardens and grounds outside that house the original (Robert Indiana) LOVE sculpture.”

Those are just some of the attractions located in the city’s six distinct cultural districts. These include Broad Ripple Village, The Canal and White River State Park, Fountain Square, Indiana Avenue, Mass Ave. and the Wholesale District. Nestled in these districts are public art, galleries, museums, shops and recreation. Four of the six districts are conveniently located downtown, the site of the Pumper & Cleaner Environmental Expo.

See it all

Broad Ripple Village is set against the backdrop of public art, graffiti murals and green spaces. It’s the ideal venue for those adventuresome souls who enjoy art, creative spaces and ethnic foods. Shopping options include works by local artisans, as well as vintage furniture and collectibles. The

Indianapolis Art Center and the ARTSPARK outdoor laboratory are located in Broad Ripple.

The Canal and White River State Park are more for history and outdoor lovers. Limestone walkways and American Indian art are part of the experience in this district.

Scattered throughout the Canal and 250-acre White River State Park are some of the city’s most inspiring museums and attractions.

“New attractions include the Dallara IndyCar Factory and our Cultural Trail, an innovative project connecting visitors on bike or foot with hotels, restaurants and eclectic neighborhoods.”

Lisa Wallace

The Canal Walk — on the “waterfront” — provides an urban respite for fitness enthusiasts and serenity seekers. This district is also home to the Indianapolis Zoo, the Eiteljorg Museum of American Indians and Western Art, the Glick Indiana History Center, the Indiana State Museum and the NCAA Hall of Champions.

Fountain Square is a historic community spotlighted by a town square and central fountain, evoking images of a European city. It is a literary and artistic haven and home to more offbeat activities like duckpin bowling and swing dancing. More than 75 artists call the Wheeler Arts Community or Murphy Art Center home.



A Mass Ave. outdoor patio beer garden is one of the great meeting places in this eclectic neighborhood.

Indiana Avenue anchors the district that spans the Central Canal and White River. Here history, jazz, restored neighborhoods and spirituality embrace the city's rich African-American heritage. Several venues are on the National Register of Historic Places.

Mass Ave. is the city's arts and theater district, including five performing arts theaters. Shops feature local artists' works, and an array of original outdoor art greets visitors.

Wholesale District brings an urban excitement to the city with marquees, tuxedoed doormen and a mall to delight shoppers — the two-block, four-story Circle Centre mall. This is the heart of the business district, home to historic buildings, massive skyscrapers and the Indianapolis Symphony Orchestra and Indiana Repertory Theatre.

The Bankers Life Fieldhouse is home to the NBA's Indiana Pacers and WNBA's Indiana Fever. Lucas Oil Stadium hosts the NFL's Indianapolis Colts.

For more information:

- Broad Ripple Village, 6311 Westfield Blvd.; 317/251-2782; www.DiscoverBroadRippleVillage.com
- Canal and White River State Park, 801 W. Washington St.; 317/233-2434; www.DiscoverCanal.com
- Fountain Square, Fountain Square Merchants Association, www.DiscoverFountainSquare.com
- Indiana Avenue, Madame Walker Theatre Center, 617 Indiana Ave.; 317/236-2099; www.DiscoverIndianaAvenue.com
- Mass Ave., 430 Massachusetts Ave.; 317/637-8996 ext. 202; www.DiscoverMassAve.com
- Wholesale District, 11 Monument Circle; 317/237-2202; www.DiscoverWholesaleDistrict.com 



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Tight Fit

A low-profile, narrow-trench system provides treatment for a mobile home on a small lot with creeks and a high water table

By **Scottie Dayton**

Infiltration, poor soils, and a high water table overwhelmed the chamber drainfield serving a two-bedroom mobile home in Clayton, Ga. Knowing the owner could not afford to replace it, the Rabun County Environmental Health Department contacted Georgia Conservancy, an environmental organization that secured a \$3,300 grant.

Harold Kilgore of Gravelator Systems in Talmo won the design/installation bid. After accounting for setbacks, he found that 2,500 square feet remained for a replacement system. “Three-quarters of the 1.5-acre lot was floodplain with creeks running through it,” he says. “Even what soil evaluators called usable was the best of the worst.”

“Three-quarters of the 1.5-acre lot was floodplain with creeks running through it. Even what soil evaluators called ‘usable’ was the best of the worst.”

Harold Kilgore

County manager and onsite inspector Steve James of the environmental health department met with Kilgore to discuss treatment options. “We’ve been installing Eljen In-Drain geotextile sand filters for four years, so I recommended them to Steve,” says Kilgore. The low-profile, narrow-trench drainfields require minimal maintenance; Kilgore found that such a system could be installed above the site’s high water table.

When Eljen Corp. representative Jim King learned of the project, he donated a system. Kilgore contacted his other suppliers and, with their cooperation, limited the price of the replacement to the amount of the grant. The state Department of Public Health allowed the installation to qualify as a CEU course.



Field technician Justin Kilgore scarifies sand with a rake to ensure that effluent will move freely into it. (Courtesy of Twins Productions)

Site conditions

Soils are Dellwood and Dillard with percolation rates of 35 minutes per inch and a loading rate of 0.45 gallons per square foot per day. The water table is 20 to 32 inches below grade.

(continued)



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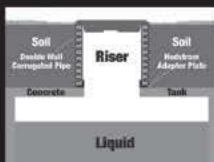


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ABOVE: Gravelator Systems owner Harold Kilgore (right) and senior field technician Heath Kilgore apply the second coat of tar and polyethylene film to the dose tank to waterproof it. RIGHT: A crew installs primary treatment modules with orifice sleeves atop them. Eljen representative Jim King explains the procedure to other contractors.

System components

Kilgore designed the system to handle 300 gpd. Major components (donated or price-reduced) were:

- 1,000-gallon IM-1060 dual-compartment plastic septic tank with 4-inch PolyLok effluent filter in second chamber, both from Infiltrator Systems
- 500-gallon low-profile concrete dose tank with 22-inch Tuf-Tite riser from Nix Septic Tank Co., Gainesville
- 290 Series 3/4 hp effluent Liberty pump from Chambered Leaching Products
- 21 A-42 In-Drain sand filter modules from Eljen Corp.
- ASTM C-33 sand from River Sand
- Installer Friendly Series control panel from SJE-Rhombus

System operation

Wastewater flows by gravity through a 4-inch PVC lateral to the septic tank, then to the dose tank. Every two hours, the pump runs for 50 seconds, sending 35 gallons through 90 feet of 1.5-inch PVC pipe to the manifold, which distributes effluent to four 32- to 34-foot-long trenches in a 528-square-foot drainfield.

The first three trenches have five 24- by 48-inch, 7-inch-high treatment modules; the fourth has six modules, the last one in a dogleg. Centered atop them is a 4-inch PVC pipe with flat endcaps that suspend the low-pressure pipe in the middle of the sleeve. The 4 feet of pipe passing through the sleeve has one upward-facing 0.25-inch hole drilled at 24 inches. The sleeves have nine holes drilled every six inches at alternating 5 and 7 o'clock positions.

Effluent drips through the sleeves and onto the modules, each with an interleaved plastic cusped core and 64 square feet of biofabric. "Compared to conventional absorption systems, the media has approximately eight times more surface area per square foot to trap biomat," says King.

Effluent seeps through the modules to 6 inches of washed sand with a long-term acceptance rate two times that of conventional drainfields. "Pre-treated effluent and enhanced surface area enable these drainfields to be up to 50 percent smaller than traditional pipe-and-stone beds," says Kilgore. Effluent discharges to the soil.

SYSTEM PROFILE

| | |
|----------------------------|--|
| Location: | Clayton, Ga. |
| Facility served: | Two-bedroom mobile home |
| Designer/Installer: | Harold Kilgore, Gravelator Systems, Talmo, Ga. |
| Site conditions: | Dellwood and Dillard soils with percolation rate of 35 minutes per inch, loading rate of 0.45 gallons per square foot per day, water table 20 to 32 inches below grade |
| Type of system: | In-Drain sand filter system from Eljen Corp. |
| Hydraulic capacity: | 300 gpd |

Installation

To avoid dewatering, the Gravelator crew installed the system during the driest part of the year. Equipment and labor were provided by James Simpson of Simpson Trucking in Gainesville, Ricky Sinclair of Sharpton Electric in Dacula, and Chris Motes of Chris Motes Pumping Service in Cleveland, Ga.

Installers, soil scientists, and regulators from five counties, including consultant Virgil Fancher from the state Department of Public Health, attended an education day at the site. King explained the In-Drain system, and Richard Crumley and John Ford from Infiltrator Systems set the injection-molded septic tank.

Motes pumped the existing septic tank, and Gravelator workers crushed and abandoned it while Kilgore excavated holes up to 60 inches deep for the septic tank and 46-inch-high dose tank. The depth was necessary to meet the state's minimum cover requirement of 6 to 12 inches.

The biofabric's ability to transfer oxygen in the modules depends on the system being watertight. County code also requires that concrete tanks in



watch them in action

To see Gravelator Systems do the complete onsite system replacement, view the video at www.onsiteinstaller.com.

Harold Kilgore (left) and Justin Kilgore drill 0.25-inch orifices in 1.5-inch PVC low-pressure pipe.

position, but Kilgore reinforced them with 0.5-inch-wide plastic cable ties. "When the pump comes on, effluent flowing at 25 psi could jerk or roll the pipes off center," he says. "Redundancy is always wiser than digging up systems to fix them."

The crew covered the modules with geotextile fabric, running it down the sides and flaring it into the trenches before using sand to hold it in place. They installed the 1.5-inch PVC backflush line while Sinclair wired the system.

A ball valve in the valve box enables Kilgore to reduce flow to meet the 2 to 4 feet of distill pressure requirement on any portion of the low-pressure bed. A second ball valve sends the backflush to the septic tank. After the final inspection, the crew backfilled and built a berm around the tanks to divert stormwater runoff.

Maintenance

Gravelator holds the state-required service contract.

Twice a year, a technician downloads information from the control panel, backflushes the system, and checks for problems. The effluent filter is cleaned annually. □

free-water environments be sealed. Therefore, the pump tank arrived spray-coated with tar. To ensure it was waterproof, Kilgore and son Heath rolled a second layer of tar over the tank as the delivery truck driver suspended it overhead.

The driver then set the tank in the middle of a 20- by 20-foot piece of 6 mil polyethylene film. "We coated the sides of the tank so the Visqueen would adhere, pulled up the film, and folded the ends back just like wrapping a present," says Kilgore. The lid received the same treatment.

Although the septic tank did not require bedding, Kilgore put 6 inches of C-33 sand into the hole. The crew set the tank with enough pressure to compress the sand, creating a mold to stabilize it. As nephew Justin Kilgore filled the tank with water, Kilgore and Heath backfilled around it with 8 inches of sand, then compressed it to remove voids that could allow internal tank pressure to distort the plastic.

After excavating the 4-foot-wide trenches and bedding them with sand, the crew set the 2-foot-wide modules 18 to 24 inches apart. The drainfield has 132 square feet of trench surface area per state code, or 48 more feet of trench than the modules require based on the loading rate.

Front and rear steel U-clamps driven through the modules and into the sand held the sleeves in

MORE INFO:

Eljen Corporation
800/444-1359
www.eljen.com
(See ad page 11)

Infiltrator Systems, Inc.
800/221-4436
www.infiltratorsystems.com

Liberty Pumps
800/543-2550
www.libertypumps.com

Polylok/Zabel Environmental
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www.polylok.com
(See ad page 40)

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(See ad page 27)

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Sticker Shock?

Tier 4 diesel engine emission requirements force technology changes that will drive equipment prices higher, and contractors need to prepare

By Linda Edmondson

You may need to take a deep breath before you look at the price on the new backhoe, loader or excavator models on the market today. There's sticker shock ahead, especially for contractors who have worked to keep their equipment running as long as possible.

Tighter emission standards are a big contributor to higher machinery costs. Sooner or later, contractors will have to embrace the newest EPA-required diesel engine emissions technology (Tier 4), and the sticker prices that go with it.

That may mean planning now for the higher cost of a new machine in the future – and revisiting your hourly machine rates.

Industry experts predict price increases ranging from 7 to 15 percent depending on the equipment and the Tier 4 solution. For instance, the retail price of a 35,000-pound excavator, a class popular with septic installers, would rise from about \$140,000 to \$160,000.

“Until recently, the strategy for many was to trade in a Tier 2 machine for a 2008-2010 unit with Tier 3 technology to forestall the higher cost of a new machine with Tier 4 technology. But the reality is that due to high demand, there are few Tier 3s available on the secondary market.”

Dan Soley

Heading toward Tier 4

If you're in the market for a replacement machine, there's a lot to consider before making a purchase, says Dan Soley, marketing and sales vice president for Miller-Bradford & Risberg, a multi-state Midwest parts and service provider and a distributor of new and used equipment for construction, industry and agriculture.

“Until recently, the strategy for many was to trade in a Tier 2 machine for a 2008-2010 unit with Tier 3 technology to forestall the higher cost of a new machine with Tier 4 technology,” Soley says. “But the reality is that due to high demand, there are few Tier 3s available on the secondary market. Buyers will have to make the move to a Tier 4 system with either cooled exhaust gas recirculation (CEGR) or selective catalytic reduction (SCR).”

Until 1994, manufacturers had to meet fairly modest emission requirements. Then the EPA announced its first set of guidelines (Tier 1) to reduce

off-highway nitrogen oxides (NOx) and particulate matter (PM) emissions. But Tier 1 applied only to engines rated at 50 hp or higher, with the goal of reducing emissions by 30 percent.

More stringent emission standards (Tier 2 and Tier 3) for NOx, hydrocarbons (HC) and PM were introduced in 1998 for off-road diesel engines below 50 hp. Limits got even tighter from 2001 to 2006 for all engine sizes, and by 2008, Tier 3 applied to engines from 50 to 750 hp.

By May 2004, as part of its Clean Diesel Programs, the EPA finalized Tier 4 standards for off-road diesel engines, requiring integrated engine and fuel systems that would significantly reduce emissions. Equipment manufacturers have steadily worked on developing advanced emission controls, similar to those already required for on-highway trucks and buses, to meet Tier 4 Final requirements by 2014.

Significant differences

Due to its smaller configuration, it has been easier for manufacturers to integrate CEGR systems to meet Tier 4 Final emission standards. According to Soley, almost all skid-steers and tractor backhoes in use today have the less expensive CEGR package, which passes fuel through a diesel particulate filter (DPF) to reduce emissions.

“The DPF filter in CEGR systems is similar to a catalytic converter in terms of how it works, but it's important to pay close attention to the manufacturer's guidelines to avoid damage to the DPF filter or fuel system components,” Soley says.

With CEGR, prolonged idling increases particulate matter buildup in the DPF, which is cleaned during a regeneration process. Operation can continue during automatic regeneration, which occurs every 7 to 9 hours and takes 5 to 20 minutes. It's important to avoid idling and to avoid shutting off the engine until the cycle is complete.

Manual regeneration is needed when high levels of particulates are detected. In this case, the operator initiates regeneration, and the machine cannot be operated or shut off until the cycle is complete, or the engine could derate to 50 to 67 percent of its output, and DPF life could be shortened. Using only ultra-low-sulfur fuel that meets SAE J313 specification, Grade #2D (S15)/EN 590 (EU) can help reduce DPF particulate buildup and the work stoppages required for manual regeneration.

A tough choice

Although it's more expensive, the future emission system for off-highway equipment most likely will be SCR systems, which inject diesel exhaust fluid (DEF) into the fuel system to neutralize emission particulates before the exhaust enters the SCR catalyst. Particulates are neutralized by the DEF solution – a nonhazardous and nonflammable combination of urea and water – and burned off before being exhausted.

Refilling of the DEF solution tank can become part of a regular maintenance or refueling routine. Machines include a gauge similar to a fuel gauge with a warning signal when DEF level is low. Low-ash CJ-4 engine oil can be used but is not required. Emissions from SCR-equipped machines are harmless nitrogen gas and water. "The exhaust with SCR systems will be even cleaner than the general air we breathe," Soley says.

Issues still unsolved

Still, manufacturers haven't solved all issues with integrating SCR into their machines.

An SCR system needs a 15- to 30-gallon DEF tank with heater to prevent freezing in winter. Adding these hasn't been a problem in large equipment, but the machines used by most septic system installers are a different matter. Manufacturers are still working on ways to fit SCR into these machines without compromising operator sight lines or ease of maintenance.

Why go with SCR when machines with these systems cost much more than CEGR units, and the DEF also feels pricey? "There's a lot of engineering behind the newest SCR systems, which is one reason we're seeing higher costs," Soley says. "But on the plus side, the SCR system is separate from the main engine function and will not affect horsepower or torque. This translates to greater engine efficiency and reduced fuel consumption. And, unlike CEGR, the DPF works most efficiently at full load, gear up and idle back."

Where most contractors run their machines 5,000 hours before considering trade-in, SCR-equipped machines are expected to deliver longer engine life and run 10,000 hours or more before major service.

Still, the rising prices of new machines will have an impact on contractors' planning, Soley says: "Unfortunately, everyone will have to take a hard look at what they're charging for jobs today in order to eventually afford the necessary technologies." □

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New Board Member

The Wisconsin Onsite Water Recycling Association appointed Steve Jentges of WSK Service Company/Statewide Septic Services to complete the remainder of Tony Birrittieri's term on the board of directors.

Backwash Recommendations

Based on questions raised through the Subsurface Sewage Treatment System Advisory Committee and from local onsite officials, the Minnesota Pollution Control Agency, the Department of Health, and the Department of Labor and Industry are developing guidelines for when water softener backwash can enter onsite systems and identifying discharge options that exclude daylighting. Draft recommendations will be shared with the Advisory Committee in mid-December.

Bill Gates Funds Quest to Build Better Toilet

Microsoft founder Bill Gates and his wife, Melinda, gave grants to eight institutions to develop low-cost toilets that can operate for 5 cents per user per day, don't require a sewer or water to flush, and are hygienic and sustainable for the world's poorest populations.

The winning entry went to the California Institute of Technology's solar-powered white ceramic toilet and stainless metal urinal combination. While the unit looked normal from above, underneath was a holding tank that separates solids and liquids before they move to an electrochemical reactor that disinfects waste and generates hydrogen to be used as fuel.

Second place went to Loughborough University, based in the United Kingdom, whose hydrothermal carbonization reactor turns fecal matter into biological charcoal that can be used as soil or fertilizer. The system also generates clean water from urine and fecal matter, as well as energy by burning the biological charcoal. The University of Toronto's third place entry dries and smolders fecal matter to sanitize it, while using a sand filter and UV light to disinfect urine.

The next step is testing prototypes of the models, then conducting small pilot studies in sub-Saharan Africa and Bangladesh around 2015.

Don't Mess with Pumpers

Ray Daniels of Daniels Septic Service in Sterling, Mich., pumps tanks and grease traps, augers lines, and does minor onsite repairs. This summer, a thief stole a vacuum truck from his yard.

Writing in the fall newsletter of the Michigan Septic Tank Association, Daniels wondered what the man was thinking when he decided to heist a truck with the company name on both sides. As the 56-year-old pumper pounded barefoot down a gravel road after the departing vehicle, he also wondered what he would do if he caught up with the driver. He didn't have to worry. The police located the truck and incarcerated the thief, who is in his 20s. Then a deputy made an appointment to have his septic tank pumped.

California EPA Scholarships

The U.S. EPA Region 9 funded the California Onsite Wastewater Association to offer scholarships for local, state, federal and tribal environmental health specialists and other water quality regulators. Association members and non-members can take any two training programs, and single agencies can send up to six staff members until May 28, 2013. The scholarships support onsite wastewater treatment technologies. Visit www.cowa.org.

Certification Program

The Indiana Onsite Wastewater Professionals Association Certification Committee developed a program to certify onsite inspectors and maintainers. After the committee presents a checklist of items to cover in an inspection to members at the annual conference in January, they will begin developing training and testing programs with written and hands-on components.

CALENDAR OF EVENTS

Jan. 8-10

Michigan Onsite Wastewater Conference, Kellogg Center, East Lansing. 989/275-4947; www.mowra.org.

Jan. 9-10

Iowa Onsite Waste Water Association Conference, Iowa Events Center/Hy-Vee Hall, Des Moines. 515/225-1051; www.iowwa.com.

Jan. 15-16

Ohio Onsite Wastewater Association Conference and Trade Show, Hyatt Regency, Columbus. 866/843-4429; www.ohionsite.org.

Jan. 17-18

Colorado Professionals in Onsite Wastewater Educational Conference, PPA Event Center, Denver. 303/551-3266; www.cpow.net.

Jan. 21-22

Pennsylvania Decentralized Wastewater Conference and Trade Show, Valley Forge Casino Resort, King of Prussia. 717/763-7762; www.psma.net.

Jan. 22-23

Missouri Smallflows Conference and Trade Show, Boone County Fairgrounds, Columbia. Call Tammy Trantham at 417/739-4100 or visit www.mosmallflows.org.

Jan. 23-26

Wisconsin Onsite Water Recycling Association and Wisconsin Liquid Waste Carriers Association Joint Convention, Holiday Inn Hotel & Convention Center, Stevens Point. 800/377-6672; www.wowra.com.

Jan. 25-26

Washington On-Site Sewage Association Conference, Yakima Convention Center, Yakima. 253/770-6594; www.wossa.org.

Jan. 28-29

Indiana Onsite Wastewater Professional Association Winter Conference, Camp Camby, 317/889-2382; www.iowpa.org.

Jan. 29-31

Minnesota Onsite Wastewater Association Convention and Expo, Arrowwood Resort Convention Center, Alexandria. 952/345-1141; www.mowa-mn.com.

Jan. 31-Feb. 1

North Carolina Septic Tank Association Convention and Expo, Hickory Metro Convention Center, Hickory. Visit www.ncsta.net or email ncsta@earthlink.net.

TRAINING & EDUCATION

Connecticut

The Connecticut Onsite Wastewater Recycling Association is holding its Installer School Jan. 17, 24 and 31 and Feb. 7, 14, and 21, with a snow date of Feb. 28. Students enrolled in the Installer School are automatically enrolled in the Pumper/Cleaner School on Feb. 21, with a snow date of Feb. 28. The courses, which prepare attendees for the state licensing exam, are at Wesleyan University, Middletown. Call Janice Cavanaugh at 860/267-1057 or visit www.cowra-online.org.

North Carolina

North Carolina State University has the following courses:

- Jan. 17 – Introductory Drip Design for Wastewater Systems, Raleigh
- Jan. 29 – Onsite System Technologies, Bolivia
- Jan. 30 – Advanced Treatment for Improved Field Performance, Bolivia
- Jan. 31 – Wastewater in the Environment, Bolivia
- Feb. 12 – Onsite System Technologies, Raleigh
- Feb. 13 – Advanced Treatment for Improved Field Performance, Raleigh
- Feb. 19-20 – Septic System Options for Difficult Sites, Wilmington
- Feb. 20 – Navigating Decentralized Reuse Rules and Technologies, Morganton
- Feb. 21 – Advances in Water Table Management, Wilmington
- Feb. 27 – Onsite System Technologies, Mills River
- Feb. 28 – Advanced Treatment for Improved Field Performance, Mills River

Contact Joni Tanner at 919/513-1678 or joni_tanner@ncsu.edu.

Washington

The Washington On-Site Sewage Association and Washington State Department of Health in cooperation with Washington State University are offering these certification courses at the Puyallup training center unless stated otherwise:

- Jan. 9 – Proprietary Systems
- Jan. 17 – First Aid/CPR
- Feb. 6 – Electrical Control Panels, Spokane
- Feb. 20 – Design Siting, Vancouver
- Feb. 21 – First Aid/CPR
- Feb. 26-27 – Using WAC 246-272A, Mt. Vernon

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Onsite Installer magazine is written solely for professionals who design, manufacture, engineer and install septic systems and other onsite wastewater treatment systems serving both residential and commercial onsite wastewater treatment applications.

Coneqtec sells TerraQuip product line

Coneqtec Corp., Wichita, Kan., sold its interest in TerraQuip Construction Products. The engineering and manufacturing company develops heavy-duty attachments and hydraulic kits for skid-steers, backhoes, compact and utility loaders. The company also owns Universal Construction Products, Universal Bingham and majority interest in Burlington Installation Corp.

NSF International expands test capabilities for grease interceptors

NSF International expanded its testing capabilities for grease interceptors as large as 100 gpm. NSF testing and certification satisfies the requirements of all grease interceptor standards and codes, verifying the performance, construction, grease retention and efficiency of grease interceptors at their designated flow rates.

Delta installs treatment system at training center

Delta Environmental assembled and installed an ECOPOD advanced wastewater treatment system at the Northwest On-Site Wastewater Training Center in Puyallup, Wash. The system is available for hands-on teaching. □

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productnews

Clarus high-water alarm, control panels

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info@nawt.org

NAWT Vacuum Truck Technician:

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MI & NAWT - Contact Mark Scott at (989) 275-5011 or msscott@i2k.com

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Principles of Septic System Design
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March 1-2, 2013 Helena, MT
Lewis and Clark County - Contact: Beth Norberg at (406) 447-8385 or bnorberg@co.lewis-clark.mt.us

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