January
2013

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Coming Next Month: February 2013

Issue Focus: Pumper & Cleaner Expo: Show Issue

- Cover Story: Gravelator Systems Inc., Talmo, Ga.
- Machine Matters: Pulling machines out of storage
- Basic Training: The age-old distribution question
- Tech Talk: Keeping tanks watertight

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Four Profitable Days

Pumper & Cleaner Expo offers a growing lineup of education, product innovations, networking possibilities and great fun for the onsite installation community

By Ted J. Rulseh, Editor

It may be called the Pumper & Cleaner Environmental Expo, but there's plenty in store for onsite system designers and installers, too. In recent years, the installer population at this annual venue has seemed to grow – likely in part because there is more programming that speaks directly to their interests.

The 2013 Pumper & Cleaner Expo runs Feb. 25-28 at the Indiana Convention Center in Indianapolis. While the annual NOWRA conference remains as the show devoted exclusively to design and installation matters, the Expo provides a perspective on the industry as a whole, along with ideas on how installers might diversify their businesses to include more after-the-install services. It makes good sense for professionals to attend both – if not every year, then at least once in a while.

What's on tap

The Expo is most famous for its vast exhibition hall, covering some 500,000 square feet, generally with more than 500 exhibits. It's also known for the extensive lineup of seminars on Education Day, held this year on Monday, Feb. 25 (see summary in this issue). But there's much more.

From my dozen years of observations, the best reason to attend this show is the quality of professionals you can meet. The people at the Expo are almost universally serious business owners with great advice to share. I'd venture to say the majority of installers I meet here also own pumping businesses. That means you get exposed to people who know septic systems cradle to grave.

Roundtable discussions, held on from 8 to 10 a.m. on Thursday, Feb. 28, give professionals a chance to share ideas and discuss common problems. You might meet someone who can help you solve a problem that has been plaguing you for years. People feel much freer to open up in a casual setting where those around the table are not local competitors.

Just for installers

The Expo session that draws the biggest installer population is the all-day Advanced Installer Course, taught by Jim Anderson and Dave Gustafson of the University of Minnesota onsite program. If they're not the best team of instructors in the county (and they might well be), they are certainly the most entertaining.

Attendees leave with an excellent foundation of knowledge of onsite system basics, a superb set of printed materials, and knowledge that prepares them well to take the exams for the National Environmental Health Association's Certified Installer of Onsite Wastewater Treatment Systems national credentials. Look for the program this year on Wednesday, Feb. 27.

The real value is in the friendships you make, the networks of professionals you build and — especially — what you learn. Just one great idea about technical practice, marketing, team building or financial management can repay your investment five, 10 or 20 times over.

Then there are the general business seminars, offering advice on everything from building a strong team of employees, to marketing your services effectively, to meeting you revenue and profit goals.

If all that isn't enough, there's the NOWRA Backhoe Roe-D-Hoe national competition. Whether you just spend some time in the bleachers watching or try your hand at the controls, this event is great fun. The grand prize of $1,000 is serious money – enough to cover most or all of your Expo-related expenses. The Roe-D-Hoe runs all three days the exhibit floor is open, ending with the finals on Thursday, Feb. 28.

Worth the investment

I like to say a quality trade show is a superb investment. That's true in spades where the Pumper & Cleaner Expo is concerned. The value is not in the money you can save on equipment and supplies with show specials – although that can be meaningful.

The real value is in the friendships you make, the networks of professionals you build and – especially – what you learn. Just one great idea about technical practice, marketing, team building or financial management can repay your investment five, 10 or 20 times over – next year and every year thereafter.

Go visit www.pumpershow.com and find out everything that's on tap in Indianapolis this year. Then consider booking your trip. A little getaway, at a time when most installers' businesses are in their slow season anyway, can be the best medicine for your business that you've ever found. ☐

lettertotheeditor

Where's the Break-Even Point?

To the Editor:

In response to your recent "Breaking Ground" column ("Who's More Efficient?" in *Onsite Installer*, October 2012): Bean counters like to measure absolutes, especially when it comes to efficiency.

Granted, smaller wastewater treatment systems are less efficient. However, a small amount of pollution does not have the same effect as the absolute larger amount of pollution added by larger systems. Even though the cost (measured in whatever) decreases with increased size, the total amount of pollution also increases, and with that, the ability of the environment to handle it decreases.

In this case, the economy of scale becomes less efficient the larger the enterprise. In addition, due to combination sewer and storm systems, the whole system shuts down in wet-weather events, contributing huge amounts of pollution of a different type. I hope the bean counters included this in their method.

I do believe that at some point a centralized system is necessary, and I would hope that scientists would look at where this break-even point is.

Steven Balogh
Contractor's Plumbing Services
St. Joseph, Mo.

CHURCH Onsite partner Bob Wright, shown double-checking a system plan, works with partner Kate Carney to craft homeowners' dreams around Colorado's comprehensive regulations. (Photography by Pete Lawlor)

Niche Built on KNOWLEDGE

CHURCH Onsite helps clients cost-effectively navigate the challenges of Colorado regulations and the state's variable soils and topography

By Gil Longwell

On the slopes and in the valleys of Colorado's Rocky Mountains, the system designers at CHURCH Onsite Wastewater Consultants help protect the environment while managing clients' costs and satisfying environmental regulations.

In their work environment, it's especially critical to know the prevailing onsite regulations when considering system locations and design options. When an increase in design flow of just 2 gallons per day can increase project costs tenfold and stretch the approval calendar from weeks to months, this knowledge is in demand.

Their ability to guide owners through the design process gives CHURCH Onsite partners Robert (Bob) Wright, P.E., and Kathryn (Kate) Carney an advantage.

Regulation-driven

While Colorado regulations are complex, neither partner suggests they are inappropriate. Instead, they craft owners' dreams around them. The two have guided landowners for the past five years, but Ed Church founded the firm more than 30 years ago. When he retired, Wright and Carney bought the company's onsite design segment.

CHURCH Onsite occupies a profitable niche. The market extends 175 miles from home base in Lakewood, about 13 miles west of Denver. "We work hard to identify the best system for a property and create a design that has the least environmental impact," says Wright. "At the same time, it is one that can be installed at the lowest price."

(continued)

CHURCH Onsite Wastewater Consultants, LLC, Lakewood, Colo.

OWNERS:	Robert (Bob) Wright and Kathryn (Kate) Carney
YEARS IN BUSINESS:	5 years
MARKET AREA:	175-mile radius
SPECIALTY:	Onsite system design
EMPLOYEES:	2
AFFILIATIONS:	Colorado Professionals in Onsite Wastewater, National Association of Wastewater Technicians, National and Colorado Environmental Health Associations
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Colorado's soils and topography create design challenges, and Bob Wright has made a living by designing systems that fit challenging conditions. (Chambers by Infiltrator Systems)

Before going to a site, they develop a profile of the project. "Answers to a list of questions, such as how many livable square feet will there be, how much sewage will be generated, what are the characteristics of the sewage, and what are the owners' hobbies and lifestyle, all create a picture of the demands that will be placed on the system," says Wright. That, along with the site's soils, slope, perc rate, landscape position and soil morphology, go into the process of matching a system to the site.

Attention to detail

Across the country, many jurisdictions have fixed setbacks from various features that usually come into play whether those features are on the subject site or a neighboring property. Colorado has an "8-foot rule" that specifies variable separation distances between certain system features on the same property. Under that rule, when a system's flow is greater than 1,000 gpd, the various separation distances increase by eight feet for every additional 100 gpd. For example, the required separation between two 1,999 gpd absorption areas is 520 feet.

For CHURCH Onsite, conventional septic systems are the exception, not the rule. Alternative systems with sophisticated controls are the company's stock in trade. (Control panel by Orenco Systems)

"The process can vary by county. Some require a complete design process, some do not. Some maintain a comprehensive permit archive, some do not."

Kathryn Carney

"Keeping flows below 2,000 gpd is important," says Carney. Systems with flows above 2,000 gpd are permitted by the state, rather than by the local jurisdiction. Legitimately avoiding that threshold and the extra cost it entails is part of the added value CHURCH Onsite brings to projects.

When meeting with clients, the partners explain the basic tasks, the overall process to permitting, and the costs involved. The work starts with property and site evaluations and moves on through system design, permitting, bidder interaction and spot observations of the installation as it moves forward.

"The process can vary by county," says Carney. "Some require a complete design process, some do not. Some maintain a comprehensive permit archive, some do not." Wright explains that a lack of good historical permit records can be a major obstacle, and it can put them at a significant disadvantage when trying to understand a malfunctioning system. "During construction, we do not conduct inspections. Rather, we complete observations on behalf of the owner," he says.

(continued)

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"I like the Colorado low-pressure drip system. It is appropriate for sites with a slower perc rate — slower than, say, 100 minutes per inch. They can be installed with a minimum of site disturbance using an 8-inch-wide trenching tool."

Robert Wright

Three observations are typical: They occur when the excavation is complete but before components are placed; immediately before cover; and at or immediately before activation. Because the owners designate CHURCH Onsite as their personal observer, either partner can order changes to bring the work into conformity with a permit.

"In the end, it is the regulator's role to conduct inspections," Carney says. "Essentially, we hold the client's hand from start to finish. We are their go-to resource when they have questions."

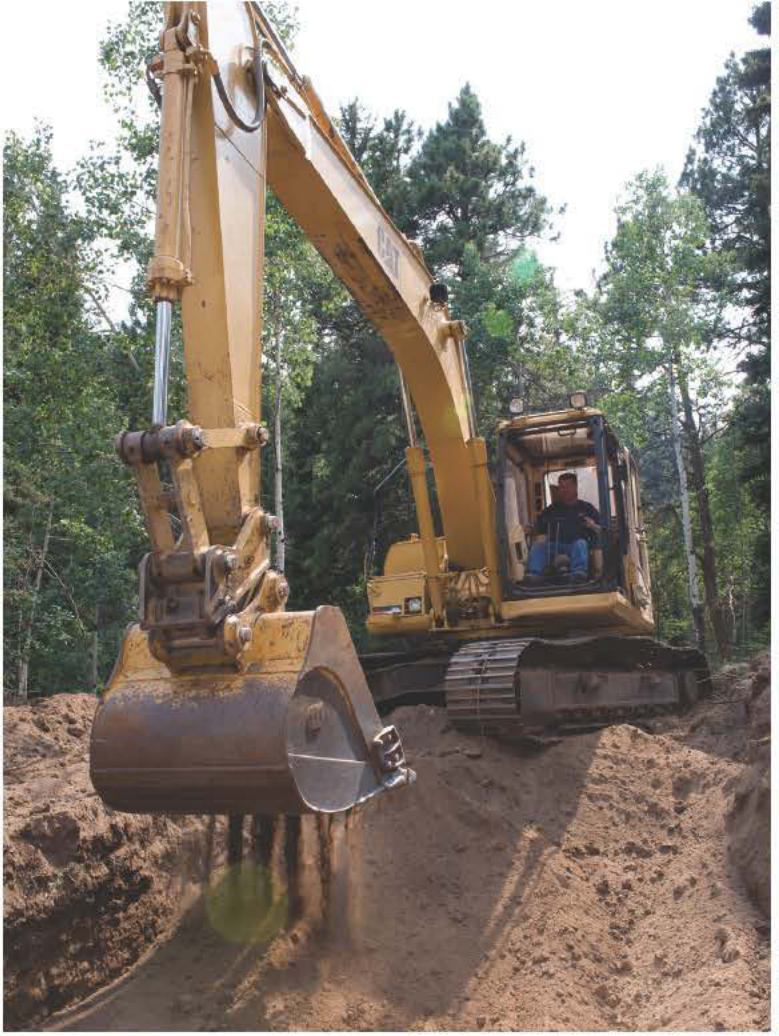
Overcoming obstacles

Wright and Carney can select from a wide range of systems defined in the state regulations. Each configuration addresses specific obstacles. In addition to conventional trench and bed absorption areas, they find uses for mounds, low-pressure drip irrigation systems and other designs in their geologically diverse service area.

Family Style

About six months ago, Kathryn Carney's first child, Abby, came along. Soon thereafter, Mom started bringing Abby to work with her. They had to change some assignments to make it work, but so far the arrangement has turned out fine, she and partner Robert Wright agree. A small business is a family when there are only two principals. Work and life overlap.

In their office, Abby's presence hasn't changed the focus on creatively meeting clients' needs. "I can tune out Abby's cheerful noises without ignoring her needs and still concentrate, should Kate be engrossed on a call," Wright says. Thirty years her senior, Wright has a more flexible schedule and lifestyle. "We have found ways to overcome or avoid stressful situations," he says. "We make it work as any family would."



The company works with local professionals to install systems. Here, Scott Chivers, owner of SRC Enterprises Excavating and Trucking Contractors, prepares a site.

"I like the Colorado low-pressure drip system," says Wright. "It is appropriate for sites with a slower perc rate – slower than, say, 100 minutes per inch. They can be installed with a minimum of site disturbance using an 8-inch-wide trenching tool." The drip pipe, typically 2-inch PVC, arrives predrilled with 1/4-inch orifices on 8-inch centers. When installed, the orifices face down.

"Although the installation depths established by the state can range from 12 to 30 inches, I believe shallow is better, and I keep my designs shallow whenever I can," Wright says. Ed Church gets credit as one of the first proponents of the Colorado design back in the late 1980s.

These low-pressure drip systems are not found in Colorado regulations but are allowed under an administrative letter, issued by the state Department of Public Health and the Environment. They are sized using a long-term acceptance rate (LTAR) set by that document. Typical LTARs range from 0.72 to 0.95 gallons per inch per day. Some counties set specific rates.

"The LTAR load calculation and system sizing process was established in place of a traditional perc test, because perc testing was perceived as yielding a too generous absorption area size," says Wright. "Too generous means too small a system footprint. Perc rates enabled systems to be underdesigned." There seemed to be a disconnect between real-world experience of actual septic tank effluent compared to perc test results gathered with clean, potable water.

CHURCH made a corporate decision to set its design minimum absorption area for these drip systems at 4,000 square feet. "The state's design standards expect full distribution across the entire system," says Wright.

"However, without a minimum head requirement, there is no assurance that goal is ever satisfied."

Using technology and ingenuity, the partners developed a work-around to ensure that the full system is utilized, but not all at once. The company designs absorption area distribution networks in several zones. "At any given time, only one of the zones is receiving flow," says Wright. "This is achieved by installing an automatic sequencing valve. Each time the pump is activated, the effluent is directed to the next zone."

Dealing with fractured rock

Regardless of the distribution configuration, every design includes an effluent filter installed at the outlet baffle of the final septic tank compartment. "Avoiding the installation of a filter is a foolish way to avoid spending $200," says Wright.

"We assume nothing about a site; we verify everything. We are professionals, delivering a quality, detailed product in what is generally regarded as a nonprofessional industry."

Robert Wright

Another design concept is the over-excavated system. These systems are routinely installed on sites where weathered, highly fractured rock is found. The total excavation depth is 6 feet, and the lower 4 feet of space is filled with a graded fine aggregate sand, creating a subsurface sand filter.

In many cases, the excavated material, after analysis and texturing, is found to be suitable as the fine aggregate. On top of that material, 12 inches of coarse aggregate is placed, and within that, a distribution pipe network is installed. Infiltration chambers can be substituted for the coarser material. To establish and sustain vegetation and prevent erosion, the rest of the excavation is covered with about 12 inches of suitable soil.

CHURCH Onsite partner Kate Carney examines a float tree from Orenco in a septic system.

Focused resources

The CHURCH Onsite partners share office and field tasks. Wright is a designated design engineer, and Carney, who will soon attain P.E. status, is a designer and administrator. For the most part, both are comfortable doing anything that needs doing. In the office, Carney takes the lead on administrative tasks, while Wright leads on technical tasks. They have similar preferences in the field.

The partners choose not to install systems or do maintenance. This avoids the expense of maintaining an array of equipment. When necessary, they hire experienced operators and the appropriate machines for the tasks at hand. Hand augers, a geologist's pick, long tape measures, a hand-held GPS receiver and a Munsell color chart all travel well in a van, an SUV or even the trunk of the family car. State and county regulation documents and their own custom-created work sheets are also field essentials.

"We assume nothing about a site; we verify everything," says Wright. "We are professionals, delivering a quality, detailed product in what is generally regarded as a nonprofessional industry."

Carney adds, "We charge more for a design and we deliver more. Our relationships with clients continue well past their receipt of an installation permit."

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Jim Anderson and Dave 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.

Keeping Water Out

Two standard tests can determine whether a septic tank or other tank is watertight and therefore suitable for installation

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

When we conduct workshops and discuss inspecting and installing sewage tanks, we always stress that they need to be watertight. This usually leads to quite a discussion of what constitutes watertight, why it is important, and what happens if tanks are not watertight.

Watertight means water does not leak into or out of the tanks. If the leakage is from the tank out, sewage escapes into the soil. Since it is introduced as saturated flow, it can move into shallow groundwater or through bedrock fissures and become a source of contamination.

If water leaks or flows in, excess water is introduced to the tank. This will interfere with storage and settling of solids and reduce tank retention time. This in turn can mean premature clogging of other components, such as effluent screens. More important, inflow hydraulically overloads the soil treatment unit by creating flows much larger than the design values.

Also, when not watertight, the tanks can be subject to root penetration. Roots can block inlets and outlets and create other cracks and holes in the tank that will let water in and out. If there are roots in the tank, it is not watertight and needs to be repaired or replaced.

There are two recognized tests for watertightness: hydrostatic and vacuum. Both can be conducted where the tank is manufactured and upon installation at the site.

Leakage sources

Tanks generally are not monolithic objects. The most common sources of leaks are joints, seams and defects. These include:

- The midseam joint of two-part tanks
- Top seam joints for the tank lid
- Access riser connections
- Inlet and outlet pipe penetrations
- Cracks or holes caused by poor construction or installation practices

One item sometimes overlooked is the weep hole at the tank bottom that allows water to drain out while the tank is being stored. This hole needs to be properly plugged at installation.

A concrete tank installation shows three critical locations that must be sealed properly to maintain a watertight tank: the inlet and outlets for the piping, the top seam, and the connection between the tank and the riser.

To the test

There are two recognized tests for watertightness: hydrostatic and vacuum. Both can be conducted where the tank is manufactured and upon installation at the site. For concrete tanks, the National Precast Concrete

Association (NPCA) requires members to follow a production testing protocol to check tanks as they are manufactured. Not every tank gets checked, but there is a quality control check that involves watertightness, and it is set forth in the association's *Septic Tank Manufacturing Best Practices Manual*.

Installers need to recognize that they are concerned with watertightness where the tank is installed. Therefore, the best tests include all of the piping and risers that will be present as a part of the final installation. Here are short summaries of each test.

Hydrostatic test

Pay attention to manufacturers' data sheets for their products, especially when testing plastic or fiberglass tanks. Carefully follow their requirements for backfill around the tank ahead of any hydrostatic testing. For any mid-seam tank, it is important to be able to evaluate that seam. Therefore, the backfill should not cover the seam.

The inlet and outlet pipes should be plugged using pipe with a cap or some other watertight plug at the desired location in the pipe. Fill the tank to the top. If there is a riser, add water to 2 inches above the tank/riser seam. Take care not to overfill a two-piece tank, since that may cause the top to become buoyant.

Measure the water level and leave the tank for 24 hours. If there are any signs of leakage, suspect areas should be resealed. After 24 hours, refill the tank to the original level. After another 24 hours check for leaks again. If less than one gallon is lost, the tank is considered watertight. If the leaks cannot be repaired, the tank is unacceptable.

Vacuum testing

Vacuum testing is generally the preferred method, mainly because it takes less time and does not involve large quantities of water. In this test, it is again important to test the tank in the condition in which it will be when installed.

All pipe penetrations, manholes and risers must be sealed airtight. A special insert is placed on one of the manholes. Using a pump, air is evacuated from the tank to a standard vacuum level. According to the NPCA standard of practice, the recommended level is four inches of mercury. This pressure must be held for five minutes.

During this period there is an allowable pressure drop of one-half inch of mercury. If the pressure drops, it must be brought back to four inches for five minutes with no pressure drop. As with the hydrostatic test, leaks are repaired and the test repeated. If the leaks cannot be repaired, the tank should be replaced. Deformation, cracking or collapse indicates a poor-quality tank.

For fiberglass-reinforced polyester and polyethylene tanks, be sure to follow the manufacturer's guidelines on water testing to avoid damage or implosion. Information on the best practices for these tanks can be obtained from the manufacturer or from the International Association of Plumbing and Mechanical Officials (IAPMO), which has a material and property standard for prefabricated septic tanks.

Keep it legit

As always, pay attention to local and state requirements. Those regulations usually stipulate that if there is any difference between local requirement and national standards, the local requirements take precedence.

We also get questions on watertightness for existing tanks, particularly for real estate inspections or for inspections in conjunction with maintenance contracts. Here, it is important to pump the tank and conduct a thorough visual inspection both for watertightness and structural integrity. A hydrostatic or vacuum test would require a day or more.

A visual inspection should reveal any cracks or holes that can let water in or out, and identify root penetration. Always exercise caution when pumping tanks and conducting tests to avoid collapsing the tank or, in the case of high groundwater, having the tank float to the surface.

Knowledge On Tap

Expo seminars offer abundant learning opportunities for installation practice and general business management

By Ted J. Rulseh

Fill up on knowledge at the Pumper & Cleaner Environmental Expo, Feb. 25-28. You'll find full tracks of seminars given by trainers with leading industry associations.

Here's a rundown of seminars of special interest to designers and installers of onsite treatment systems.

Education Day, Monday, Feb. 25

The day's highlight is a keynote presentation on "The Business of Contracting" by Dan Friesen of the Nexstar Network (Formerly Contractors 2000). From 3 to 5 p.m., Friesen will cover business principles taught for many years by Frank Blau Jr. that have helped thousands of contractors treat customers to first-class service, provide employees with first-class benefits, and earn an income commensurate with the service they deliver.

Friesen, a Nexstar master trainer, comes from a long line of tradesmen, having worked for a plumbing, heating and cooling business as an installer, service technician, comfort advisor, marketing manager and general manager. In 2009, he started his own business, where success and growth continue to be his trademarks.

National Association of Wastewater Technicians

"Introduction to Pressure Distribution," by onsite consultant Kit Rosefield: Learn how and where to use pressure distribution, practices for installing pressure laterals in gravelless media, and much more.

"Designing Systems: Boundaries and Barriers from a Soils Perspective," by Jim Anderson of the University of Minnesota: Focus on soil design principles for both gravity and pressure distribution systems.

"Pump Choices and Settings: Decisions for Proper Operation," by Dave Gustafson of the University of Minnesota: Get an in-depth look at pump selection and sizing, float setting, timers, controls and dosing.

"Operation and Maintenance of Pressure Distribution Laterals," by Bob Wright, P.E., of CHURCH Onsite Wastewater Consultants: Learn drainfield layouts for aboveground and at-grade systems, plus ways to clean laterals, and types of lateral clean-outs and inspection ports.

"Installing with Management in Mind: How to Get the Most out of Your System," by Dave Gustafson: Learn how to create systems that are easy to maintain and service for the long term.

National Environmental Health Association

"What Makes a Professional in Onsite Wastewater Systems?" by Doug Lassiter of the North Carolina Septic Tank Association: Learn to build a professional reputation and increase your business potential.

"Parts One and Two: The Science and Engineering of Onsite Wastewater Treatment," by A. Robert Rubin of North Carolina State University: Learn the physical, chemical and biological processes behind onsite systems, and study advanced treatment, screens and filters, effluent pumps and system design requirements.

"Education & Training: Professionalization of the Practitioners," by Anthony Smithson of NEHA: Discover how education and training can enhance the industry and your business.

"Management Models & Entities: Management and Becoming a Management Entity," by Anthony Smithson: See how management models can expand your business and increase onsite system effectiveness.

"The Future of the Onsite Wastewater Industry: How to Make it Work for You!" by Doug Lassiter: Find out how you can incorporate what you learned in the NEHA sessions into your business and build a prosperous future.

National Onsite Wastewater Recycling Association

"Time Dosing – Why? How? And How Much?" by Tom Fritts of Residential

Sewage Treatment Co.: Learn the benefits of time dosing, from extending drainfield life to reducing the cost of some installations.

"Loading Rates – How Much Can the Soil Take?" by Sara Heger of the University of Minnesota: Find out how quantities and quality of wastewater vary by dwelling and how to design for them.

"Troubleshooting Pumps, Floats and Panels," by Tom Fritts: Learn the steps to becoming a skilled troubleshooter of pumps, floats and panels.

"The Dirty Dozen – Toxins That Kill Septics," by Sara Heger: Learn the effects of chemicals, cleaners, medicines and antibacterial products on septic systems and find out about alternatives.

"How Installers Can Use the Poor Economy to Increase Profits," by Tom Fritts: Discover how to make the economy your sales partner and increase profits.

"Are Seepage Pits Really Bad?" by Sara Heger: Explore issues related to proper siting, design and impact to the environment, including soil phosphorus and chlorides in the groundwater.

"Designing Drip Dispersal Systems," by John Buchanan of the University of Tennessee: Learn drip irrigation technologies, their advantages and the hydraulic principles that allow these systems to function.

"Soil Erosion Control During and After Septic System Installation," by John Buchanan: Learn how to control erosion, manage stormwater, and quickly establish vegetative cover over newly installed septic systems.

"Decentralized Wastewater Collection System Maintenance," by John Buchanan: Find out about the maintenance required to ensure the long-term success of decentralized collection systems.

Wednesday, Feb. 27

"Advanced Installer Course," by Jim Anderson and Dave Gustafson: Cover all the basics of sound onsite system installations, including site evaluation, system sizing and basic design, pumping, advanced treatment units, installing for management, troubleshooting, and more.

BETTER BUSINESS

A popular education feature at the Expo is the business seminar program. This year's highlight is the all-day seminar, "2013 – Your Best Year Ever," given by business coach Scott Hunter on Education Day, Monday, Feb. 25. In previous Expo appearances, Hunter has drawn full rooms with his easygoing yet inspiring style. Other general business seminars:

Education Day, Monday, Feb. 25

"The Art and Science of Business Management," by Bill Raymond of Frank & Lindy Plumbing, Heating & Cooling: Learn how to rid your business of "money thieves" and meet revenue and profit projections.

"The Business of Contracting," by Dan Friesen of the Nexstar Network: Discover the success secrets of Frank Blau Jr. for building a healthy, strong, profitable company.

Tuesday, Feb. 26

"New Untapped Techniques to Capture Today's Customers," by Jerard Nighorn of Lenzyme: Learn seven steps to capturing and keeping customers and getting customers to market for you at no cost.

"10 Steps to Marketing Success," by Suzan Chin of Creative Raven: Discuss branding, promotion, publicity, advertising, social marketing, electronic communication and more.

"Cloud Computing for Small Business and the Field Service Industry," by Oren Shatken of FoundOPS: Explore how cloud computing can improve your productivity.

"Don't Win the Price Game," by Frank Taciak of C.A. Taciak & Sons: Discover how to get out of the low-price trap, charge for the real value of your services, and operate more profitably.

"Make the Phone Ring with Low-Cost Marketing," by David Heimer of Service Roundtable: Discover proven techniques to attract customers and recruit top employees without expensive print, TV or radio advertising.

"Local Marketing on the World Wide Web," by Jim King of COLE, Inc.: Discover how you can market on the Internet to a highly qualified local market through searches, social media or email.

Wednesday, Feb. 27

"Save Money – Move Your Business to the Cloud," by Joel Smith of Clear Computing: Learn the types of cloud computing, how they affect your business, and the pros and cons of using this resource.

"Morally Bankrupt," by Dina Dwyer-Owens of Mr. Rooter/The Dwyer Group: Learn how to Live R.I.C.H. by embracing Respect, Integrity and Customer focus, and Have fun in the process.

"Measuring Success Matters: Your Ads, Your Agents, Your Technicians," by Ara Mahdessian and Vahe Kuzoyan of Service Titans: Spend an hour learning how to focus on generating more leads, booking more appointments, and closing more sales, and why measuring success is the key to all three.

Two for One?

Loader backhoes provide great versatility and high job site productivity. Here is some practical advice for selecting the machine that best fits your needs.

By Linda Edmondson

Each year brings new business opportunities and new challenges, but also some of the same decisions. For example, is it time to replace an aging machine? Or should you try to make do for another year?

For those tempted to invest in an additional or replacement machine, there's a lot to consider. You may want to try a different approach to the equipment you use on job sites. Onsite contractors often use two machines for installations: a compact excavator or backhoe for trenching and digging, and a skid-steer loader for soil removal.

An alternative is a loader backhoe: It lets you handle essentially all installation tasks with one machine, thus making your equipment and operators more productive.

Loader backhoes with a standard 14-foot digging depth have been a popular choice for years, but today it may be worthwhile also to consider larger models with 16-foot digging depth for the added functionality they offer.

"The backhoe loader is without a doubt one of the most efficient and productive machines around. And it really provides the most versatility for septic system installers."
Katie Pullen

More than a shovel

"The backhoe loader is without a doubt one of the most efficient and productive machines around," says Katie Pullen, marketing manager for Case Construction Equipment. "And it really provides the most versatility for septic system installers."

Whether used for excavating, trenching, backfilling or building a mound, modern loader backhoes are becoming more versatile every year, Pullen says. A variety of bucket sizes are available, along with different bucket configurations – narrow ones to trench alongside a house, and wider ones for digging the hole for the septic tank or trenches for the drainfield.

Other attachments (see below) can add even more productivity. "It has been common practice for many years for larger equipment – such as standard or mass excavators – to use attachments, but now loader backhoes can use these types of attachments on smaller projects," Pullen says. "It's all about making that one machine more and more versatile."

Decision factors

A great deal goes into the selection of a machine: Pullen offers several key areas to consider and questions to ask.

Cost to operate. While the initial investment may be higher for the newer Interim Tier 4 machines, it's important to weigh long-term operating costs, as well. Interim Tier 4 engines that leverage cooled exhaust gas recirculation (CEGR) technology and a diesel particulate filter will provide faster response time and at least 4 percent better fuel economy while maintaining the desired power and performance, Pullen says.

Maintenance. Can you make daily maintenance checks from the ground level? Or do you have to climb onto the machine and remove covers to check fluid levels and hydraulic gauges or discover the source of an oil leak? Are all filters easily accessible? Are grease fittings or other lubrication points easily accessible?

Operator productivity. If operators are used to a certain control system, it's worth considering a replacement machine with the same type of controls. If new operators are coming on board, they may be more productive with the newer and now more universal pilot-style controls. Does the cab provide good visibility on all sides of the machine? Do the windows open to allow easy communication and provide cross-ventilation? Are the seats ergonomically designed and comfortable? Are there armrests and wrist positioners to reduce fatigue?

Attachments. Does the machine accommodate popular tools like hydraulic augers, hammers and tampers for the backhoe, and forks, grapples, rakes, brooms, snow blades and combination buckets for the loader? Can you change buckets and attachments without leaving the cab? Hydraulic quick couplers let operators make changes in seconds. A mechanical quick coupler also can help speed changes, but it does require the operator to leave the cab.

Climate-specific needs. Installers in northern climates usually have to dig deeper due to frost. In such cases, you may want to consider an extended arm for the extra depth it provides, says Pullen. It's also worthwhile to consider whether the machine's break-out force is sufficient for work in frozen soils.

Project size. How big are the biggest systems you install? Consider the

maximum size and weight of septic tanks, especially if you install larger two-compartment tanks. Depending on what other machinery you have at hand, you may want to make sure the loader backhoe you select can lift and maneuver any tank you may need. Some machines offer features that provide a power boost to move objects that might otherwise require an excavator, or to break through in tough soil conditions. "Buying a more expensive machine like an excavator to lift and place septic tanks definitely gives installers a lot of machine, but overall it may be more machine than they need and more than they need to pay for," Pullen says.

Choose wisely

Ultimately, the decision to buy a loader backhoe instead of an excavator and a loader depends on your operation – how many operators you have, how many jobs you work on at a time, and what performance you require from your machines.

"There's not a right or wrong answer," Pullen says. "But loader backhoes live up to their name, delivering loading, excavating and fast travel in one machine. Septic system contractors should at least include them in their considerations when they're ready to buy." ☐

SO MUCH TO SEE

The 2013 Pumper & Cleaner Environmental Expo will feature wall-to-wall tools and equipment to build your business

By Ed Wodalski

Ask any regular attendee of the Pumper & Cleaner Environmental Expo International what keeps bringing them back and they'll tell you it's seeing the latest products and services in one gigantic location.

With hundreds of vendors in Indianapolis this year, it will be a challenge to see it all. To make sure you don't miss any of the breakthrough offerings at the Indiana Convention Center, there's an interactive floor plan at www.pumpershow.com.

Whether you're a first-time visitor or repeat guest, the 33rd annual Expo will have all you need to build efficiency and profitability for your business. Here's a look at some of the products and services you won't want to miss.


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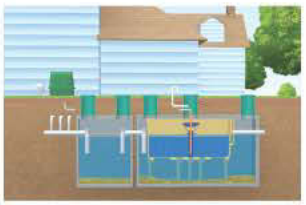
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TREATMENT SYSTEMS

1 Anua

The Puraflo peat fiber biofilter features a modular design with flexible phasing options and peat fiber media. The system offers low-maintenance, long life and low operating cost. The Platinum submerged aerated filter, approved in Virginia, Delaware and Maine, offers low power consumption and reduced maintenance in a small footprint. **800/787-2356; www.anua-us.com; Booth 2145.**

2 AK Industries

The Hydro-Action aerobic treatment system is NSF 245 certified at 400 and 500 gpm. It uses suspended aeration and an activated sludge design with engineered recirculation to achieve consistent denitrification without media filters or carbon additives. **800/370-3749; www.hydro-action.com; Booth 2281.**

3 Bio-Microbics

The MicroFAST aerobic treatment unit offers fixed integrated treatment technology (FITT) and a completely submerged fixed-film process, which provides a high surface-to-volume ratio to maintain microbial growth during low, average and peak usage. The system serves homes, subdivisions and commercial applications. **800/753-3278; www.biomicrobics.com; Booth 2103.**

4 Norweco

The Singulair Green aerobic wastewater treatment system includes a watertight, high-density polyethylene tank. The 916-pound tank uses Singulair Green technology to treat up to 600 gallons of domestic wastewater in less than 24 hours. The system has built-in, non-mechanical surge control, filtration and disinfection. It can be buried with up to 3 feet of fill. **800/667-9326; www.norweco.com; Booths 2453, 2456.**

5 Orenco Systems

The AdvanTex AX-RT advanced treatment system, designed for system repair and rehabilitation, can be installed after a watertight septic tank to produce reuse-quality effluent. All interior components are pre-plumbed and adjusted. The 4-in-1 design includes recirculation, treatment, disinfection and discharge. Options include a UV disinfection unit. **800/348-9843; www.orenco.com; Booth 4010.**

6 Presby Environmental

The Advanced Enviro-Septic septic treatment and dispersal system is designed for residential, commercial and community use. Designed to remove up to 99 percent of wastewater contaminants without electricity or replacement media, the passive system establishes multiple bacterial treatment environments that break down and digest contaminants. **800/473-5298; www.presbyenvironmental.com; Booth 3006.**

SEPTIC SYSTEM COMPONENTS

7 Advanced Drainage Systems

The GEO-flow pipe leaching system provides advanced secondary treatment and final dispersal of residential-strength septic tank effluent. The pipe component consists of a 10-inch single-wall pipe encased in a symmetrical polypropylene grid wrapped in a 4-ounce geotextile fiber fabric. The three-component conduit is encased in a 6-inch layer of system sand. **800/821-6710; www.ads-pipe.com; Booth 6119.**

8 Bear Onsite

The ML2-920 filter cartridge lets installers use the built-in cartridge handle to install a single pipe extension for applications where the cartridge is only a few feet below grade, or install dual pipe extensions so two hands can be used to guide the cartridge and safely secure it. **877/653-4583; www.bearonsite.com; Booth 5306.**


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9 Hedstrom Plastics
Polyethylene septic tank covers fit standard 18- and 24-inch double-wall corrugated pipe (safety net available). Gaskets and safety hardware are included. Covers can be filled with sand for added weight. Foam-filled lids are available. Covers can be personalized with company name and are available with tank adapters in 18- and 24-inch sizes. **800/765-9665; www.hedstromplastics.com; Booth 1319.**

10 Infiltrator Systems
The IM-1060 injection-molded tank uses a two-piece design with a working capacity of 1,094 gallons. Applications include onsite wastewater, rainwater harvesting and non-potable water storage. The unit is available with custom-fitted risers and lids. The tank can be installed with 6 to 48 inches of cover and pumped dry. **800/221-4436; www.infiltratorsystems.com; Booth 5242.**

11 Jet Inc.
The J-500-800PLT plastic tank is available in capacities from 500 to 800 gpd. The seamless tanks are rotational-molded from lightweight polyethylene for strength and durability. **800/321-6960; www.jetincorp.com; Booth 2275.**

12 Netafim USA
Bioline polyethylene low-volume dripperline is designed for onsite systems with domestic-strength wastewater to secondary-treated effluent. The debris-resistant line is self-flushing and pressure compensating. The drippers deliver a precise application rate over a broad pressure range and are impregnated with an antibacterial agent to prevent slime buildup. **888/638-2346; www.netafimusa.com; Booth 2279.**

13 Polylok/Zabel Environmental
The 6-inch Extend & Lok inlet or outlet pipe extension is designed for commercial applications and can be used with any 6-inch pipe or effluent filter that requires large flow. **877/765-9565; www.polylok.com; Booth 2000.**

14 Premier Tech Aqua
The DiUV self-cleaning disinfection unit is designed for new or replacement systems where stream, ditch or surface discharge is permitted. The self-cleaning quartz sleeve automatically starts six times a day (2,000 cleanings a year) to help maintain optimal disinfection performance. **800/632-6356; www.premiertechaqua.com; Booth 4118.**

15 Roth Global Plastics
The MultiTank can be used as a water cistern, rainwater tank or septic tank. Features include an inner layer of FDA-approved virgin HDPE, two inside layers of polyethylene for improved stability, and an outer layer of black and UV-stabilized polyethylene. The tank is CSA, NSF and IAPMO certified. **866/943-7256; www.roth-america.com; Booth 4124.**

16 RotoSolutions
The 24-inch septic lid is made of heavy-duty, rotomolded plastic and weight-rated for 3,500 pounds. **800/868-0973; www.rotosolutions.com; Booth 2101.**

17 Sim/Tech Filter
The No-Vault pump filter protects turbine pump intake screens. Filtration is achieved through a 6-inch diameter PVC screen with 1/16-inch diameter perforations (stainless steel screen available). Models offer 139 or 325 square inches of open area. **888/999-3290; www.simtechfilter.com; Booth 2206.**

18 Tuf-Tite
Riser lids have internal ledges that support plastic internal safety lids, concrete or fiberglass lids, or a rope net. Lids include safety screws. **800/382-7009; www.tuf-tite.com; Booth 6108.**

PUMPS

19 Champion Pump Co.
The 35-pound CPEH5 pump is designed for long pipe runs or high static heads. It can pump through the equivalent of 5,200 feet of 2-inch pipe (based on 5-inch static head) and handle 3/4-inch solids. Features include 115-volt PSC motor (230-volt optional) and 20-foot power cord (50-foot available). **800/659-4491; www.championpump.com; Booth 2377.**

20 Glentronics
PHCC Pro Series residential sewage pumps handle up to 2-inch solids. Features include cast iron or cast iron/stainless steel construction, PSC water-cooled motor, dual-carbon ceramic seals, and 10-foot power cord. Pumps handle 4,440 gph/74 gpm at 10-foot head (model E7040) or 5,340 gph/89 gpm (E7055) with a maximum head of 23 feet. **800/991-0466; www.stopflooding.com; Booth 1434.**

21 Septic Services
The STA80AL Whirlwind pump has an integrated audible alarm and warning lights. It has an open flow rate of 2.9 cfm at 2.18 psi, weighs 16 pounds, measures 10 by 7 by 7 1/2 inches, and can accommodate up to 750 gpd. **800/536-5564; www.septicserv.com; Booth 3118.**

2013 EXPO PRODUCT PREVIEW

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ADDITIVES

22 Cape Cod Biochemical Co.

AfterShock bioremediation restorative is a blend of BIO-REM E-D, a high-count, USDA-approved granular bacteria/enzyme and time-released oxidizers that accelerate digestion and help degrade sulfides in the soil. The oxidizer is compatible with bacteria, enabling the leaching facility to be treated in one application. **800/343-8007; www.septiconline.com; Booth 6001.**

23 Ecological Laboratories

Pro-Pump/Total System Treatment Plus is a highly-concentrated microbial formulation designed for indoor use. The non-toxic formula cleans and deodorizes drain lines while seeding microbes in the septic tank and drainfield. A 64-ounce bottle treats the entire septic system for six months. **800/326-7867; www.propump.com; Booth 5247.**

24 Lenzyme

Bio Filter Wash is designed for cleaning septic filters while recharging septic systems. The environmentally-friendly, three-part formula breaks down organics, cleans the filter, and coats it with a biofilm. **800/223-3083; www.lenzyme.com; Booth 3026.**

25 Municipal Sales

Septic Drainer drainfield restorative works in septic systems to remove the bond between sodium and the soil that creates hardpan. **518/747-2044; www.septicdrainer.com; Booth 6241.**

26 RID-X Septic System Treatment

Septi-Pacs septic tank treatment are dissolvable pouches that contain a concentrated dual-action formula with enzymes designed to break down household waste, including detergents, soaps, grease and paper. The natural bacteria work to reduce tank buildup and prevent septic backups. **855/776-7439; www.rid-x.com/professionals; Booth 4120.**

27 Walex Products Co.

Bio-Active dissolvable septic tank treatment packets are environmentally-friendly and safe for all plumbing. One packet per month dropped into the toilet and flushed releases billions of bacteria and enzymes that help dissolve sludge, prevent backups, and keep drainfields working. **800/338-3155; www.walex.com; Booth 3213.**

ALARMS

28 OmniSite

The PitBoss water alarm monitors two sump pits, sending text messages to mobile devices warning of high water and power outages. A battery backup system is included. **317/885-6330; www.omnisite.com; Booth 1226.**

29 Septronics

The 2001 JJ1 pump control with alarm is 120- or 240-volt capable, watertight and UV-protected. The control is installation-ready with a control float switch for the alarm. A poly pedestal protects wiring and provides an area to connect to the tank. **888/565-8908; www.septronicsinc.com; Booth 2371.**

30 SJE-Rhombus

The Ultra Nator control and alarm system controls two alternating 120-volt, 1 hp or 15 amp single-phase pumps in duplex pump applications. The plug-and-play design includes a 10-foot power cord, floats, and angled pump receptacles to accept standard or right-angled pump plugs (no field wiring is required). The panel has LED indicators for the high-water alarm. **800/342-5753; www.sjerhombus.com; Booth 5116.**

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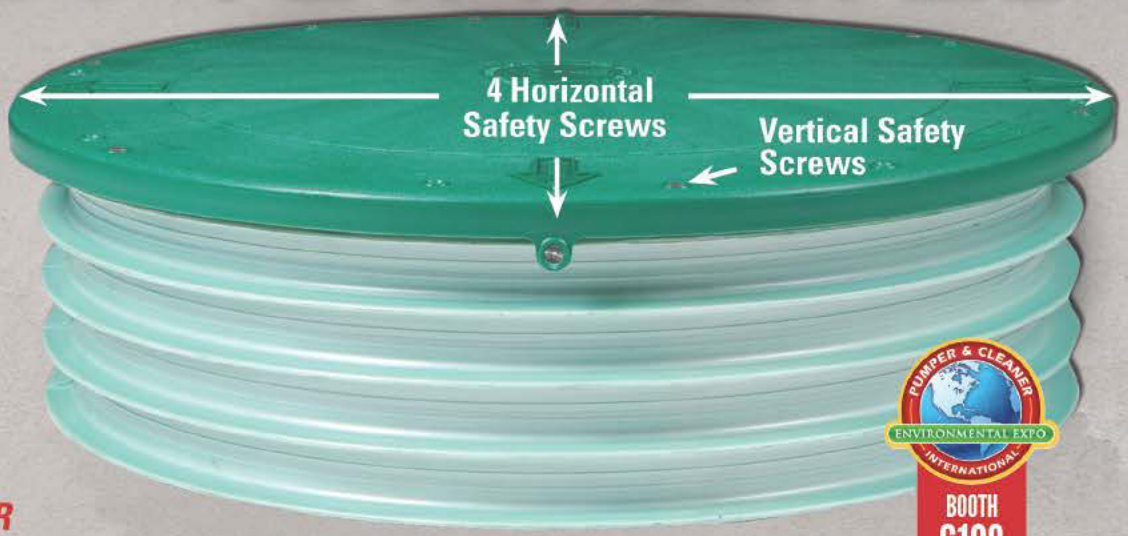

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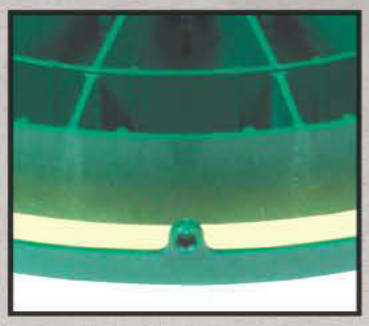

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Higher Levels

A STEP system with trickling biofilter serves a high-end lakefront subdivision on a site with substantial change in elevation

By Scottie Dayton

A developer wanted to build 108 weekend lake homes in an exclusive subdivision in Dandridge, Tenn. Dart Kendall, owner of Advanced Septic in Acworth, Ga., won the bid to design and install the private wastewater treatment plant.

Kendall worked with Bob Faulhaber, P.E., of Faulhaber Engineering and Sustainability in Cookeville, Tenn., to resolve site challenges. "The elevation rose 200 feet from one end of the subdivision to the drip fields, and some homes were a mile away from them," says Kendall.

The autonomous-redundant solution involved septic tank effluent pumping (STEP) systems, a trickling biofilter, high-pressure drip dosing, and programmable logic controllers (PLCs). The installation took four months.

At the left, the 35,000-gallon poured-in-place circular dosing tank; at the right, the treatment tank with shrubs planted around it. (Photos courtesy of Dart Kendall)

Site conditions

Soils are moderate angular blocky structure with 0.24 gallons per square foot per day loading rate. The steep and rocky site borders Douglas Lake at the foot of Great Smoky Mountains National Park.

System components

Kendall and Faulhaber designed the system to handle 26,460 gpd. Major components are:

- 1,000-gallon dual-compartment one-piece precast septic tank with Polylok effluent filter and two Polylok risers. Concrete tanks from Hommel Concrete, Newport, Tenn.
- 1,000-gallon single-compartment one-piece precast pump tank with 1/2 hp Myers high-head effluent pump
- 240 CF-1900 AccuPac Cross Flow trickling filter blocks from Brentwood Industries
- 35,000-gallon concrete dosing tank with duplex 1.5 hp Goulds sewage pumps, duplex Myers 1/2 hp high-head effluent pumps, and duplex 1.5 hp Myers filtered effluent (drip) pumps
- 1.5 hp high-pressure Goulds booster pump
- Three 2-inch disc filters from Arkal Filtration Systems

(continued)

SYSTEM PROFILE

Location:	Dandridge, Tenn.
Facility served:	108-home exclusive subdivision
System designers:	Dart Kendall, Advanced Septic, Acworth, Ga.; Bob Faulhaber, P.E., Faulhaber Engineering and Sustainability, Cookeville, Tenn.
Installer:	Dart Kendall, Advanced Septic
Site conditions:	Moderate angular blocky structure with 0.24 gallons per square foot per day loading rate
Type of system:	High-pressure dosed
Hydraulic capacity:	26,460 gpd

ABOVE: Dart Kendall stacks the media blocks (Brentwood Industries) four high in the treatment tank, leaving 12 inches of clearance at the top. RIGHT: Cliff Kendall buries drip tubing 9 inches deep using a Caterpillar 226 skid-steer loader with Bradco trencher (Paladin Construction Group).

- Three elevated tanks from ChemTank holding a combined 20,000 gallons
- 40,000 feet of Geoflow drip tubing with 10 Rain Bird 2-inch solenoid valves
- Flowmeter from SeaMetrics
- DirectLOGIC 205 PLC system from Koyo Electronics Industries Co. (AutomationDirect)

"The elevation rose 200 feet from one end of the subdivision to the drip fields, and some homes were a mile away from them."
Dart Kendall

System operation

Effluent from the STEP pump tanks enters a 1.25- to 4-inch PVC Schedule 40 force main discharging to the dosing tank. At 10,000 gallons, the alternating high-head effluent pumps send 2,000 gallons to the elevated tanks 70 feet higher than the treatment plant. Hydrostatic pressure then feeds water through disc filters in the control room to eight mister sprayers totaling 3 gpm in eight risers on the treatment tank.

"Running the misters continually feeds the microorganisms and produces much cleaner effluent for less energy," says Kendall. "Digestion is so thorough that there is very little biomass, which sloughs off, drains to the dosing tank, and is pumped out eventually. Our BOD levels are less than 2 mg/L."

The spray system also has 16 mid-size sprayers totaling 30 gpm that activate as needed, and eight sprayers delivering a combined 300 gpm to dispense shock loads. The latter run only with the plant at capacity.

The 2- by 2- by 4-foot media blocks, stacked four deep inside the treatment tank and surrounding a hollow center column, sit on adjustable bases with cut-to-length stanchions that make sure the blocks clear the ceiling by 12 inches. Two 1/3 hp fans in the tank pull 30,000 cfm of air down through the blocks and exhaust it out the column. Intake and exhaust pipes have carbon scrubbers to prevent odors during power failures.

Each block has 48 square feet of surface area per cubic foot. After trickling through the media, effluent drips out the bottom of the stacks to the floor drain and gravity flows to the dosing tank. When the system is at capacity, the sewage recirculating pumps will run every five minutes. An effluent pump sends water to the 3.5-acre drip field via a 3-inch PVC pipe sized to reduce friction loss.

Because the field is 100 feet of head above the plant, the booster pump in the control room cycles with the effluent pump to supply enough pressure. All the pumps run daily for a minute to prevent corrosion. Solid-state relays switch them on and off.

The drip field has 10 zones with 20 lines of tubing 200 feet long and 2.5 feet apart. Each emitter delivers one gallon per hour. Solenoid valves with pressure-regulators control the zones. Pressures average 20 psi, but reach 180 psi going to the highest points.

Dose sizes vary depending on soil absorption rates. The computer reads the flowmeter to check for blown tubes or leaks. When they occur, the computer turns off the zone, bypasses it, and sends Kendall a text message.

Two 12-volt backup batteries run the plant during power outages, ensuring that the elevated tanks feed the sprayers. If the power is out for more than a day, Kendall brings a generator.

Installation

Subcontractors installing STEP systems as homes are built follow a specification booklet written by Kendall. Another subcontractor installed the force main.

Kendall's crew cleared trees before digging 50-foot-diameter, 11-foot-deep holes for the 35,000-gallon circular underground tanks and control room. A Caterpillar excavator with rock teeth on the bucket enabled the operator to flake out shale, which he struck at 3 feet below the surface.

"We made the circular tank forms," says Kendall. "They're a little more difficult to pour, but the structure is much stronger than square tanks. We needed that strength with all the rock in the soil." The 40-foot-diameter, 9-foot-deep tanks have 8-inch-thick walls of 4,000 psi fiber mesh concrete with steel rebar.

(continued)

Kendall hauled each media block through a hatch in the treatment tank lid and down a ladder. Beginning at the center column and working out, he placed the bottom layer cantilevered across and at right angles to the 8-inch-wide AccuPier supports on 24-inch centers. He set additional layers at 90 degrees to the one below. "The pattern maximizes mixing and distribution, while increasing strength and stability," he says.

After workers laid piping for the sprayers on top of the tank and hung the spray heads in the risers, they covered the structure with 18 inches of insulating wood chips made from the cleared trees. A second team cleared a place in a wooded hollow and set the three elevated tanks.

The crew targeted softwoods when clearing some trees from the drip field. "We prefer installing drip fields in woods because hardwood trees uptake 22 mg/L of total nitrogen, and the highest we've seen from this system is 3 mg/L," says Kendall.

Workers used a custom-built 16-inch disc-cutting saw that fit between tightly spaced trees to install drip tubing 9 inches deep on slopes with up to 60 percent grade. A 6.5 hp chain saw engine powered the saw. They buried pressure mains from the plant to the drip field using a tracked Caterpillar 226 skid-steer loader with Bradco trencher (Paladin Construction Group).

For additional stability, Kendall's son, Cliff, mounting dual wheels on the downhill side of the LM42 Vermeer walk-beside vibratory plow with 50 hp turbo diesel. "Even then, we still occasionally chained the skid-steer or backhoe to the plow to prevent it from rolling down the hill," says Kendall. Installing a zone took four to five days.

Workers fenced the drip field and posted warning signs. They also landscaped the area around the underground complex.

Maintenance

Kendall's Aqua Green Utility, a Tennessee wastewater utility, owns and operates the system. To eliminate human error and reduce maintenance calls, he built PLC control panels and had software written for them. The autonomous system notifies Kendall via text messages if mechanical devices fail, enabling him to send a replacement with the technician on weekly visits. "From an operational standpoint, this saves a tremendous amount of money," says Kendall.

Until the replacement arrives, the computer turns on the redundant component. If technicians forget to turn on the pumps after servicing them, the computer activates them in eight hours. When pressure differential switches on the disc filters indicate they are clogging, the computer turns on the drip pump to backflush them. "We put excessive time into designing efficiency," says Kendall.

Cliff Kendall (right) and Barry Little install Geoflow drip tubing using a modified LM42 Vermeer walk-beside vibratory plow with 50 hp turbo diesel. The plow has dual wheels on the downhill side.

MORE INFO:

Arkal Filtration Systems PEP Filters
704/662-3133
www.arkal-filters.com

AutomationDirect
800/633-0405
www.automationdirect.com

Brentwood Industries
610/236-1100
www.brentwoodprocess.com

Geoflow, Inc.
800/828-3388
www.geoflow.com

Goulds Water Technology
866/325-4210
www.completewatersystems.com/brands/goulds

Myers
262/728-5551
www.femyers.com

Polylok/Zabel Environmental
877/765-9565
www.polylok.com
(See ad page 44)

Rain Bird
877/727-8772
www.rainbird.com

SeaMetrics Inc
800/975-8153
www.seametrics.com

2013expo

The Indiana World War Memorial is comprised of Neoclassical architecture. The Shrine Room inside is stunning with red marble and materials from around the world to symbolize the global nature of World War I, 24 stained-glass windows and a 30-foot-tall American flag hanging over the Altar of Consecration. The museum in the lower level illustrates the state's participation in wars throughout history. (Photos courtesy of Visit Indy)

Military Honors

Indianapolis has the distinction of being second to Washington, D.C., in building war memorials

By Sharon Verbeten

Indianapolis is more than just the storied Hoosiers and fabled Brickyard of the Indianapolis 500 race, especially when it comes to honoring U.S. veterans.

Washington, D.C., may be considered the cornerstone of veterans' memorials, but Indianapolis easily ranks second. The Indiana War Memorial Plaza Historic District located downtown contains two museums, three parks and 24 acres of monuments, statues, sculptures and fountains, ranking it second nationally in acreage and number of monuments dedicated to veterans. It is also home to the national and state headquarters of the American Legion.

According to Brig. Gen. J. Stewart Goodwin (USAF retired), "There's no other place like this in the country. Indianapolis has more acreage in the nation devoted to veterans." Almost 200,000 visit the memorials each year.

"Indiana has provided, based on population, more service members (in all conflicts) than any other state. I've never seen another place where they treat veterans and honor them this well."

Brig. Gen. J. Stewart Goodwin

As executive director of the Indiana World War Memorial, Goodwin, a 37-year Air Force veteran, adds, "Indiana has provided, based on population, more service members (in all conflicts) than any other state. I've never seen another place where they treat veterans and honor them this well. The folks here are very down to earth … and they're very patriotic."

The memorials, conveniently located within walking distance of the Indiana Convention Center, home of the Pumper & Cleaner Environmental Expo, include the Soldiers and Sailors Monument, the tallest memorial to Civil War veterans in the U.S.

The Soldiers & Sailors Monument is located on Monument Circle in the center of downtown and has come to symbolize the city of Indianapolis and the state of Indiana. The Col. Eli Lilly Civil War Museum is housed in the lower level. The observation level is 330 steps up, or take the elevator to step 290.

The Indiana World War Memorial Plaza is five blocks long and home to the American Legion National Headquarters. In the foreground is Depew Memorial Fountain in University Park. The Indiana War Memorial is seen in the background.

The Indiana World War Memorial sits 210 feet above street level; this mausoleum-style limestone and marble memorial pays homage to Hoosiers killed during World Wars I and II, the Korean War and the Vietnam War. A military museum in the basement allows visitors to follow the history of Indiana soldiers from the Battle of Tippecanoe through the most recent conflicts.

"Once we get them in the building, we've got them. The structure and architecture is amazing," says Goodwin.

The mall itself also includes memorials for World War II and the Korean and Vietnam wars, as well as Veteran's Memorial Plaza. The USS Indianapolis Memorial recognizes those who died on the last U.S. ship to sink in World War II. Of the approximately 1,200 sailors on board, only 317 survived.

Goodwin notes that one of every 10 people has served in the military. "We try to educate the 90 percent about what the 10 percent did," he says.

For more information:

- Indianapolis Historic Sites, www.visitindy.com/indianapolis-attractions-historic-sites
- Indiana World War Memorial, 431 N. Meridian St.; 317/232-7615; www.in.gov/iwm/
- Soldiers & Sailors Monument/Col. Eli Lilly Civil War Museum, 1 Monument Circle; 317/232-7615; www.ulib.iupui.edu/kade/soldiers.html
- USS Indianapolis Memorial, Walnut St. & Senate Ave.; 317/232-7615; www.ussindianapolis.org/monument.htm
- Korean and Vietnam War Memorials, 700 N. Pennsylvania St.; www.visitindy.com/indianapolis-attractions-historic-sites-vietnam-and-korean-war-memorials
- World War II Memorial, 700 N. Pennsylvania St.; www.in.gov/iwm/2364.htm

By Doug Day and Scottie Dayton

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

Iowa

The Department of Natural Resources adopted changes to its rules covering commercial septic tank cleaners and private septic systems. Updated versions of the two regulations, chapters 68 and 69, are available at www.iowadnr.gov/InsideDNR/RegulatoryWater/PrivateSepticSystems.aspx.

Indiana

The Porter County Health Department passed an ordinance requiring people or firms installing onsite systems to be certified by the Indiana Onsite Wastewater Professionals Association (IOWPA) and registered with the county. Board of Health attorney David Hollenbeck cited a growing trend of improperly installed systems and systems being installed without permits.

Michigan

Rep. Ken Goike filed a document to exempt septage haulers from spring road weight restrictions. He also prepared a bill that would remove the 2025 ban on septage storage facilities. Rep. Lisa Lyons sponsored a bill to create a framework for a statewide sanitary code.

North Carolina

The City of Raleigh sued the state for extending a permit that allows residents with failed onsite systems to use sand filters discharging into Falls Lake. The city argued that the new permit violates the Clean Water Act. The permit, previously authorized for five years, was extended for one year last July.

Alabama

An ordinance proposed by the Washington County Commission would allow residents to clean their septic tanks when they wanted and not every five years as now required by law.

Pennsylvania

In 2013, Nockamixon Township could require septic tanks to be cleaned every two years and a receipt from the pumper sent to the township. The regular cleaning would be part of an effort to comply with Act 537, a state law requiring municipalities to have a comprehensive sewage treatment plan that includes onsite systems. ☐

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NOWRA
National Onsite Wastewater Recycling Association

ABOUT THE AUTHOR
Eric Casey is executive director of the National Onsite Wastewater Recycling Association. For more information, visit www.nowra.org or call 800-966-2942.

To Market, to Market

Electronic marketing can be an easy and inexpensive way to keep in touch with customers and find new ones

By Eric Casey

How's business for you? I hope it's good, or at least improving, but if you aren't getting the results you want, you might want to take a look at how you're marketing your services. Perhaps it's time to shake things up a bit.

There are a number of ways to approach how you market your business. In fact, there are so many, they are beyond the scope of a single column, so this is Part One of a three-part series of marketing tips for onsite industry businesses. The focus here will be on electronic marketing, but first a few words about the importance of having a marketing plan.

People don't plan to fail; they fail to plan. The first and most important component to marketing your business effectively is to have a plan of action – in writing. A good marketing plan doesn't need to be elaborate. One page will probably do it, but it does need to contain these elements:

Define your objectives. Is your goal to increase new installation business? Repair and replacement? Keeping existing customers? Promote a new service? Each question will likely generate a different set of goals.

Set a marketing budget and a timeline of activities. Your budget doesn't need to be large, but as a rule of thumb, the less money you spend, the more time you must invest. If your budget doesn't include buying outside services, make sure it reflects the time you spend to make it work.

Evaluate your plan's effectiveness. A marketing plan is not a static document. Each time you draft one, it should build on the successes created from the previous one.

Now, here are some online marketing tactics to consider.

Website. If you don't have a website, for many people you don't exist. This is especially true for Generation X, which grew up online and is becoming the largest segment of new homeowners. More people use Google to research products and services than any other method. Setting up a website is cheap and easy. You need no special programming knowledge; everything you need can be done with the point and click of a mouse. Companies like GoDaddy and Intuit offer low-cost options, as little as $5 per month. Wordpress lets you build a website for free.

Facebook. Setting up a Facebook page is a great way to stay connected to your customers. It doesn't cost anything, but it does require regular attention to keep your name in front of your followers. Not sure how you might use such a page? Lots of onsite companies already have Facebook pages, and the good ones have many followers. Simply type "septic" into the search box at the top of any Facebook page and you will get literally hundreds of results – and ideas of strategies that might work for you.

People don't plan to fail; they fail to plan. The first and most important component to marketing your business effectively is to have a plan of action — in writing.

Email. This can be an effective and inexpensive method for reaching current and potential customers. Building a good email list takes time, but as your list grows, your results should generate increasing numbers of inquiries. There are many ways to use email to keep current customers and get new business. They include:

- Reminders about service calls, maintenance visits and contract renewals
- Thanking customers for their business
- Asking customers to recommend you to neighbors
- Forwarding a helpful email to them
- Promoting new services
- Highlighting awards your company receives or company milestones

Don't overuse email – a quarterly message won't turn off many people, but daily emails probably will. Also, offer a way to unsubscribe from your mailing list.

Electronic newsletter. This doesn't need to be fancy, but it does need to contain news. The more you can provide readers with interesting and useful information, the more effective it will be. Send articles on maintenance, what is and isn't flushable, landscaping, and other topics. Also send an email when weather events such as freeze, drought or floods are affecting your area. ◻


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associationnews

By Scottie Dayton

Onsite Installer™ invites your state association to post notices and news items in this column. Send contributions to editor@onsiteinstaller.com.

Papers highlight benefits of onsite systems

The EPA and the Decentralized Memorandum of Understanding (MOU) Partnership developed four two-page papers that highlight how onsite systems can be sustainable and appropriate options for communities and homeowners. Topics cover how systems can be sensible solutions, cost-effective and economical, green and sustainable, and protect the environment, public health and water quality. Papers include brief case studies, links to additional resources, and associated benefits. View them at http://water.epa.gov/infrastructure/septic/Decentralized-MOU-Partnership-Products.cfm.

Full code implementation

As Minnesota moves to full implementation of the 2011 subsurface sewage treatment system (SSTS) code, contractors must be licensed to design, install, maintain, inspect and service these systems. Licenses must be renewed every year with the Minnesota Pollution Control Agency and proof of insurance, proof of an SSTS Surety Bond, and an annual fee are required.

At least one employee with each licensed business must be certified in each of its specialty areas. Those who work for state, county, township or city government and oversee onsite systems also must be certified. MPCA also created a certification and license to allow intermediate designers to design Type IV pretreatment systems for domestic strength wastewater up to 2,500 gpd and intermediate inspectors to review the designs and inspect the systems. Certification courses through the University of Minnesota Onsite Sewage Treatment Program are at www.septic.umn.edu/events/index.htm.

Wastewater educator honored

Kathryn "Kitt" Farrell-Poe, Ph.D., received the 2011 Extension Faculty of the Year Award at the 2012 College of Agriculture and Life Sciences Extension Conference in Tucson, Ariz. The award acknowledged her accomplishments in managing the University of Arizona Onsite Wastewater Education Program and related water programming.

Communication channels

Wisconsin Onsite Wastewater Recycling Association board members met with Department of Safety and Professional Services Secretary Dave Ross to discuss surface discharge, department staff changes, and onsite evaluator training and certification. Board members reported that Ross and his team were cooperative and showed interest in the onsite profession.

At-grade systems

An article by Sara Heger, University of Minnesota Onsite Program, in the newsletter of the Minnesota Onsite Wastewater Association explained design principles and installation keys for at-grade systems. Heger considers such systems an option when there are 36 to 42 or more inches from limiting conditions, or when installers do not want to excavate soils such as clay. At-grade systems also disperse effluent across a long, narrow slope, offering better potential treatment. Visit www.mowa-mn.com/?page_id=84.

NOWRA education

NOWRA has developed a suite of educational programs for state associations or groups that wish to train onsite professionals. Available on CD, the one- or two-day courses with syllabuses include:

- NOWRA Onsite A-to-Z
- Basics of Onsite Wastewater
- Choosing the Correct Onsite System to Fit the Site
- Earthen Structures
- High-Strength Wastewater
- Hydraulics
- Troubleshooting Onsite Systems
- CIDWT National Installer Training Program
- CIDWT National O&M Service Provider Program

The association has established training agreements with Rose State College in Oklahoma and the New Mexico Department of Environmental Quality and is pursuing other partnerships.

Joint workshop

NOWRA and the Water Environment Federation will hold a joint workshop on onsite systems greater than 10,000 gpd during WEFTEC 2013 Oct. 5-9 in Chicago. The one-day NOWRA conference will be an independent ticketed event.

CALENDAR OF EVENTS

Jan. 8-10

Michigan On-Site Wastewater Disposal 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.ohioonsite.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.

Feb. 6-8

Kansas Small Flows Association Convention, Ramada, Hutchinson. Call Elma Ball at 913/594-1472 or visit www.ksfa.org.

Feb. 8-9

West Canada Onsite Wastewater Management Association of British Columbia Trade Show and Conference, Abbottsford. 877/489-7471; www.wcowma.com.

Feb. 21-23

Alberta Onsite Wastewater Management Association Trade Show and Convention, Edmonton. 877/489-7471; www.aowma.com.

Feb. 25-28

Pumper & Cleaner Environmental Expo International, Indiana Convention Center, Indianapolis. 866/933-2653; www.pumpershow.com.

TRAINING & EDUCATION

Connecticut

The Connecticut Onsite Wastewater Recycling Association is holding its Installer School on Jan. 17, 24, 31, Feb. 7, 14 and 21 (snow date Feb. 28). Students are automatically enrolled in the Pumper/Cleaner School on Feb. 21 (snow date 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.

Minnesota

The University of Minnesota Water Resources Center has these classes:

- Feb. 11-13 – Introduction to Onsite Systems, St. Cloud
- Feb. 14-15 – Installing Onsite Systems, St. Cloud
- Feb. 20-22 – Installer Continuing Education, Cloquet
- Feb. 21 – Pipelayer Certification, Cloquet
- March 12-15 – Intermediate Onsite System Design and Inspection, St. Cloud
- March 19-21 – Maintaining Onsite Systems, St. Cloud
- March 25-26 – Maintainer Continuing Education, Owatonna
- March 27-28 – General Continuing Education, Detroit Lakes

Call Nick Haig at 800/322-8642 (612/625-9797) or visit www.septic.umn.edu.

North Carolina

North Carolina State University has the following courses:

- 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
- March 19 – Redoximorphic Features, Soil Wetness, and Water Table Relationships, New Bern
- March 20 – Nature's Way: Water Movement and Treatment through Soils, New Bern
- March 27 – Soils of the Felsic/Mafic Piedmont Region, Salisbury

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

Virginia

The Virginia Center for Onsite Wastewater Training has these classes:

- Feb. 4 – Understanding the Septic Tank, Online
- Feb. 4 – Nitrogen Dynamics, Online
- March 4 – Foundational Concepts of Pump Systems, Pickett Park
- March 29 – Understanding the Septic Tank, Online

Contact Latonya Fowlkes at 434/292-3101 or latonya.fowlkes@southside.edu or visit www.southside.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:

- 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
- March 13 – Troubleshooting Onsite Systems
- March 20 – Design/Install Subsurface Drip
- March 21 – First Aid/CPR
- March 27 – Advanced Soils

Call 253/770-6594 or visit www.wossa.org.

industrynews

Delaware approves Anua aerated filter system

Anua's Platinum submerged aerated filter system received approval from the Delaware Department of Natural Resources & Environmental Control. DNREC accepted the European EN 12566-3 protocol verifying the treatment system will provide an effluent quality not exceeding 30 mg/L of BOD and TSS with a minimum 50 percent reduction of total nitrogen.

SJE-Rhombus hosts training event

SJE-Rhombus held a training session for 15 attendees representing several distributors, installers and representative agencies at its headquarters in Detroit Lakes, Minn. Training included control panel design, operation and troubleshooting, and hands-on panel assembly.

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AERATORS

We sell Flagg-Air 340, Secoh, Gast and Medo Linear, FPZ and Gast Regenerative, Thomas and Gast Rotary Vane aerators, rebuild kits and alarms at wholesale prices. Septic Services, Inc. www.septicserv.com. 1-800-536-5564. (IM)

SepticSewagePumps.com is now the national distributor for GAST aeration pumps in the septic sewage industry! We carry Gast Linear, Rotary Vane (like Southern Mfg.) & blower aeration pumps, SJE Rhombus control panels, Hydromatic effluent pumps and more.
800-292-9087 I03

BUSINESSES

Well established septic pumping, inspection, and repair company, located in MA. Has many repeat residential, commercial, and condominium customers. Owner is selling due to physical limitations. International 4,000 gallon, Kubota BX 25, trailers, pickups, tank trailers. Asking $195,000. Serious inquiries only. 508-989-1078. (P01)

Septic and Grease trap service company for sale just outside Houston, Texas. Very Profitable and in business for 35 plus years, excellent customer base. Retirement is now calling and I am ready to enjoy some of my life. Nice equipment, and more work than we can handle without expansion. $750,000 in sales. $650,000 selling price with $250,000 down Call 281-271-7027. (P01)

SEPTIC PUMPING BUSINESS .25 miles east of Dallas TEXAS. Well established 16 year old company. 1991 Kenworth 3000 gallon, tandem axle truck in excellent condition. $200,000 plus average income. Owner retiring. Serious inquiries only please. $150,000/OBO. 903-456-3086. (P01)

Family owned portable toilet business: Owner with health issues forces sale, 500 + units, 4 service trucks, located in beautiful Sacramento, Calif. area, 16 years established business, loyal customers. Serious inquiries only. Leave message; will return calls. 916-343-3326. (PBM)

PORTABLE TOILET BUSINESS. Family owned and operated in SE Wisconsin for 32 years, 300+ units, 4 service trucks, 3 with SS tanks, 2 trailers, all supplies. Years of repeat customers w/ $200,000 in annual sales. 1-800-246-7736. (P03)

DRAINFIELD RESTORATION

2008 Terralift: Like new, only 29 hours, 3-6' probes, newer model body style, used for compacted septic drainfields. $20,000/OBO. 269-838-1145, MI. (P01)

Terralift: Huge discounts on new and used Terralift machines. Call John VanZanolt or Dick Crane at 1-800-223-2256. (PBM)

HAND TOOLS

Crust Busters - Portable, lightweight machine guaranteed to mix up septic tanks and grease traps! Save time and money! **www.crustbusters.com**, 1-888-878-2296. (IM)

PUMPS

Hydromatic, Zoeller, Liberty, ABS, Myers, Grinder and Effluent pumps. Lift station packages and high water alarms are also available. Septic Services, Inc. www.septicserv.com, 1-800-536-5564. (IM)

2011 NLB 10-325, rated at 51 gpm, max pressure 10,000 psi, Eaton-Fuller transmission, PTO driven fill/charge pump, Cummins NTA-855-p, 335 hp with heavy duty battery, skid mounted with bag filter assembly. $ 60,000. 361-944-1290. (P02)

SEPTIC TRUCKS

2003 Sterling L7500 Vac Truck: CAT 3125 @ 315 hp, A/T, 55K miles, spring susp., 2003 Vac-Con V390LHAD, 3 compressor fans, 10' telescopic boom, HS drive, articulating hose reel, hi-dump debris tank....$79,500
715-546-2680 WI BM

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WATERWORKS MANAGER: N.Y. construction supply company/manufacturer looking for an energetic, experienced Waterworks Manager. Job entails, estimating customer service, phone sales, and learning new product lines. Excellent salary, benefits, 401K, profit sharing, health insurance, life/disability insurance. Excellent opportunity! Please email resume to GregF@precastconcretesales.com. Thank you for your interest! (MI03)

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Abbott Rubber Company, Inc.
ACE DuraFlo Systems
Acro Trailer
Admirals Bank
Advance Pump & Equipment
Advanced Containment Systems Inc.
Advanced Drainage Systems
Advanced Pressure Systems
Advantage Funding
Aero-Tech
Air-Weigh Scales
AK Industries Inc.
All Star Sewer Equipment
Allan J. Coleman
Allied Forward Motion LLC
Allied Graphics
Allied Tank Co.
AllMax Software, Inc.
Alpine Equipment Funding, Inc..
Alteris-SeptiCover
AlturnaMATS, Inc.
Ameri-Can Engineering
American Express OPEN
AMerik Engineering
Amthor International
Anua
AP/M Permaform
Aqua Mole Technologies
AquaOnDemand Solutions by Aqua-Aerobic Systems, Inc.
AquaSoles
AQUA-Zyme Disposal Systems, Inc.
Arcan Enterprises Inc.
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Ashland Trap Distribution, Co.
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Bad Dog Tools
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BDP Industries
Bear Onsite
Benlee, Inc.
Best Enterprises Inc.
Betts Industries
Biffs PathFinders, LLC
Bio Clean
Bio-Microbics Inc.
Black Tie Products
Blasters, Inc.
Blood Hound Underground
Blue Angel Pumps
Boerger LLC
Bowman Tool Co.
Brenlin Co., Inc.
Bright Dyes
Bright Technologies
BRUDON Air Vac / Kay International
Bulk Toilet Paper
Bull Frog Industries LLC
BW Technologies by Honeywell/Honeywell Analytics
Cam Spray
Canplas LLC.
Cape Cod Biochemical Co.
CAT PUMPS®
CEMTEC / A.W. Cook Cement Products
Century Chemical Corporation
Champion Pump Company, Inc.
Chandler Equipment Inc.
Chelsea Products/Div. of Parker
Chempace Corporation
Chempure Products Corp.
Cherne Industries Inc.
CIPP Services, LLC
Clarus Environmental/Zoeller Pump Company
Clear Computing
Clearstream Wastewater Systems Inc.
Cloverleaf Tool Co.
COB Industries, Inc.
Cobra Technologies
COLE Publishing
Comet USA, Inc.
Comforts of Home
Compulink Cable Assemblies, Inc.
Coneqtec Universal
Containment Solutions, Inc.
Control Chief
COXREELS
Crescent Tank Manufacturing
Cretex Specialty Products
Crust Busters/Schmitz Bros.
CST Storage
C-Tec
CUES
Cusco
Custom Biologicals, Inc.
De Neef Construction Chemicals
Del Vel Chemical Co.
Delphin Water Systems of America, Inc
Delta Environmental
Ditch Witch
Downey Ridge Environmental Company
Dragon Products
Draincables Direct
Dultmeier Sales
Duracable Manufacturing
Dyna Flex Inc
Dynamic Decals & Graphics, Inc.
E Z Onsite
E&B Green Solutions
E.H. Wachs
Easy Liner
Ecological Laboratories Inc.
Electric Eel Mfg. Co. Inc.
EleMech, Inc.
Eljen Corporation
Envirologics
Environment One Corporation
Envirosight LLC
Envirotub
Enz USA Inc.
Epps Products
E-Tank, Ltd./ E-Pump
Explorer Trailers
EZTrakR
Fabco Automotive Corp.
Federal Signal Environmental Solutions Group
Fergus Power Pump Inc.
Fisher Research Laboratory
Five Peaks Technology
FKC Co. Ltd.
Flint Industries
Flitz International Ltd.
Flo Trend Systems Inc.
Flow-Liner Systems
Flygt, a Xylem Brand
Forbest Products Co.
Foremost Industries LP
Forest River, Inc.
FORMADRAIN Inc.
Fournier Industries Inc.
Franklin Electric / Little Giant Engineered Products
Fruitland Tool & Manufacturing
FW Murphy
GapVax Inc.
Gardner Denver Water Jetting Systems Inc.
Gardner Denver Wittig
GE Oil & Gas - Roots Blowers
GEA Farm Technologies Inc.
General Pipe Cleaners/General Wire Spring Co.
General Pump
Geoflow, Inc.
GfG Instrumentation, Inc.
Giant Industries Inc.
Glentronics, Inc. / PHCC Pro Series Pumps
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Go For Digger
Godwin, a Xylem Brand
Goldak Inc.
Gorlitz Sewer & Drain, Inc.
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Granite State Collectibles
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Hammelmann Corp.
HammerHead Trenchless Equipment
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Insight Vision
International Thermal Research
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J&J Chemical Co.
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JAG Mobile Solutions
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Jetter Depot
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KEG Technologies, Inc.
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KM Specialty Pumps & Systems, Inc.
Kroy Industries
Kuriyama of America, Inc.
L.M.T. Inc.
La Place Equipment Co Inc.
Lansas Products Mfg by Vanderlans and Sons
Ledcor
Lely Manufacturing
Lenzyme Incorporated
Liberty Financial Group, Inc.
Liberty Pumps
Liquid Environmental Solutions
Liquid Waste Industries, Inc.
Liquid Waste Technology
LMK Technologies, Inc.
Lock America
Lodar
Logan Clutch Corporation
Logiball Inc.
Longhorn Tank & Trailer
M.A.R.S. Workwear/Communications
Madewell Products Corp.
Mainline Backflow Products, Inc.
Masport Incorporated
Masterliner, Inc.
Max-Life Mfg.
MaxLiner USA
Merrell Bros., Inc.
Mersino / Global Pump
Mid-State Tank Co., Inc.
Miller Pipeline
Milwaukee Rubber Products Inc.
Mody Pumps, Inc.
Money In Motion
Moro USA
Mr. Rooter Corp.
MTC
MTech
Muncie Power Products
Myers
MyTana Mfg. Company Inc.
NAMCO Machine & Gear Works Ltd.
National Environmental Health Association
National Vacuum Equipment
Nationwide Sales & Service Inc.
Nature Calls
NAWT, Inc.
NBB Controls
Neron Pumps
Netafim USA
Nexstar
NILodor Inc.
NLB Corp.
Norweco Inc.
NOWRA
NovaFlex Hose
NozzTeq, Inc.
NSF International
Nu Flow
Nuhn Industries Ltd.
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Ohio Electric Control, Inc.
OMI Industries
OmniSite
OMSI Transmissions, Inc.
One Biotechnology
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Paragon Tools Manufacturing Co., Ltd.
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Patriot Pumps
Pat's Pump & Blower
Pearpoint / SPX
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Pipeline Renewal Technologies
PipeLogix Inc.
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Rausch Electronics USA LLC
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Reelcraft Industries Inc.
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Robinson Vacuum Tanks, Inc.
Robuschi & C.S.p.A.
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Roebic Laboratories, Inc.
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Roth Global Plastics
ROTHENBERGER USA
Roto-Rooter Corporation
RotoSolutions
RouteOptix Inc.
RS Technical Services Inc.
Rush Refuse Systems
RVI Pro, Inc.
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SAERTEX multiCom LP
Safety Corporation of America
Safety Sewer Drain
Salcor, Inc.
Satellite Industries Inc.
Sauereisen, Inc.
Savatech Corp.
Schieffer Co. International L.C.
ScreenTech Imaging, a div. of Roeda Signs Inc.
Sealing Systems Inc.
Sekisui SPR Americas, LLC
Sensors & Software Inc.
Septic Drainer/Municipal Sales, Inc.
Septic Pages
Septic Products Inc.
Septic Services Inc.
Septronics
Service Roundtable
Service Squared
ServiceTitan
Sewer Equipment Co. of America
Sewer Pages
Sewer Seal Technologies, LLC
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ShuBee
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Standard Equipment
Sto-Away Power Cranes Inc.
StoneAge, Inc.
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Subsurface Instruments
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Superior Signal Company LLC
Supervac 2000
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SVE Portable Roadway Systems, Inc.
T & T Tools Inc.
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Terydon Inc.
The Hartford
The Strong Company
Thermaco, Inc. - Trapzilla
Thieman Tailgates, Inc.
Thompson Pump
Topp Industries, Inc.
Tracker Solutions
Trade-Serv
Trans Lease, Inc.
Transway Systems Inc.
Trelleborg Pipe Seals
Trenchless Technology Magazine
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Trillium Environmental Services
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TSE International / OK Champion
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TT Technologies Inc.
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Vaporooter
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VIP Sanitation
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Walex Products Co.
Wallenstein Vacuum Pumps
Wastequip
WasteWater Education 501(c)3
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Wee Engineer Inc.
Wells Cargo Ultralav Mobile Restrooms
Wells Fargo Equipment Finance, Inc.
Western Equipment Finance
Western Mule Cranes
Westmoor Ltd.
Wieser Concrete Products Inc
WJTA-IMCA
Wohler USA
Xylem, Dewatering Solutions
Yodle
Zhejiang Danau Industries Co., Ltd.

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

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

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

NEXSTAR — Independent Residential Service Contractors Association

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

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!

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

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

PSAI — Portable Sanitation Association International

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

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PUMPER & CLEANER ENVIRONMENTAL EXPO INTERNATIONAL

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

Business Room 2

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

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/ESPANOL

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.

Onsite Installer CERTIFIED PROFESSIONAL

Presenters: Jim Anderson and Dave Gustafson
Sponsored by Onsite Installer and COLE Publishing
An all-day course detailing site planning and preparation

NETWORKING & ENTERTAINMENT

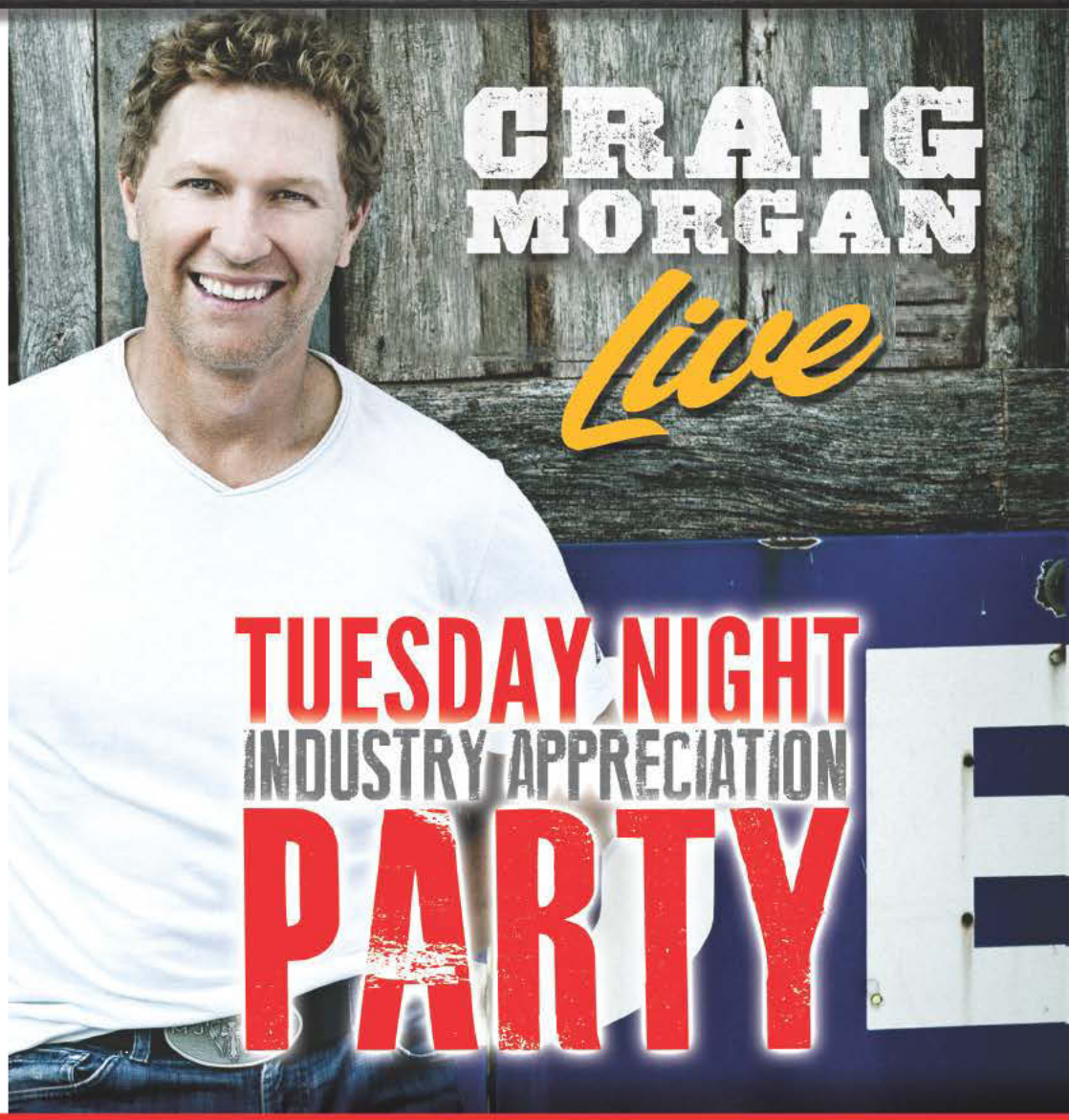
Network with your peers over a 25¢ tap beer and enjoy a private concert just for Pumper & Cleaner Expo attendees! The Tuesday Night Industry Appreciation Party is a must attend Expo event and it's included when you pre-register before January 25th, 2013!

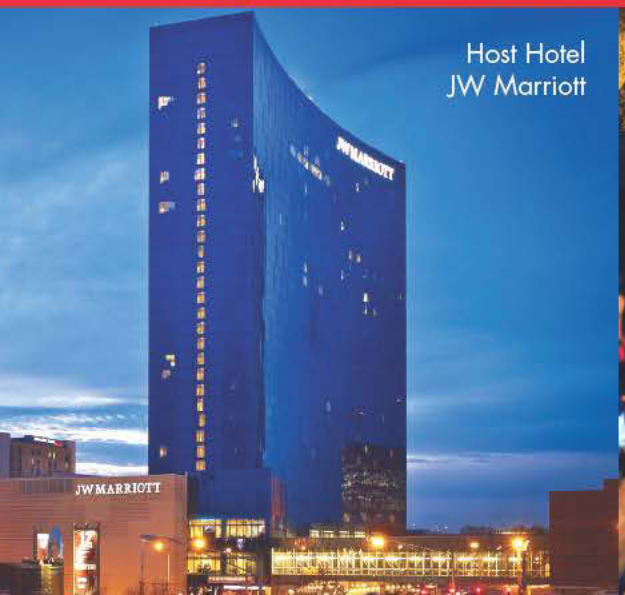
Tuesday, February 26th

Doors Open: . . . . . 4 p.m.
25¢ Tap Beer:. . . . 5 - 7 p.m.
Craig Morgan: . . . 7 p.m.

JW Marriott Hotel

3rd Floor • Grand Ballroom





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