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Two in One

The annual NOWRA Installer Academy makes a good fit with the education and exhibits at the Pumper & Cleaner Environmental Expo in Louisville

By Ted J. Rulseh

If the crowds around the NOWRA Roe-D-Hoe competition were a good indicator, onsite installers were well represented at the 30th Annual Pumper & Cleaner Environmental Expo International Feb. 24-27 in Louisville.

NOWRA president Tom Groves was pleased with the fifth annual Installer Academy, which for the first time ran in tandem with the Expo. The Academy was held in Las Vegas in December for its first four years, but this time it moved to the two days just before the Expo opened.

The 60 onsite professionals who attended the Academy had a chance to see the full spectrum of the environmental service industry if they stuck around for the Expo — and some of them did, according to Groves.

"I was at the Roe-D-Hoe finals Saturday, and I saw some people there who had been to our training on Monday," he says. (The Roe-D-Hoe, of course, is the annual backhoe skills competition, and it ran for three days on the Expo show

floor — there's a story about it in this issue.)

Lots to see

And speaking of the show floor, I am sure I saw more new onsite products at the Expo than in recent years. At some past shows it just wasn't obvious that many things were new in the onsite world. This time on almost every aisle of the show hall I saw something I hadn't seen before — treatment unit, tank, control panel, chamber, effluent filter, excavator.

Perhaps some of that was because various NOWRA business sponsors attended the Academy and stayed on for the Expo. In any case, it was good to see innovation in full bloom in the onsite industry.

The Academy itself followed its traditional education pattern with three separate learning tracks. The Consortium of Institutes for Decentralized Wastewater Treatment held a basic installation training program that ran from start to finish on both days.

"On evaluation forms, some people said it was the best training they had ever been to," says Groves. "They said they learned more in those two days than they had in other training events they attended."

Plenty of variety

Another track covering both days consisted of vendor training rooms where NOWRA sponsors — Bio-Microbics Inc., Norweco Inc., Polylok Inc., Bord na Mona and

dispersal in general, the advantages, the site and soil considerations, things to look at in designing systems, installation techniques and operational issues. It was a great collaborative effort from two companies who are competitors but worked very closely together."

Glad to be there

Groves saw benefits to both installers and his association in running the Academy next to the Expo.

"On evaluation forms, some people said it was the best training they had ever been to. They said they learned more in those two days than they had in other training events they attended."

Tom Groves

Infiltrator Systems Inc., gave small-group presentations about their products.

"These presentations were very focused on people who actually use the technologies or are interested in representing them," says Groves. "It's not a hard sell. They talked about new things they were doing and answered any questions the people in attendance cared to ask."

The other track started on Monday with a tour of the Zoeller Pump Company headquarters in Louisville and a series of business-development seminars given by Zoeller employees.

On Tuesday, the topic for that track was drip dispersal. "The two biggest drip dispersal companies, Geoflow and Netafim, combined and split the presentations," says Groves. "They talked about drip

"The meeting rooms were provided to us by [Expo sponsor] COLE Inc. All we had to do was pay for the instructors, the food and beverage, some of the audio-visual," he says. "Although our attendance was smaller, the event was more financially successful."

"We'd love to do it the same way again. I think we learned a couple of valuable lessons on how we can improve the Academy. We were very thankful for the opportunity to partner and piggyback on the front end of a well-established show like the Expo. I hope the Expo helped us draw more attention to our program, and I hope our Installer Academy brought a little more visibility to the Pumper Show as well." ■

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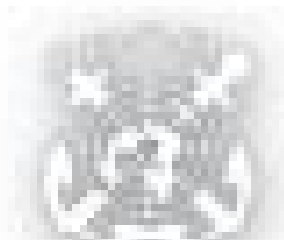
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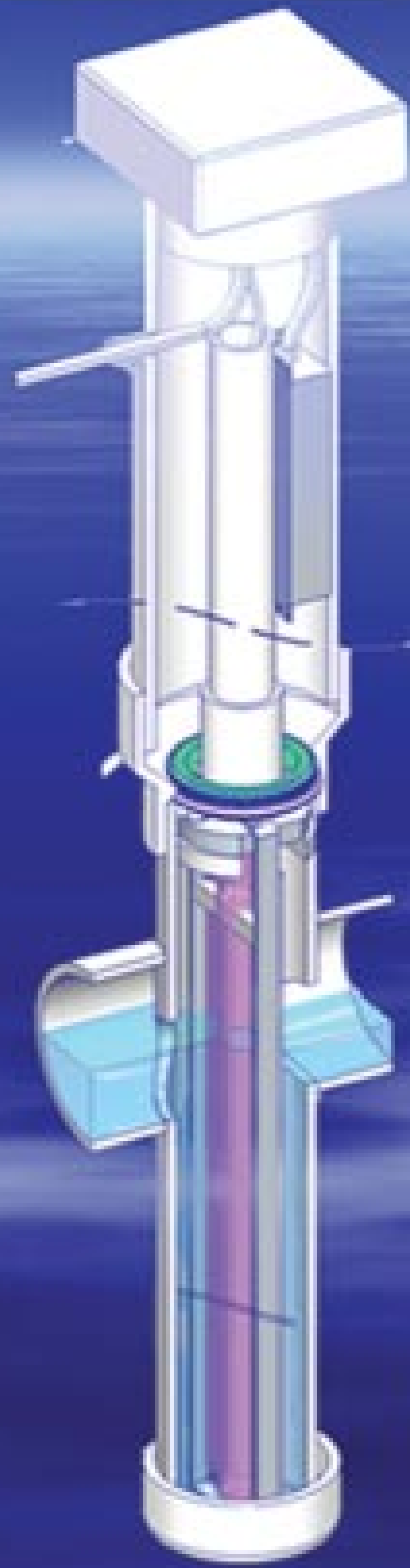


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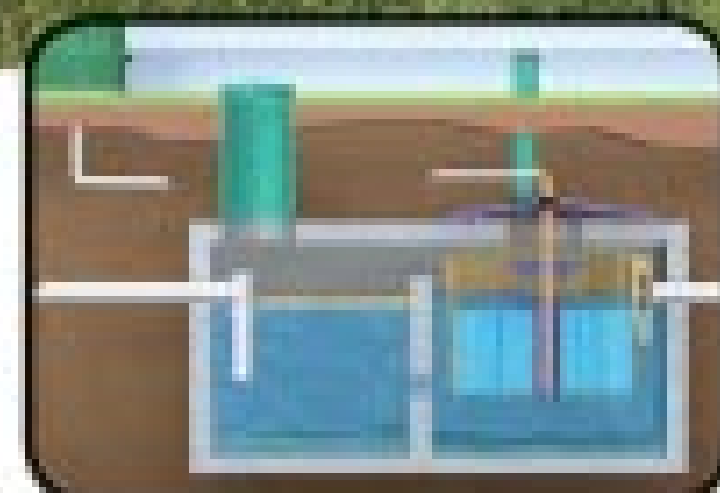
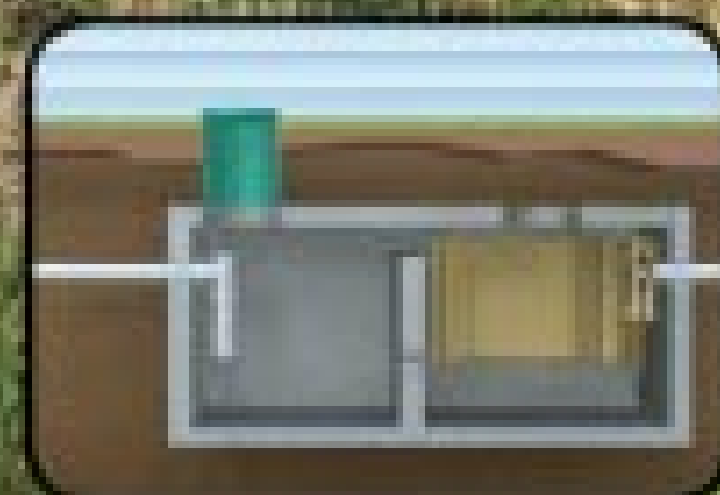
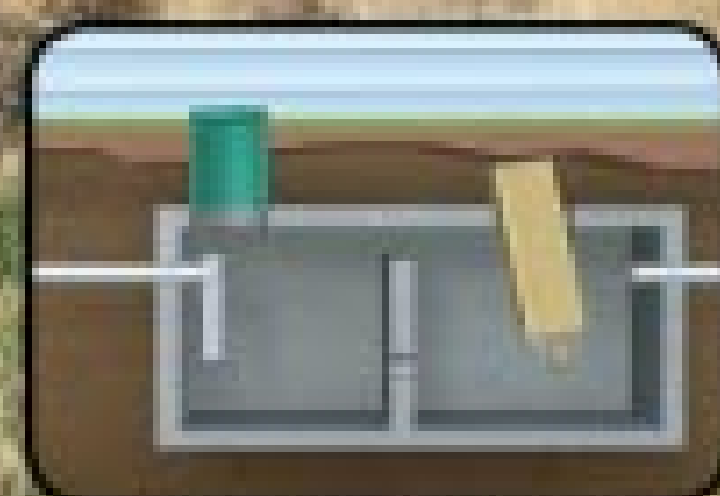
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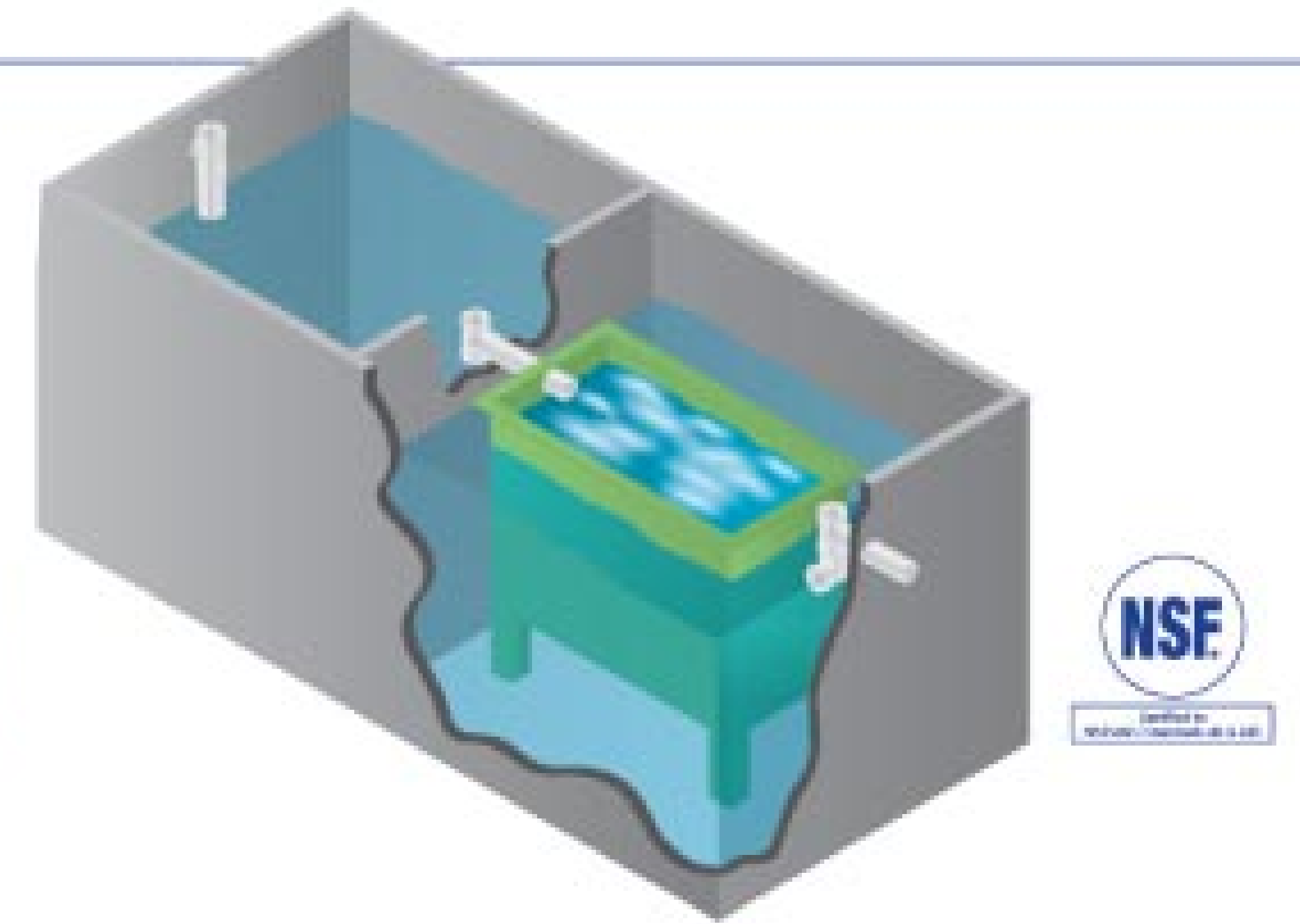


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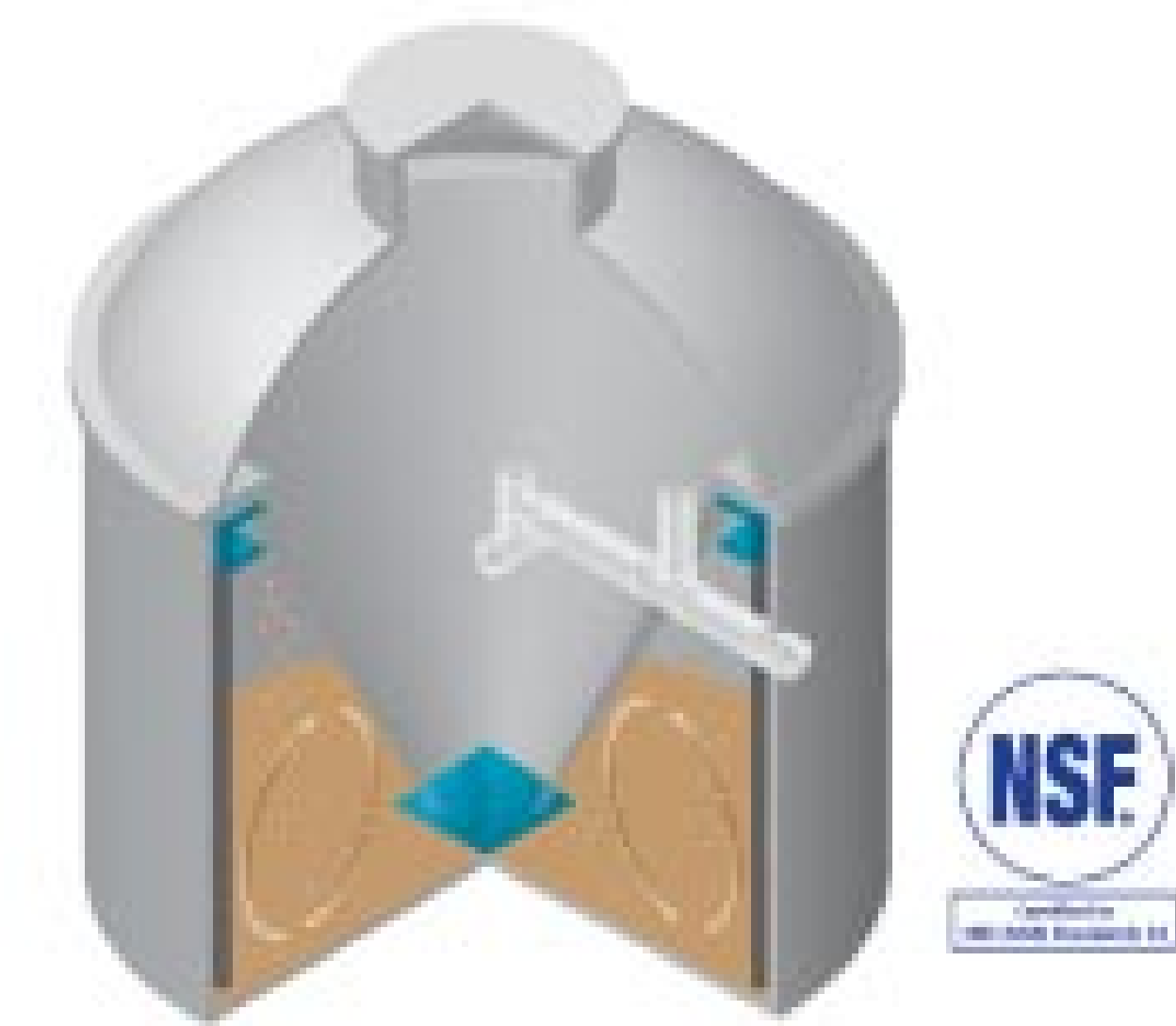
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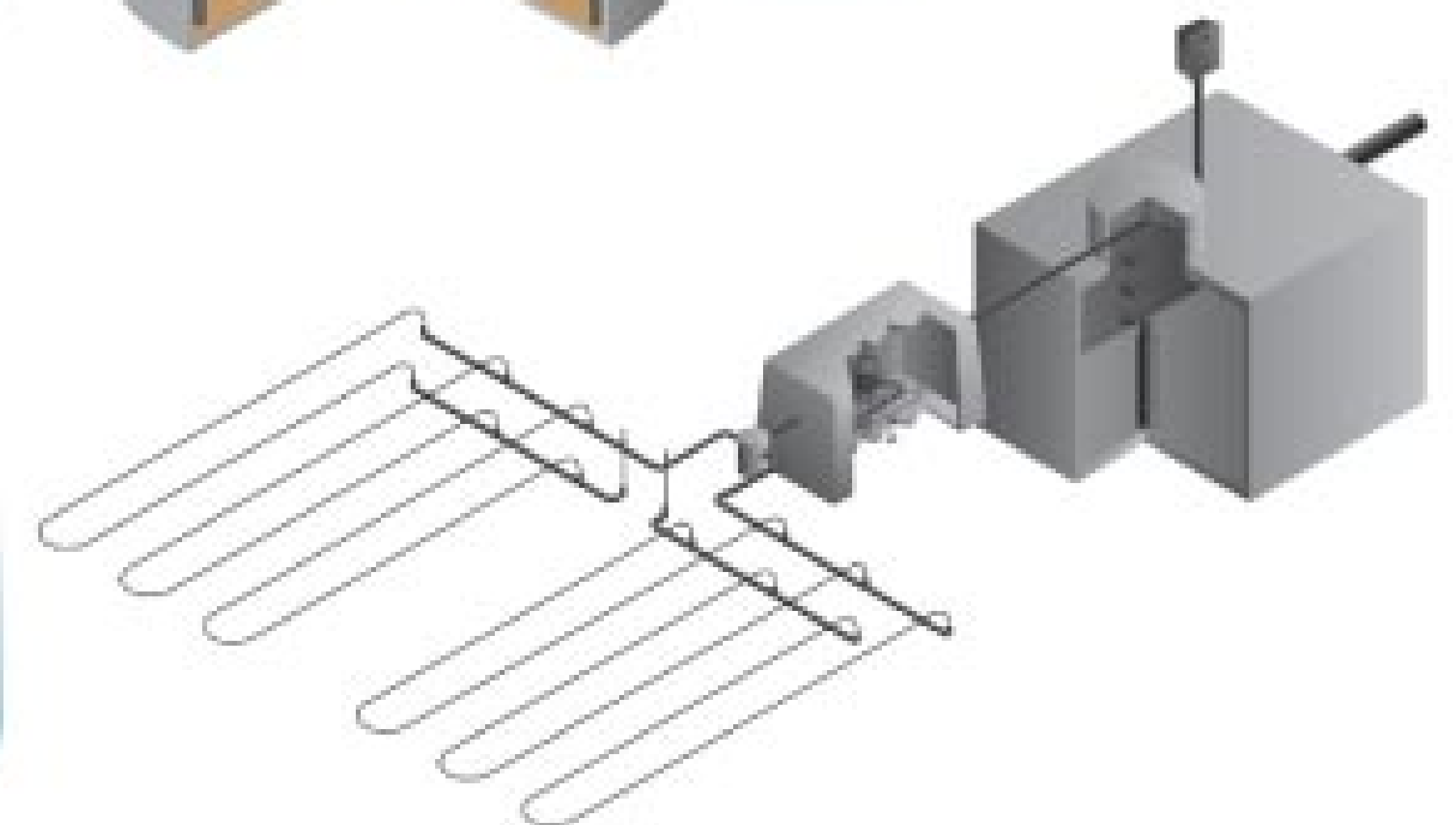
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Installer Gary Sloan (foreground) installs drip distribution lines at a local park as installation assistant Mike Levario operates the Ditch Witch RT40 rock saw and truck and loader operator James Gallegos operates the loader in the background. (Photography by Eduardo Romero)

No Surprises

Good information and clear communication help Van Delden Wastewater provide prompt, high-quality service and keep customers coming back

By Gil Longwell

Van Delden Wastewater Service Company Inc., Boerne, Texas

OWNERS: Garrett and Pam Van Delden

YEARS IN BUSINESS: 73

MARKET AREA: 100-mile radius

SPECIALTY: Complete onsite installation and service

EMPLOYEES: 18

AFFILIATIONS: Texas Onsite Wastewater Association, NAWT

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“If you’re in the family, there is an expectation you’ll go into the family business,” says Garrett Van Delden. For four generations, Van Delden children have grown up around the family business, and they have all gone to work in it, though not necessarily right away.

Seeing how hard his dad and grandfather worked, Garrett Van Delden first chose to work elsewhere. “I was able to get by OK,” he says. But it wasn’t until he worked for someone else that he realized the rewards a family business brings.

So, in 1977, Garrett came on board with his dad, Gary. In 1997, Garrett and his wife Pam bought the firm, Van Delden Wastewater Service Company. “It was the right move,” Garrett says. “Being in business lets us get more out of life.

It has created opportunities that we would not have had working for someone else.”

In 2003, daughter Courtney came on board, and in 2006, son Chad did likewise. Each plays an important role in the company, based in Boerne, Texas, about 30 miles northwest of San Antonio. The business serves customers within a 100-mile radius.

Focused diversity

In 1937 Gary Van Delden’s business had four somewhat related services: crane services, general excavating, general contracting and masonry. “Back then granddad molded his own 300-gallon septic tanks,” says Garrett.

For many years, Garrett’s dad and his three uncles each ran one line of business. In 1972, Gary bought the excavating business,

“We are honest and forthright in all of our customer contacts. We do not want anything about our work to be a surprise to the customer. This starts with the first customer contact and really never stops.”

Garrett Van Delden

which by then had begun to gravitate toward onsite treatment work. Since then, the business has evolved to focus on onsite services exclusively.

Under that broad umbrella, there is great diversity of opportunity, and today the company is positioned to handle any onsite-related request. Services range from site suitability evaluations and landowner consultation, to system design and

Fifty Years On

Alfonzo (Al) Pavlicek found Van Delden Wastewater Systems a "comfortable place to work." After 15 years on the job, the business changed hands, yet Pavlicek barely noticed.

"If you don't notice time passing, you must be comfortable doing what you're doing," he reasons. When 22 more years passed without much notice, he again found himself working for a new owner. In January 2010, he marked 50 years working for Van Delden. Through the years it has been a comfortable relationship.

"There was a time when we could put absorption laterals in areas where we blasted the rock to loosen it up," he says. "We can't do that anymore. Blasting was an art that has been supplanted, mainly by technology.

"It was common for us to have as many as 18 men using 115-pound jackhammers to break rock," Pavlicek says. "Today, one person using a machine equipped with a 1,200-pound hoe-ram can do two to three times more work than those 18 could! Today, we break rock for building sewers and tank excavations, but

not for absorption areas.

"Before joining Van Delden Wastewater, Pavlicek wanted to work for the city's utility service, but they only paid 75 cents per hour. He took a job with Van Deldens for the same money, and it was the right move.

"I was a hard worker then, and I am now too," he says. "After three days on the job, the boss, Garrett's grandfather, came by and said, 'You're a hard worker and you're giving us a full day's work.' I got a 33 percent raise on the spot!"

Pavlicek says going to work keeps him young. So does his love of hunting and fishing. But what really makes him feel best comes at the end of a job.

"When the owner expresses appreciation for a job well done, that makes me feel good," he says. That's true whether the good job involves a neat job site, a nicely restored lawn, or a tree saved: "It is the pat on the back that is my most treasured reward."

It is a reward his bosses and customers have presented time and again — a simple gesture that never goes unnoticed.

permit application, to installation.

The company also provides ongoing service through maintenance, operation or management contracts, basic component repairs and treatment tank pumping. Relying on inspection standards he wrote by himself, Van Delden fields system inspectors who evaluate existing systems before property transfers.

This diversity helps the company overcome downturns in individual segments while overall it continues to prosper. For example, installation work is slow now with the depressed market for new homes, but pumping, maintenance, management and component repairs have enabled the company to avoid layoffs.

All sides of the business create contacts that typically evolve into long-term customer relationships. The company continues to serve systems first encountered when Van Delden's dad or grandfather were

the owners. That helps build the customer list.

Not isolated

Van Delden Wastewater operates from a two-acre site next to an Interstate highway. "Our purpose-built building lets us leave work at the office," Van Delden says. The facility is a central base of operations that includes an office and shop, a modest parts warehouse, and outside space to stockpile aggregate, topsoil and sand. Fuel storage tanks hold gasoline and diesel fuel, purchased in bulk. Supporting company operations are:

- A 2004 Case 590 Super L backhoe with a 1,500-lb Tramac hammer.
- Two 2006 Case 580 Super M backhoes with 1,200-lb Kelly hammers.
- A 1999 Case 580 Super L backhoe.



Van Delden Wastewater Service Company is a family-owned business. From left, daughter Courtney Van Delden, co-owners Pam and Garrett Van Delden, and son Chad Van Delden.

- A 2003 Takeuchi TB015 mini-excavator.
- A 1992 Case 1840 skid loader.
- A 2006 Ditch Witch RT40 rock saw.
- A 2001 Mack CH613 15-cubic-yard dump truck.

All this equipment and three vacuum trucks are stored and serviced on site.

The company's 18 employees have focused tasks but are also cross-trained to some extent. Except for state license or registration restrictions, there is usually someone available to do any task required. Three employees are licensed site evaluators,

and one is a registered sanitarian.

Pam Van Delden, office manager, handles accounting and payroll and keeps things flowing through the office. Receptionist Stacy Brockwell directs callers to the best resource and schedules service calls. Garrett and Chad Van Delden coordinate work assignments and handle job costing and estimating.

Son-in-law Jeff Supplee is a state-registered sanitarian who handles system design, while Kimberly Beaton supports his work as a drafter. Supplee's wife, Courtney, manages pumping operations and real estate inspections.

In the field, Alfonzo Pavlicek (a 50-year employee) and Gary Sloan operate equipment and serve as on-site supervisors, guiding helpers Mike Levario and Victor Sifuentes. Maintenance and service technicians Ken Munson, Anthony Edgell and Bill Hoover keep nearly two-thousand onsite systems running smoothly.

No surprises

"We are honest and forthright in all of our customer contacts," Van Delden says. "We do not want anything about our work to be a surprise to the customer. This starts with the first customer contact and really never stops."

Typical discussion subjects include price, conditions of service, what to expect at each stage of a job and under what circumstances extra charges may apply. All that information finds its way into written customer contracts.

In the company's semi-arid area, lawn-watering sprinklers are common and unseen. "We use sprinkler and driveway damage waivers to shield us from liability for damage to these features," Van Delden says. No subject is off the discussion table, and employees treat every question as legitimate.

The direct communication style may scare off a customer now and then, but mostly it helps avoid misunderstandings and surprises. Close attention to every detail of every job also keeps surprises to a minimum.

Meanwhile, the office serves as an information clearinghouse. Callers speak directly with people well-versed in onsite system issues. Van Delden believes it is essential for callers to reach a live, knowledgeable person in the office, not a voice mail system or a crew member on a machine on a job site somewhere.

The company has an electronic customer database. Van Delden created the file, which houses a wealth of information. Before crew members leave for a job site, they can access key information about the customer, the system and its maintenance history. That helps them arrive prepared to get right to work.

Changing markets

Van Delden likes subdivision



Service technician Ken Munson uses a flowmeter from Dwyer Instruments Inc. to check the airflow volume on an aerobic treatment unit.

work where his customer is a single large builder. Such customers save significant money through bulk purchasing of advanced treatment units and system components and supplies.

These projects build an immediate and close bond with the eventual homeowner and lets Van Delden tune the system more closely to the family's lifestyle.

"In all situations, we recommend

"I will not risk the reputation of this company to install a minimum system that will not meet the owners' long-term needs."

Garrett Van Delden

"These jobs keep us busy for longer periods of time," Van Delden says. The arrangement also cuts sales and marketing costs and reduces overhead. Unfortunately, as market conditions change, multiple-home projects are becoming scarce, but another profitable segment is working with custom builders and individual land-owners evaluating sites and choosing the most appropriate system.

systems that are above the regulatory minimum," Van Delden says. "I will not risk the reputation of this company to install a minimum system that will not meet the owners' long-term needs."

He has walked away from jobs where the customer wanted the minimum, when the family's lifestyle would generate much more than minimum design flows.

New opportunities

Van Delden expects to see continued growth opportunities in the next five years, although not in large numbers of new systems. Maintenance contracts for advanced technology components and entire systems will grow.

The operation and maintenance business focuses on treatment units from Clearstream Wastewater Systems Inc. "We are experienced with these systems and stock a complete range of maintenance parts for them," Van Delden says. He believes it is too costly to maintain expertise and parts inventory for a wide range of technologies.

"The most common treatment unit we install is Clearstream's 600NC3T aerobic system. Clearstream products are the only advanced treatment units we have under maintenance contract." Those units discharge to a variety of dispersal systems: drip irrigation, spray irrigation, conventional drainfields or low-pressure distribution.

Some installers, while competent to install a Clearstream unit, subcontract warranty and service work to Van Delden as a third-party provider. "Our business gets a good number of referrals from homeowners when they discover their maintenance provider cannot meet their needs," Van Delden says.

For 73 years, Van Delden Wastewater Systems has been satisfying customers with solutions for every onsite need. Change has helped drive focused diversity and has created new markets. It all adds up to a bright future for the next generations of Van Deldens who take over the family enterprise. ■

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

Are You Certified?

There is no discounting the importance of achieving and maintaining professional certifications for the lines of business in which you operate

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

A while back Jim received his new card for certification as a Certified Professional Soil Scientist. One shocking thing about the card that had not been there previously was the line: Certified for 38 years.

First, it reminded him that time continues to march on. But more important it highlighted that for his entire career, he had met the continuing education requirements to maintain certification. In this case, that means at least 40 continuing education units every two years.

You can do the math on how many hours that is over 38 years. Dave has similar requirements to stay updated as a professional engineer. The bottom line is that

programs for the National Association of Wastewater Transporters (NAWT).

There are many other certification programs or opportunities out there. It is important from a business standpoint to participate and be certified. Through education and certification, you gain a more structured way to share your experiences with your peers and to avail yourself of their knowledge.

One thing that always separates this industry from others is the extent to which people will go to find practical answers to their questions and to share that knowledge with those just starting out. Despite the independent nature of the industry, and its competitiveness,

It is important from a business standpoint to participate and be certified. Through education and certification, you gain a more structured way to share your experiences with your peers and to avail yourself of their knowledge.

regardless of what your profession is, certification and continuing education are important.

Great leveler

Certification is a voluntary process by which an organization grants recognition to a professional who has met predetermined standards. As many of you know, we have been involved in continuing education and certification pro-

this trait is something we see all the time in our travels.

NAWT certification programs are voluntary, and that is what separates them from state licensing programs. It also makes the NAWT programs and other similar programs strong, while showing that those who are certified are truly committed to their professions. After all, no one is forcing them to be certified.



An onsite system inspector certification class looks at inspection tools while in the field evaluating a system.

Rather, those people recognize that the way to stay competitive in the market and to be able to relate that to the customer is to be certified. It is a way to indicate that you continue to improve in your profession out of care and dedication — not because you are required by a state agency and wouldn't be allowed to work in the field otherwise.

Defined standards

All certification programs have a set of standards that define them. Get to know the standards of the organizations you belong to. Anyone who can meet the standards through exams, education, experience and others can become certified.

Likewise, standards define what you as an installer should be able to do, and should know. Having certi-

fication helps you demonstrate your abilities and knowledge to customers.

A number of factors drive the demand and need for certification, and they hold true for virtually all professions. These include continuing technological innovation, exponential increases in the knowledge required and the public's demand for standards and assurances that the professional they hire can meet them.

Through the certification program's continuing education requirements, you're continually updating and adding to your knowledge and skills. Lifelong learning is important for any professional and is at the heart of onsite industry certification programs.

For our part, we usually refer to this as "raising the bar" of professionalism. As our profession becomes



Kit Rosefield, a NAWT trainer from California, explains a pressure distribution system.

more recognized, there is a great opportunity for state associations and organizations to become involved in the education process.

Take the step

From your business perspective, it is important that you build certification both for yourself and

for your employees into your business plan. If you are considering expanding your business into other areas, education and certification programs are the place to start to help focus those plans and to give a more accurate reading of how well the expansion is likely to work.

Widely used credentials specific to the onsite treatment industry include:

- NAWT Certified Inspector
- NAWT Certified Installer
- NAWT Operation and Maintenance Certifications (Part 1 and Part 2)
- NAWT Certified Vacuum Truck Driver
- National Environmental Health Association (NEHA) Certified Installer of Onsite Wastewater Treatment Systems (Basic and Advanced)

Become involved and support the certification programs of your state association, and other professional organizations. You will be very happy with the outcome. ■

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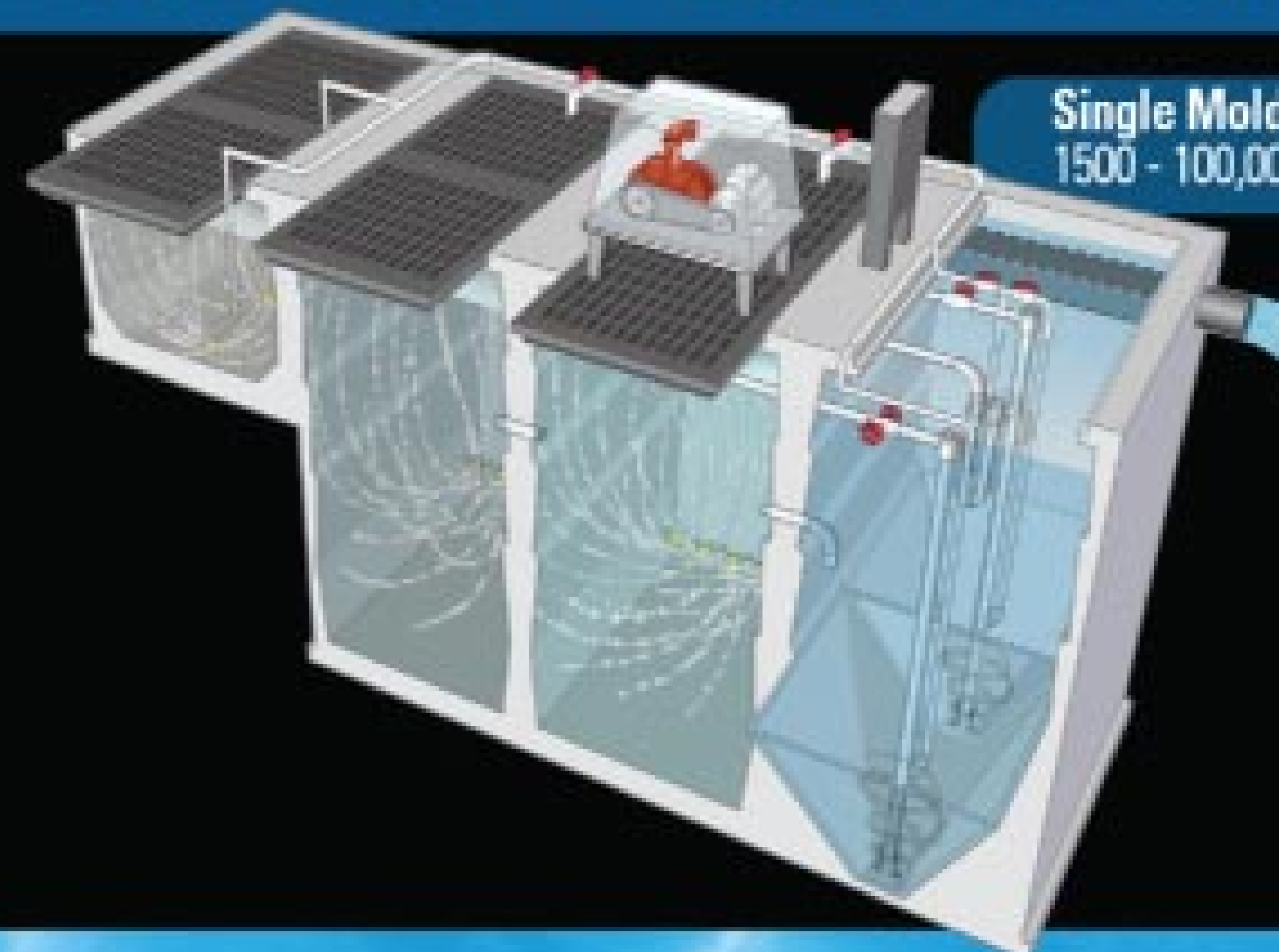
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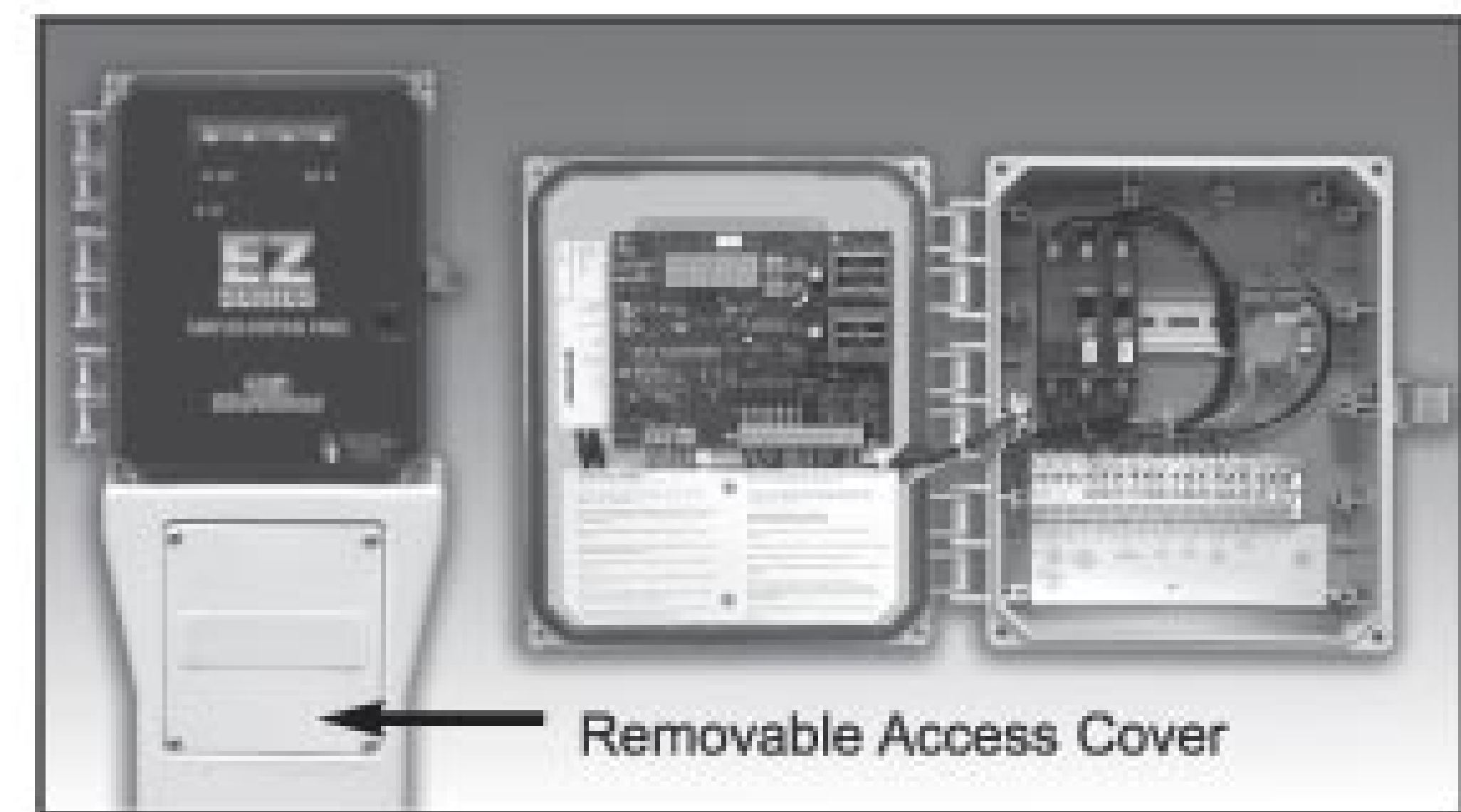
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New Jersey Legislature Revives Controversial Bill

By **Scottie Dayton**

The New Jersey Legislature revived a bill to delay an anti-sprawl, water-quality management rule that gives state environmental officials more power to control the expansion of onsite treatment and sewer service.

The measure prevents the already delayed regulation, adopted in 2008 by the Department of Environmental Protection, from taking effect until April 2011. The legislation allows the DEP to restrict onsite systems and sewer lines in environmentally sensitive areas, wetlands and rare species habitats.

The DEP required all 21 counties to compile management plans by April 2010, assessing development and growth potential based on onsite and sewer extensions. Supporters of the legislation say the delay gives counties more time to finish the extensive work. The legislation followed a report by Gov. Christie's transition team stating that the DEP has inappropriately expanded its jurisdiction and has assumed new responsibilities with no direct statutory authority and no staff to do so.

Texas

Stricter regulations on septic tanks proposed by the state Department of Environmental Protection would stymie new building developments, especially in Wayne, Pike and Monroe Counties, and place cost burdens on residents with septic tanks, according to county supervisors.

The rules, stemming from a 2008 court decision, seek to lessen the effect of septic tanks on exceptional quality watersheds through a more stringent permitting process that could take up to a year and a half. The rules also could require septic tanks to be pumped every three years. Although Wayne County followed the septic code, DEP rejected subdivision permits, creating vagueness on how to proceed with development.

Washington

An amendment to the Whatcom County septic code replaces legislation mandating periodic inspections of septic systems by certified professionals, occurring yearly for proprietary pump systems and every

three years for gravity systems.

Under the amended code, homeowners who take a free 4-hour course offered by the county can inspect their own conventional onsite systems. Council members stated that it was unfair to require homeowners to undertake expensive repairs without having a low-cost loan program similar to those in other jurisdictions in the state.

They questioned the need for a shotgun approach to the problem of failing systems when failure rates are minimal. Professional inspections are still required under advanced treatment manufacturer warranties and whenever property is sold.

Michigan

The Michigan Septic Tank Association legislative committee has worked with legislative consultants to draft a bill requiring local governments that ban land application of septage to make a receiving facility available within 25 miles of their farthest boundary line. A portable toilet bill requiring building sites to have at least one unit is likely to pass, according to the association.

Tennessee

Revised onsite regulations allow drip dispersal, and require effluent treatment to secondary standards through advanced technologies, media filters or other systems. The changes also formalize the requirements for becoming an approved maintenance provider and mandate perpetual maintenance contracts for advanced systems and drip dispersal.

Ohio

For the third time, lawmakers extended the moratorium on septic

legislation, this time from Jan. 1 until July 1, 2010. The extension allows more time to consider additional proposals, including a bill introduced last year to replace the 2007 legislation. The proposed legislation would allow for more repairs versus replacements.

Pennsylvania

The state Department of Environmental Protection (DEP) is reviewing all proposals for subdivisions and other construction and will not issue permits until townships have a sewage management ordinance. DEP spokesman Mark Carmon stated that townships must contact the agency each time they submit a development proposal and talk about ways to maintain high water quality.

A court ruling requires the DEP to apply stringent anti-degradation regulations to all new onsite systems and eventually to every system on a case-by-case basis. Towns must enforce the rulings and lack the resources to do it. With construction plans at a standstill, five Wayne County organizations sent a combined letter to every elected official, urging them to take immediate action to reverse the DEP requirement. ■



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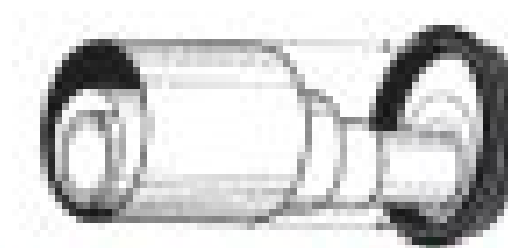
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Braggin' Rights

Corey Hoover tops some 150 contestants to win the Installer Academy's third annual Roe-D-Hoe, held at the 2010 Pumper & Cleaner Environmental Expo

By Ed Wodalski

Corey Hoover made it look easy. In winning the 2010 National Onsite Wastewater Recycling Association Roe-D-Hoe competition, Hoover scooped up three basketballs and dropped them through a hoop, snatched three bowling pins and placed them inside pipe-like containers, then deftly set a golf ball atop three equally spaced traffic cones — all while at the controls of a 9VX IHI compact excavator, and in less than two minutes.

Hoover's winning time of 1:50:58 was the best among five finalists in the third annual event. The Roe-D-Hoe is part of the NOWRA Installer Academy, held for the first time this year in conjunction with the Pumper & Cleaner Environmental

Expo International at the Kentucky Exposition Center in Louisville, Ky.

Lots on the line

Mike Smallwood of Hamilton, Ohio, placed second with a combined time of 2:36:56; Vincent Sullivan of Austin, Texas, was third in 3:11:48; Chris Hartman of Shelbyville, Ky., was fourth in 3:33:41. Kent House of Hagerstown, Ind., placed fifth after failing to complete the basketball event in the allotted number of tries.

Finalists were chosen from among the top 10 times posted during preliminary competition on Feb. 25 and 26, according to Tom Fritts, NOWRA board member and chairman of the Installer Academy and Roe-D-Hoe events.



Roe-D-Hoe winner Corey Hoover displays his skill in "golf." (Photography by Ed Wodalski)

Hoover, 32, of Erie, Pa., received a first-place check of \$1,000 from Jet Inc., a souvenir belt buckle, and the right to hoist the \$3,000 WWF-like champion's belt. He also earned a year's worth of bragging rights.

"Something like this with a thousand bucks on the line, it's tough to keep your cool, but it worked out," Hoover said. His strategy? "The rings atop the bowling pins, when you set them up, the guys don't look at the rings. I pointed them right to the excavator. You've got to be able to turn them where you need them. One of them screwed me up. I hit it, and it turned sideways twice on me. That hurt my time a little bit. But basically it was just luck."

Second-place finisher Mike Smallwood goes "bowling" with his IHI mini-excavator during the competition at the Pumper & Cleaner Expo.

Big or small?

An employee of Dick Morewood Plumbing Heating, Hoover does most of the company's excavation work. "I like being outside and love running the machines," Hoover said. "We run mini-excavators. We have an 1,800-pound machine, too. There's such a difference between the small ones and the big ones. The small machines are more technical. You can be real smooth with them. It helps that I have one of those at home. I've run them before. I know how they feel."

NOWRA president Tom Groves estimated about 150 contestants took part in the Roe-D-Hoe. A number of entrants tried multiple times. "It went over really well," says Groves. "A lot of people are looking forward to coming back next year."

Of NOWRA's 4,000 members, about half are installers who run backhoes, Groves said. And, as demonstrated during the three-event hoe-off, they run them very well. ■



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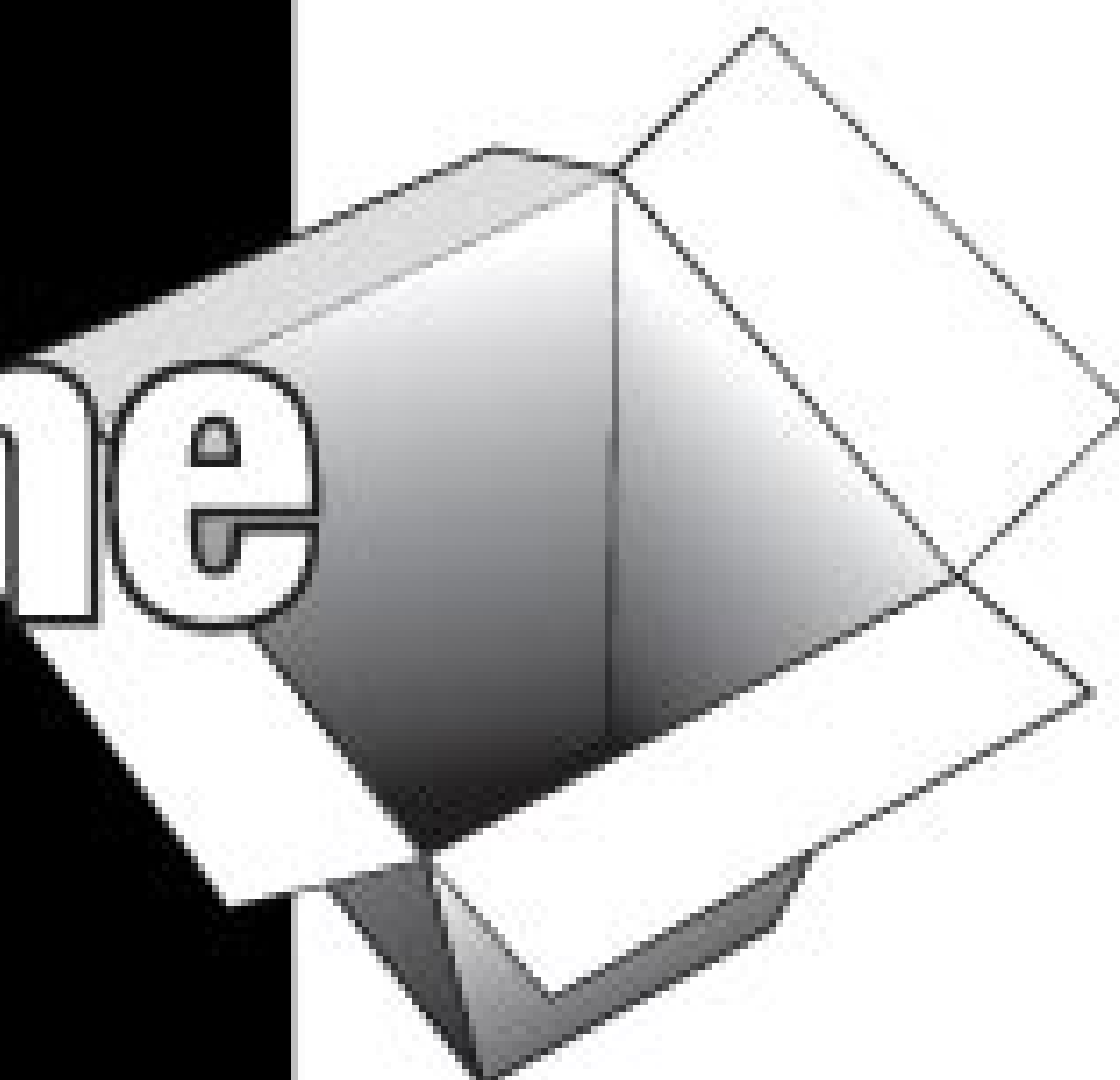
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3 Fairfield Blvd.
Wallingford, CT 06492
877-765-9565
203-265-6340 • Fax: 203-284-8514
pmulhall@polylok.com
www.polylok.com
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800-632-6356
418-867-8883 • Fax: 418-862-6642
szom@premiertech.com
www.ptenv.com
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Presby Environmental Inc.

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Whitefield, NH 03598
800-473-5298
603-837-3826 • Fax: 603-837-9864
info@presbyeco.com
www.PresbyEnvironmental.com
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R

Romotech

67742 County Rd. 23
New Paris, IN 46553
574-831-6450 • Fax: 574-831-7450
sales@romotek.com
www.romotek.com
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S

Salcor, Inc.

PO Box 1090
Fallbrook, CA 92088
760-731-0745 • Fax: 760-731-2405
jscruver@aol.com
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Septic Services, Inc.

PO Box 632
Union, MO 63084
800-536-5564
636-583-5564 • Fax: 636-583-6432
septic@fidnet.com
www.septicserv.com
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Septronics, Inc.

602 East Union St.
Oconomowoc, WI 53066
262-567-8908 • Fax: 262-567-9532
septronics@charterinternet.com
susan@septronicsinc.com
www.septronicsinc.com
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SIM/TECH FILTER, Inc.

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Boyer City, MI 49712
888-999-3290
231-582-1020 • Fax: 231-582-7324
sales@gag-simtech.com
www.simtechfilter.com



SJE-Rhombus Controls*

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888-342-5743
218-847-1317 • Fax: 218-847-4617
sje@sjerhombus.com
www.sjerhombus.com
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SludgeHammer Group Ltd.

336 S. Division Rd.
Petoskey, MI 49770
800-426-3349 • Fax: 720-834-3102
info@sludgehammer.net
www.sludgehammer.net
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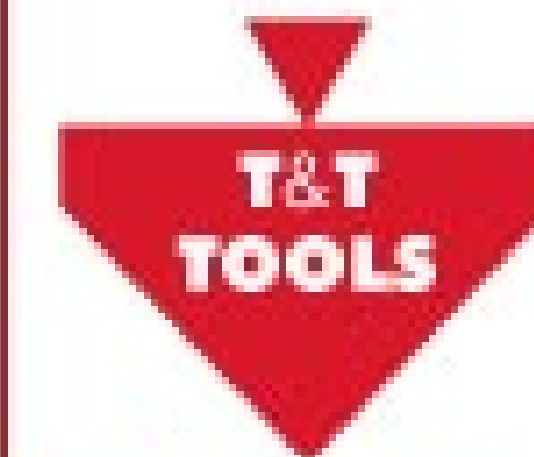
Snyder Industries, Inc.

4700 Fremont St.
Lincoln, NE 68504
402-467-5221 • Fax: 402-465-1220
sales@snydernetwork.com
www.snydernetwork.com

SPI - Septic Products, Inc.

1378 Twp. Rd. 743
Ashland, OH 44805
419-282-5933 • Fax: 419-282-5943
sales@septicproducts.com
www.septicproducts.com
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T



T & T Tools, Inc.

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616-296-0623 • Fax: 800-521-3260
sales@tandttools.com
www.mightyprobe.com
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Kittery Point, ME 03905
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www.pagodavent.com
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The Shaddix Company, Inc.

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dshaddix@windjammercable.net
www.theshaddixcompany.com
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Tuf-Tite, Inc.

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800-382-7009
847-550-1011 • Fax: 847-550-8004
sales@tuf-tite.com
www.tuf-tite.com
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W

Waterloo Biofilter Systems, Inc.

PO Box 400
Rockwood, ON N0B 2K0, Canada
519-856-0757 • Fax: 519-856-0759
info@waterloo-biofilter.com
www.waterloo-biofilter.com
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Werk-Brau Co., Inc.

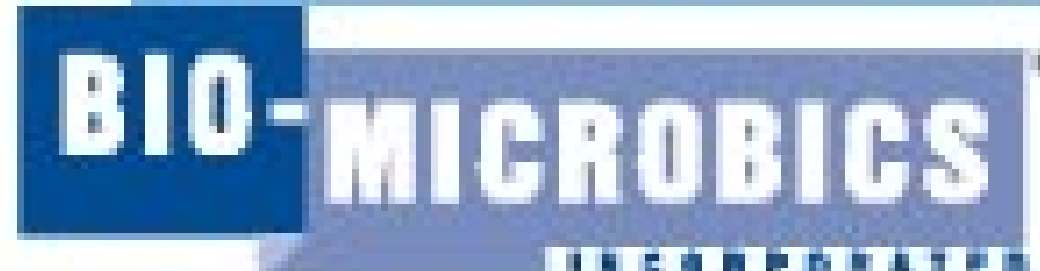
2800 Fostoria Ave.
Findlay, OH 45840
800-537-9561 • Fax: 419-422-7207
sales@werk-brau.com
www.werk-brau.com
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Wieser Concrete Products Inc.

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wieserpc@wieserconcrete.com
www.wieserconcrete.com
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913-422-0707 • Fax: 913-422-0808
jcsneros@biomicrobics.com
www.biomicrobics.com
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2247 Hwy 151 N
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318-644-0397 • Fax: 318-644-7257
aquasafe@bayou.com
www.etiaquasafe.com

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East Hartford, CT 06108
800-444-1359
860-610-0426 • Fax: 860-610-0427
info@eljen.com
www.eljen.com
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GeoFlow Inc.

506 Tamal Plz.
Corte Madera, CA 94925
800-828-3388
415-927-6000 • Fax: 415-927-0120
krf@geoflow.com
www.geoflow.com

Hydro-Action Manufacturing, LLC

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Plymouth, IN 46563
800-370-3749
574-936-2542 • Fax: 574-936-2298
steved@akindustries.com
www.hydro-action.com
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tlydic@jetincorp.com
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220 Republic St.
Norwalk, OH 44857
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customerservice@norweco.com
www.norweco.com

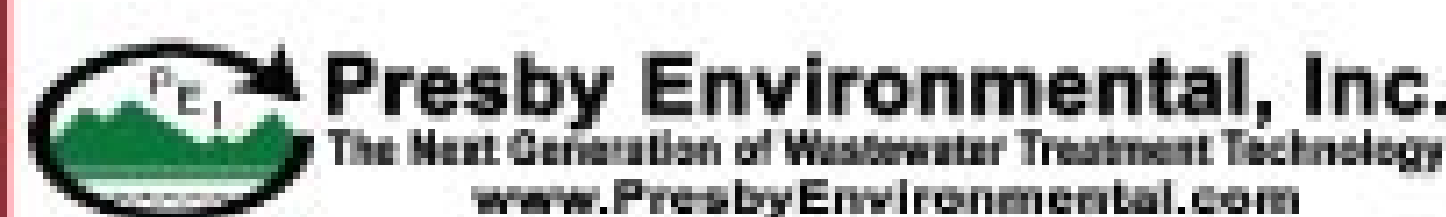
Oldcastle Precast, Inc.

1400 N. Wasbash Ave.
Hartford City, IN 47348
888-965-3227 • Fax: 877-774-5686
steve.kingsland@oldcastleprecast.com
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jscruver@aol.com
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Rockwood, ON NOB 2K0, Canada
519-856-0757 • Fax: 519-856-0759
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cvdewitt@embarqmail.com
www.aerotech-atu.com
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626-962-2116 • Fax: 626-962-2177
info@alita.com
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info@bsdesigncorp.com
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800-277-8179
318-644-0397 • Fax: 318-644-7257
aquasafe@bayou.com
www.etiaquasafe.com

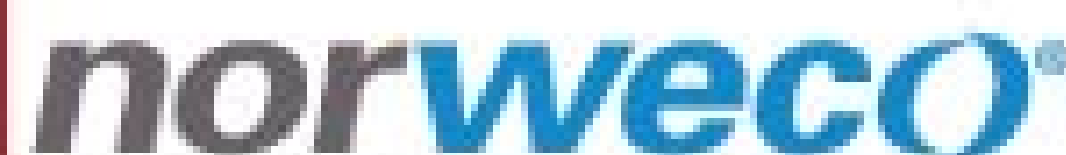


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800-321-6960
440-461-2000 • Fax: 440-442-9008
tlydic@jetincorp.com
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800-251-8409
419-668-1639 • Fax: 419-668-9156
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www.norwalkprecastmolds.com



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www.norweco.com

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888-965-3227 • Fax: 877-774-5686
steve.kingsland@oldcastleprecast.com
www.oldcastleprecast.com/wastewater
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Septic Services, Inc.

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Tuf-Tite, Inc.

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800-382-7009
847-550-1011 • Fax: 847-550-8004
sales@tuf-tite.com
www.tuf-tite.com
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www.wieserconcrete.com
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info@aquaworx.com
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sales@championpump.com
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Downsville, LA 71234
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318-644-0397 • Fax: 318-644-7257
aquasafe@bayou.com
www.etiaquasafe.com

Goulds Pumps - ITT

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Seneca Falls, NY 13148
315-568-2811 • Fax: 315-568-7933
fhs.webmaster@itt.com
www.goulds.com
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Liberty Pumps

7000 Apple Tree Ave.
Bergen, NY 14416-9446
800-543-2550
585-494-1817 • Fax: 585-494-1839
laurie.pfaff@libertypumps.com
www.libertypumps.com
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Orenco Systems, Inc.

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800-348-9843
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info@orenco.com
www.orenco.com
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pmulhall@polylok.com
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Septic Services, Inc.

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septic@fidnet.com
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Oconomowoc, WI 53066
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septronics@charterinternet.com
susan@septronicsinc.com
www.septronicsinc.com
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SJE-Rhombus Controls®

22650 Country Hwy. 6
Detroit Lakes, MN 56502
888-342-5743
218-847-1317 • Fax: 218-847-4617
sje@sjerhombus.com
www.sjerhombus.com
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SPI - Septic Products, Inc.

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Ashland, OH 44805
419-282-5933 • Fax: 419-282-5943
sales@septicproducts.com
www.septicproducts.com
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Waterloo Biofilter Systems, Inc.

PO Box 400
Rockwood, ON NOB 2K0, Canada
519-856-0757 • Fax: 519-856-0759
info@waterloo-biofilter.com
www.waterloo-biofilter.com
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Association

National Precast Concrete Assoc.

10333 N. Meridian St., Ste. 272
Indianapolis, IN 46290
800-366-7731 • Fax: 317-571-0041
npca@precast.org
www.precast.org
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Chemicals -
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Arcan Enterprises, Inc.

PO Box 31057
Clarksville, TN 37040
888-352-7226
931-368-1903 • Fax: 931-368-1904
sales@arcan.com
www.arcan.com
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Jet, Inc.

750 Alpha Dr.
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440-461-2000 • Fax: 440-442-9008
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Norweco, Inc.

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Polylok, Inc.

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Decorative Rock

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PO Box 123
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888-864-1468 • Fax: 207-439-1152
info@pagodavent.com
www.pagodavent.com
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Disinfection

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**Drainfield
Components**

BrenLin Company, Inc.

13999 County Rd. 11
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888-606-1998
320-677-2838 • Fax: 320-677-3001
brenlin@frontiernet.net
www.seal-r.com
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BS Design Corp.

20 Wilshire Dr.
Sharon, MA 02067
866-968-9668
781-793-9334 • Fax: 781-793-0611
info@bsdesigncorp.com
www.thedirtybird.com
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Eljen Corporation

125 McKee St.
East Hartford, CT 06108
800-444-1359
860-610-0426 • Fax: 860-610-0427
info@eljen.com
www.eljen.com
Ad on page 39

GeoFlow Inc.

506 Tamal Plz.
Corte Madera, CA 94925
800-828-3388
415-927-6000 • Fax: 415-927-0120
krf@geoflow.com
www.geoflow.com



Infiltrator Systems, Inc.

6 Business Park Rd.
Old Saybrook, CT 06475
800-221-4436
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info@infiltratorsystems.com
www.infiltratorsystems.com
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Orenco Systems, Inc.

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Sutherlin, OR 97479
800-348-9843
541-459-4449 • Fax: 541-459-2884
info@orenco.com
www.orenco.com
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888-999-3290
231-582-1020 • Fax: 231-582-7324
sales@gag-simtech.com
www.simtechfilter.com

SludgeHammer Group Ltd.

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Petoskey, MI 49770
800-426-3349 • Fax: 720-834-3102
info@sludgehammer.net
www.sludgehammer.net
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Kittery Point, ME 03905
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www.pagodavent.com
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Tuf-Tite, Inc.

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Lake Zurich, IL 60047
800-382-7009
847-550-1011 • Fax: 847-550-8004
sales@tuf-tite.com
www.tuf-tite.com
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National Precast Concrete Assoc.

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Indianapolis, IN 46290
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800-537-9561 • Fax: 419-422-7207
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Filters - Onsite/Wastewater

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Hilliard, OH 43026
800-821-6710 • Fax: 614-658-0204
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www.ads-pipe.com

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800-753-3278
913-422-0707 • Fax: 913-422-0808
jcisneros@biomicrobics.com
www.biomicrobics.com
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866-968-9668
781-793-9334 • Fax: 781-793-0611
info@bsdesigncorp.com
www.thedirtybird.com
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Delta Environmental Products

8275 Florida Blvd.
Denham Springs, LA 70726
800-219-9183
www.deltaenvironmental.com
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National Precast Concrete Assoc.

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Indianapolis, IN 46290
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npca@precast.org
www.precast.org
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www.norweco.com

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800-348-9843
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Premier Tech Aqua

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szom@premiertech.com
www.ptenv.com
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Oconomowoc, WI 53066
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847-550-1011 • Fax: 847-550-8004
sales@tuf-tite.com
www.tuf-tite.com
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www.waterloo-biofilter.com
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800-325-8456
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wieserpc@wieserconcrete.com
www.wieserconcrete.com
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T & T Tools, Inc.

PO Box 531
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616-296-0623 • Fax: 800-521-3260
sales@tandttools.com
www.mightyprobe.com
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Loader and Skid Steer Equipment

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Findlay, OH 45840
800-537-9561 • Fax: 419-422-7207
sales@werk-brau.com
www.werk-brau.com
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info@bsdesigncorp.com
www.thedirtybird.com
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541-459-4449 • Fax: 541-459-2884
info@orencosystems.com
www.orencosystems.com
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Kittery Point, ME 03905
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info@pagodavent.com
www.pagodavent.com
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800-821-6710 • Fax: 614-658-0204
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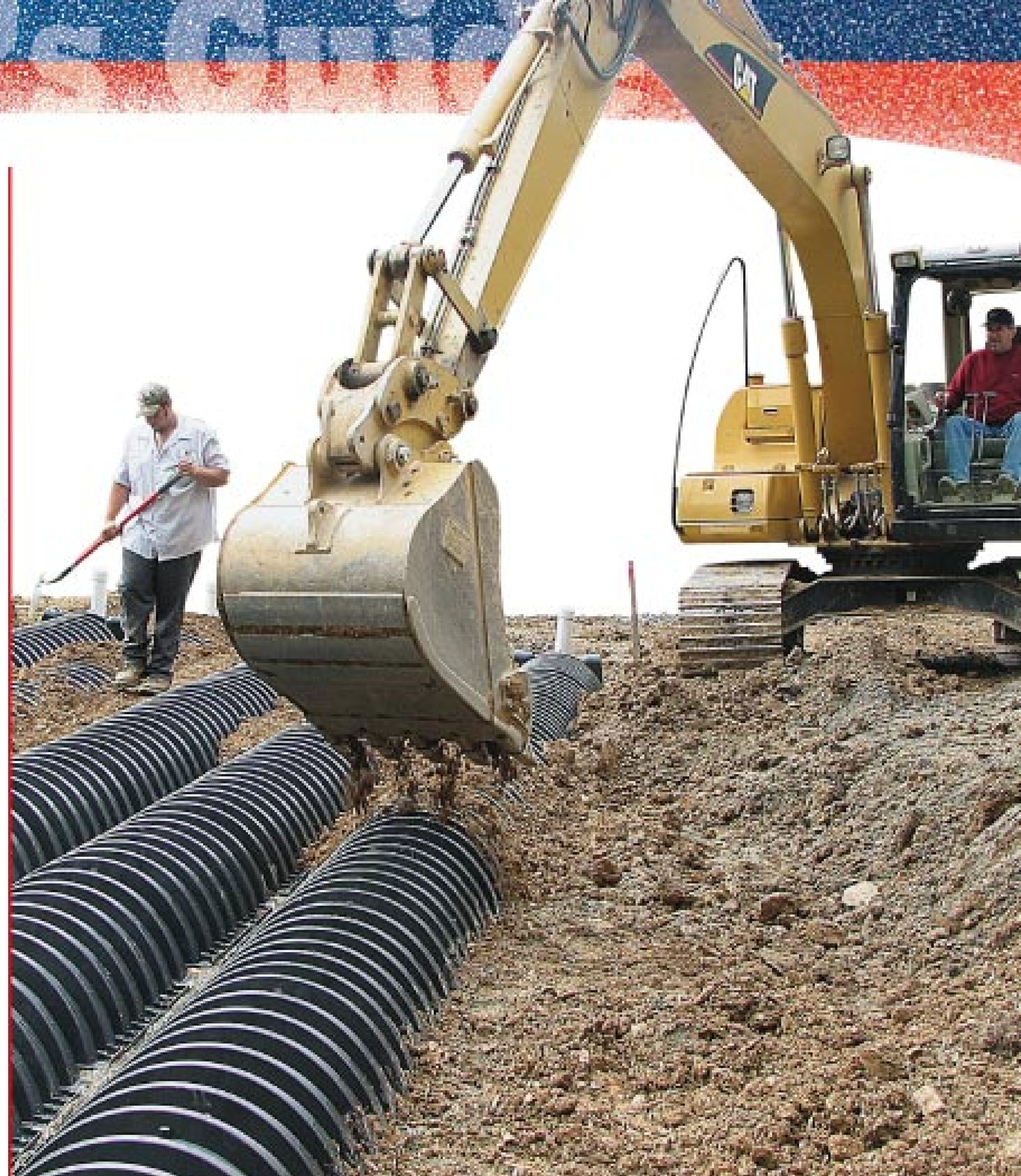
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Nature's Course

An innovative rehabilitation of a sand filter enables a high school in central North Carolina to regain regulatory compliance

By **Scottie Dayton**

Effluent discharging into Bear Creek from the above-grade sand filter at Chatham Central High School in Bear Creek, N.C., was noncompliant, averaging 8 mg/l BOD and 7 mg/l ammonia. Fines from the state Division of Water Quality (DWQ) cost the school \$120,000 per year.

After two firms failed to solve the problem, the Chatham County Board of Commissioners called C. Halford House, Ph.D., president of Integrated Water Strategies in Apex, N.C., known statewide as an innovator in wastewater treatment.

House consulted with Darrell Cole, the board's licensed operator, who maintained the system and sampled effluent twice monthly.

House and engineer Vic D'Amato analyzed the performance data and concluded that the sand filter was too cold and wet.

"It's a classic challenge to many people, because the required biological processes don't work well in those conditions," says House. "We basically made the system drier and warmer."

The low-energy solution House designed uses expanded slate aggregate and plants to filter effluent. The rejuvenated sand filter brought BOD and ammonia levels into compliance immediately.

Site conditions

Because the repair used existing components, soils and test pits



The excavator operator covers the sleeved 1.25-inch low-pressure distribution lines with 1/4-inch pea gravel 2 inches deep. Each sand filter has two rows of 18 laterals, 20 feet long on 2-foot centers with individual observation ports in the middle. In the background is the framing for a maintenance building. (Photos courtesy of Integrated Water Strategies)

System Profile

Location:	Bear Creek, N.C.
Facility served:	Chatham Central High School
Designer:	C. Halford House, Ph.D., Integrated Water Strategies, Apex, N.C.
Installer:	Darrell Cole, Chatham County Schools, Bear Creek, N.C.
Site conditions:	Bear Creek frequently overflows, flooding the sand filter
Type of system:	Two-stage vegetated sand filter with expanded slate aggregate, Carolina Stalite Co., Salisbury, N.C.
Hydraulic capacity:	10,000 gpd

were unnecessary. Bear Creek, 20 feet from the system, frequently overflows, flooding the sand filter.

System components

House worked with the system's original 10,000 gpd design. Its major components are:

- Existing 1,000-gallon, one-compartment grease tank.
- 2,000-gallon, one-compartment grease tank. Concrete tanks by Stay-Right Precast Concrete Inc.
- Existing 10,000-gallon, two-compartment concrete septic tank.

- Biotube effluent filter from Orenco Systems Inc.
- 3,000-gallon pump tank bottom connected to existing 8,000-gallon primary dosing tank with Myers 1.5 hp ME series duplex pumps and controls from Zoeller Pump Company.
- Venturi aerators from Mazzei Injector Company.
- 42- by 42-foot concrete block primary and secondary sand filters with wetland plants and 5/16-inch expanded slate aggregate from Carolina Stalite Company.



The excavator operator removes 2 feet of sand and gravel from one of two masonry block boxes containing the original sand filters.



The sand filters with a partial cover of 5/16-inch Stalite.

- Existing Sanitron UV (Atlantic Ultraviolet Corp.) disinfection unit from Fluid Dynamics International Ltd.

System operation

A 4-inch high-strength PVC line runs from the kitchen to the grease interceptor, then joins the 4-inch PVC Schedule 40 sewer pipe discharging to the septic tank. Effluent flows by gravity through the filter and into the primary dosing tank.

Alternating pumps in the tank cycle every two hours. A 30-second dose sends 25 gallons to the primary sand filter through a 1.25-inch PVC line. It takes about six hours for the dose to trickle through the layers of aggregate and washed stone, then flow into the second pump tank.

Batch loading to the secondary sand filter is identical to the first. Venturi aerators in the supply manifold to the beds increase the oxygen level. Effluent is pumped 20 feet to the disinfection unit in the maintenance building and discharges into Bear Creek.

"The expanded aggregate has a 97 percent void ratio with 50 percent more surface area than sand or gravel

"If we don't overload the microbes, they turn all the organic materials into carbon dioxide, which plants use in photosynthesis. No organic material remains to clog the media."

C. Halford House, Ph.D.

for higher ammonia nitrogen conversion and BOD and TSS removal," says House. "It won't clog because of its high-hydraulic conductivity, yet it retains 8 percent of the moisture for growing vegetation.

"As plants grow, they leak a little air and sugar from their roots, which attracts the microbes that transform organic materials and ammonia nitrogen into harmless gases. The aggregate and vegetation also introduce air into the system and help keep it warmer by acting like a solar sink."

Installation

Over summer vacation, D'Amato and House supervised Cole, Chatham County Schools employees and subcontractors in repairing the system. "It was important that no waste entered the sand filter, and we needed the parking lot for staging materials," says House. Workers excavated the old tanks to check their integrity. The grease interceptor was cracked and some pipes

were clogged, contributing to the system's problems.

The septic tank, however, passed the watertight test. "This is a critical issue in repairs," says House. "Too often, installers make the mistake of using a septic tank that works only partially, causing the whole system to malfunction. Replacing questionable septic tanks is usually money well spent."

The trickiest part of the installation was removing the top two feet of sand and gravel in the two sand filter boxes without damaging the masonry block or ripping the polyethylene liners. It took half a day to excavate 9,000 cubic yards of material.

Distributing the gravel and 24 inches of aggregate was also delicate. The light, fluffy material was installed in 8-inch-deep layers, then compacted 20 percent. "Certified sand with the right size distribution for sand filters is hard to find,"

ity prevents clogging, yet retains moisture for growing vegetation.

Workers sleeved 1.25-inch PVC low-pressure distribution lines inside 4-inch PVC pipes to keep the plant roots from plugging the 7/32-inch holes drilled three to five feet apart. The orifices point up, and the pipes slip out for maintenance. Each filter has two rows of 18 laterals, 20 feet long on 2-foot centers with observation ports in the middle.

The pipes were bedded in washed stone and covered with two inches of 1/4-inch pea gravel to distribute weight and keep people from leaving footprints or compacting the aggregate below. Gardeners planting ground cover, flowers and shrubs removed the peat pots and soil around the roots before setting the plants on 24-inch centers between the pipes. The roots, anchored in the aggregate, grow hydroponically.

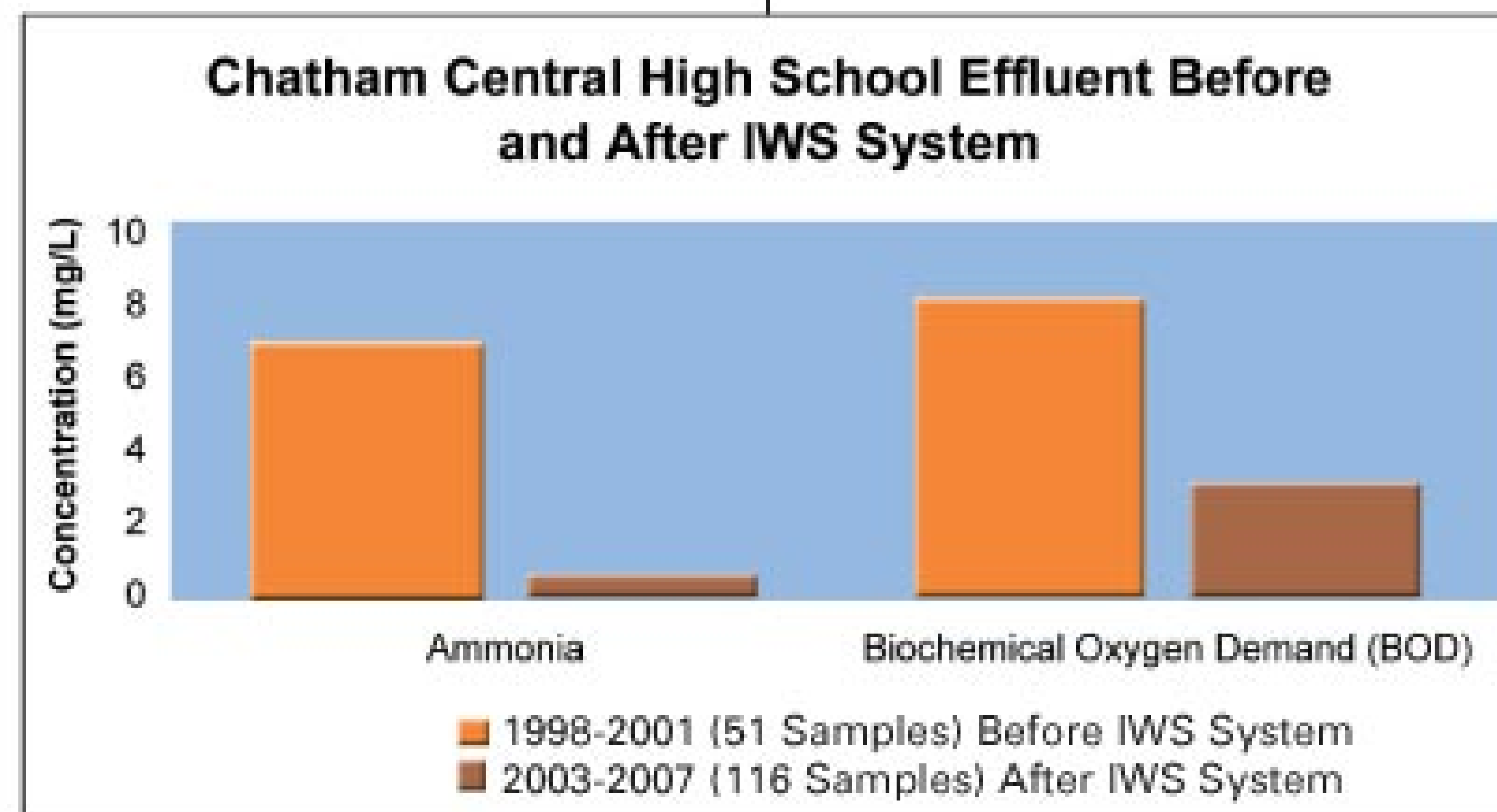
Plants were a major part of the regulatory conversation, since the established practice requires maintenance entities to remove vegetation growing on sand filters. Although skeptical, the DWQ permitted House to prove that plants were beneficial.

"Plants are important because the system is inactive during summer vacation," says House. "Instead of the microbes going into starvation mode and their population plummeting, the plants thrive in summer, maintaining the microbial population at a high number and creating a very stable treatment process."

In winter, the tops of some plants go dormant, but the microbes on the roots flourish in the toasty environment created by the aggregate's

says House. "We therefore use the aggregate routinely because it has a 97 percent void ratio with 50 percent more surface area than sand or gravel."

The increased porosity reduces the size of the treatment area while achieving higher ammonia nitrogen conversion and BOD and TSS removal. High-hydraulic conductiv-



The new onsite system brought about significant reductions in effluent BOD and ammonia.



Roses and other vegetation nearly blanket the sand filter.

solar gain. The vegetation and aggregate also act as insulation. A proprietary passive aeration system of pipes and gravel ensures ample aerobic conditions.

Workers built a 10- by 10-foot maintenance building to house the disinfection unit and mounted the pump control boxes to an outside wall. A backflow valve prevents floodwaters from entering the 4-inch PVC discharge pipe when Bear Creek overflows. After remediation, the BOD and ammonia levels dropped to 2.5 mg/l and 0.5 mg/l.

Maintenance

Maintenance is minimal. Twice a month, Cole samples the effluent and checks the distribution inspection ports for root problems. He created a tool that slides into the sewer pipe to extract roots, but used it only once in three years. Annually, Cole removes and inspects the distribution pipes.

Raking the surface of the sand filter is unnecessary, and pruning plants is an aesthetic choice. "In 18 years of doing this, we've never replaced the media," says House. "The reason is balance. If we don't overload the microbes, they turn all the organic materials into carbon dioxide, which plants use in photosynthesis. No organic material remains to clog the media." ■

MORE INFO:

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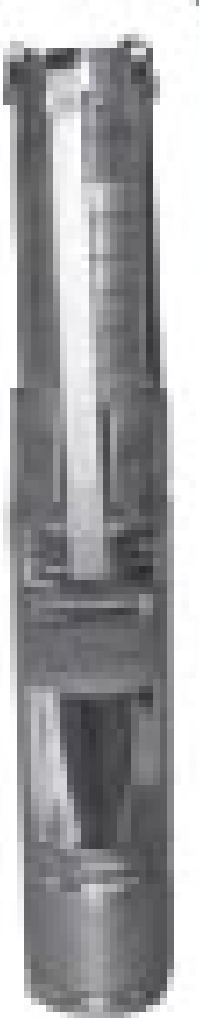
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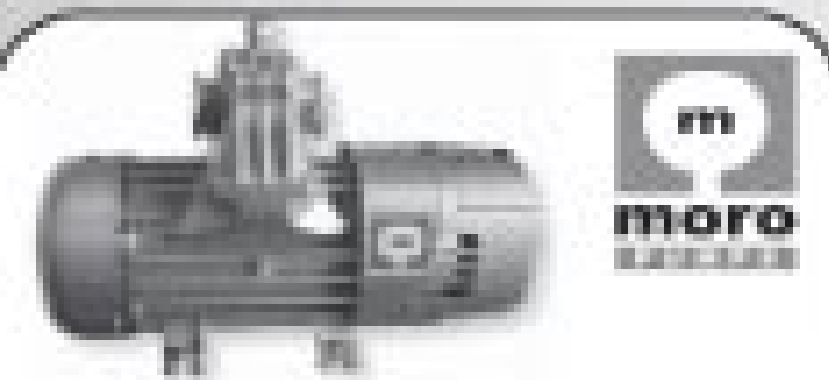
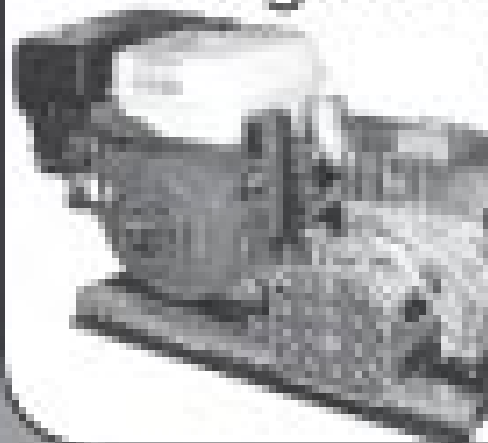


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Carry That Weight

These flatbed, enclosed cargo and dump trailers are ready to help contractors move equipment and supplies to the work site and get the job done

By Ken Wysocky

When you arrive on the job site, you want to get right to work, whether that means digging trenches for an onsite system, excavating for a foundation, or clearing the site and installing a driveway. It's irritating to watch productivity drop because, for example, a narrow, steep trailer ramp makes it hard to unload equipment.

Here is a sampling of trailers built for high productivity at the site and excellent performance on the road. They offer features such as lower-angle and wider ramps and soft-landing tilt beds that make it easier, faster and safer to load and unload machines. They also provide more security, convenience and versatility.

Landscaping unit

The **Landscaper WT2** combination trailer from **Haulmark Industries** functions as a flatbed and enclosed trailer. Available in 16-, 18- and 20-foot flatbed configurations, it also offers more than four feet of lockable enclosed storage up front. The space has a 12-volt interior light, and the door is 32 by 72 inches. Wide, independent rear ramps allow contractors to leave one down and the other locked upright.

Other features include two 12-volt rear loading lights, a split 4-foot rear ramp door, a treated pine deck, heavy-gauge side rails, electric brakes and a tandem 3,500-pound axle configuration (GVWR 7,000 pounds). **800/348-7530; www.haulmark.com.**

Versatile dump trailer

The **CT1414HD** dump trailer from **Trail-et Inc.** doubles as an equipment hauler. With a GVWR of 15,580 pounds and a payload/dump capacity of 11,200 pounds, it has mechanical levers that enable the operator to open the tailgate from the side, out of harm's way, during

dumping. The two-in-one tailgate opens from the bottom and can be used as a spreader, while a barn-door configuration allows full access for equipment.

Double-acting hydraulic cylinders promote stability and tilt the bed up to 45 degrees for dumping. Can easily and safely drive equipment off the 27-inch-high deck using 6-inch storeable cleated ramps. The box is made of 11-gauge high-strength steel with a powder-coat finish. Inside dimensions are 24 inches high, 80 inches wide and 14 feet long. **800/344-1326; www.big-lug.com.**

Drop-deck tilt trailer

The **T-12T** drop-deck tilt trailer from **Towmaster Inc.** is designed for small contractors who don't want to deal with ramps. The tandem wide-axle trailer is available in lengths from 10 to 16 feet and is 8 feet 6 inches wide. It is designed for skid-steers and other machines with low clearance.

Built on a heavy-duty, high-tensile-strength steel frame, it carries up to 12,000 pounds and tilts 10, 11 or 12 degrees, depending on the deck

length. A tilt-cushion cylinder prevents the tilted deck from slamming down. The deck is 21 1/2 inches high when empty and is made of 2-inch oak boards. The unit has a one-piece tongue and mainframe, electric brakes, knife-edge approach plate and a single-lever, twin-latch system that firmly secures the deck to the frame. **800/462-4517; www.towmaster.com.**

Tilt-bed trailer

Designed to carry crawler dozers and mid-size excavators, the 24-foot-long **R24215TB** tilt-bed trailer from **Redi Haul Trailers Inc.**, is available in payloads from 18,600 to 35,200 pounds. The trailer deck, 8 feet 6 inches wide, is made of 2-inch bolted oak. The deck tilts up to 15 degrees, and dual-tilt cushion damper cylinders provide a soft, smooth landing while loading equipment.

The dual-axle trailer can be built in two configurations: a full 24-foot tilt bed, or a 20-foot tilt bed with 4-foot stationary deck. The trailer has either electric or air brakes, tapered and pivoting approach ramps, a 3-inch adjustable-height



CT1414HD from Trail-et Inc.



T-12T from Towmaster Inc.



R24215TB from Redi Haul Trailers Inc.

pintle eye, and a 12,000-pound drop-leg landing jack. GVWR ranges from 25,000 to 43,650 pounds. 800/533-0382; www.redihaul.com.

Dually flatbed

The **Ruff Neck** tandem dually flatbed trailer from **Titan Trailer Manufacturing Inc.** carries a backhoe, skid-steer or small excavator on a 24-foot deck made of no-splice pretreated pine boards mounted on a 10-inch steel I-beam frame. It has a 20,000-pound payload capacity; a 2 5/16-inch gooseneck ball coupler; and electric brakes.

It can be ordered with one of three optional backends: a Wide Glide flatbed with a 6-foot tail and extra-wide 6-foot-long ramps, a 5- or 6-foot combo dovetail with stand-up ramps, or a 4-foot dovetail backend with two slide-in ramps. 866/294-4514; www.titantrailer.com.

Stable on the road

The 6-foot-wide **Tote Wagon** from **Wells Cargo Inc.** delivers reliable road stability with an independent rubber torsion suspension. It has LED stop, tail and turn lights; extruded aluminum bottom trim with an anodized finish;



Tote Wagon from Wells Cargo Inc.



LMC 1610 from Lane Trailer Manufacturing Co.



Ruff Neck from Titan Trailer Manufacturing Inc.

double rear doors; smooth exterior sidewalls and a seamless aluminum roof; extruded anodized aluminum roof cove with a drip rail; and weather-protected Smartwire technology.

The body is available in lengths from 10 to 16 feet. The platform height is 18 or 19 inches, depending on the model. The unit weighs from 990 to 1,735 pounds empty; its GVWR ranges from 2,990 to 7,700 pounds. Its average payload capacity varies from 1,590 to 6,085 pounds. 800/348-7553; www.wellscargo.com.

Skid loader trailer

The **LMC 1610** heavy-duty skid loader trailer from **Lane Trailer Manufacturing Co.** has a frame of 6-inch steel C-channel and fenders of 10-inch-wide steel C-channel, welded to the frame. Models are available in 16- to 20-foot lengths and load capacities from 10,000 to 14,000 pounds.

Each of the unit's 6-foot spring-assist ramps includes a weigh pad that transfers the weight of equipment being loaded, reducing stress on the tongue and the tow vehicle. The trailer has electric brakes on both axles and front header panels. An optional gooseneck hitch and full-width ramp are available. 515/233-1150; www.lanetrailers.com.

Deck-over trailer

The **Air Tilt** deck-over trailer from **Felling Trailers Inc.** uses air pressure to tilt the bed. Air power from the tow vehicle inflates two air

UXT from United Trailers



bags that lift the bed. To lower it, air is released at a controlled rate. With optional ramps, the 24-foot-long, 8-foot 6-inch-wide unit can achieve load angles down to 7 degrees for low-clearance equipment.

An air-latch system lets operators lock and unlock the deck with the flip of a switch. The axles are located farther back than on conventional trailers, increasing towing capability and balance. The trailer comes in load capacities of 40,000 and 50,000 pounds. The deck height is about 32 inches when loaded. 888/335-5464; www.felling.com.

Cargo trailer

The **UXT** cargo trailer from **United Trailers** is available in lengths from 12 feet, 9 inches to 36-foot tag units. With a GVWR of 7,000 to 24,000 pounds and lightweight steel unibody construction, the aluminum-clad trailer has two, 3,500-pound rubber torsion brake axles, electric brakes on both axles, double-swing rear doors with camlock and a side door 24 or 32 inches wide, depending on trailer length.

The interior height offers ample headroom at 6 feet 8 inches, and the exterior is 8 feet 6 inches wide and 8 feet 7 inches tall. The 3/4-inch plywood floor is 24 inches high and the hitch is 18 inches high. 800/637-2592; www.united-trailers.com. ■



Air Tilt from Felling Trailers Inc.

Working as a Couple

An installer's spouse and partner tells about the joys and challenges of operating a business while keeping a household and raising a family

By Sandra Gentry

Editor's Note: In February's issue, Onsite Installer invited spouses to share their perspectives on being part of a small, family-owned contracting business. The accompanying story comes from the viewpoint of a wife involved in a septic system installation and maintenance business. We welcome further contributions on this topic. Please send them to editor@onsiteinstaller.com.

In 1978, my husband took over a small septic system installation and maintenance business when his father retired. I was working part-time and raising three kids full-time, along with trying to make the business transition run as smoothly as possible.

Little did I know that this new job would become a 60-hour-a-week obsession with on-call duties in the supposedly off hours.

Little did I know that this new job would become a 60-hour-a-week obsession with on-call duties in the supposedly off hours.

Home and office

We've always run our business from our home. It was wonderful to be able to stay home with my children when they were small and to be available for them most of the time when they became teenagers. It allowed me to be with them far more than if I had been working

away from home. I was there at a moment's notice to kiss boo-boos or to give advice and comfort over broken hearts.

I never have to wonder what my husband, Wayne, is doing in his work. I know wives who really don't have much clue about their husbands' jobs, and husbands who don't know or don't care about what their wives do all day at work. That's definitely not the case with a family business. It has brought us a closeness I don't often see in other married couples. I speak his business language and he speaks mine.

One of the worst things about working from home is that I have to leave home to get away from work! Even with answering machines and e-mail, the knowledge that I'm at the office never quite leaves. Some days the workday begins with the phone ringing before my feet hit the floor in the morning, and doesn't end until I finally fall back into bed at night. And on a few rare occasions, 2 a.m. calls have interrupted that much needed sleep.

Breaking the tie

Having all of our financial resources tied up in one place is probably the biggest danger of being in this business together. When the construction industry falls flat the way it has in the last couple of years, our worries are multiplied by two, since both our incomes depend on a single source.

We've also converted our two spare bedrooms into his and her



Wayne and Sandra Gentry. (Photo by David Gentry)

offices. After more than 10 years of this arrangement, I'm still not sure if this is a good or bad thing. It definitely cuts down on the overnight guest requests, but it also limits our ability to offer hospitality to someone who would prefer not to sleep on a futon.

A 50-50 partnership almost always brings a time when the partners have a major difference of opinion. When that partnership is both a business and a marriage, that can lead to problems too great to overcome.

From the beginning, our business has been 51-49 percent. We work hard at coming to an agreement on all the big issues, but when we truly butt heads over something, I step back and remember who represents the 51 percent. This has always worked well for us.

Also, we keep most of our work

well allocated. I don't run the backhoe and my husband doesn't run the office. I may make suggestions on job- or equipment-related issues, or he may suggest a way to improve dealing with the never-ending paperwork, but we try hard to stay out of each other's territory.

Ultimate tribute

Fortunately, my husband and I both really enjoy most aspects of our jobs. Time actually away is rare and well appreciated, but we look forward to getting back to work. We occasionally spend a long weekend at the beach or touring NASCAR locations, sometimes getting away for a mountain vacation. A few times over the years, we've actually spent a whole week at a resort with our children and grandchildren. Those times are all the more precious for being so infrequent.

Since most of our friends are in some aspect of the construction business, when we get together with them, the conversation is often work-related. I guess you could say most of our so-called leisure time is still focused on the business.

Last year we received an e-mail that asked us to consider running for the Board of Directors of the Virginia Onsite Wastewater Recycling Association. Wayne suggested that I would be just as good at the job than he would be — maybe better.

That was the ultimate honor he could have given me in our business life. It said that I was a true partner in every sense of the word and could represent our views at the highest levels of our industry in Virginia. Acceptance by the organization and winning the election were just frosting on the cake.

Would I do it all over again? You bet! It has been the best of both worlds, being a stay-at-home mom and a contributing working wife at the same time. It helped us nourish a strong work ethic in our children

and brought a feeling of closeness in our family that has been priceless.

About the author

Sandra Gentry, a native of the Richmond, Va., area, is the wife of Wayne Gentry, owner of Gentry Septic Tank Service. The company installs and maintains conventional and alternative onsite treatment systems for residential and small commercial owners.

Sandra has grown from a book-keeper/secretary to being a certified installer of several alternative systems. As company manager, she runs the office, does most of the job estimating, and handles pricing, ordering of materials, customer relations, technology updates and required education for employees.

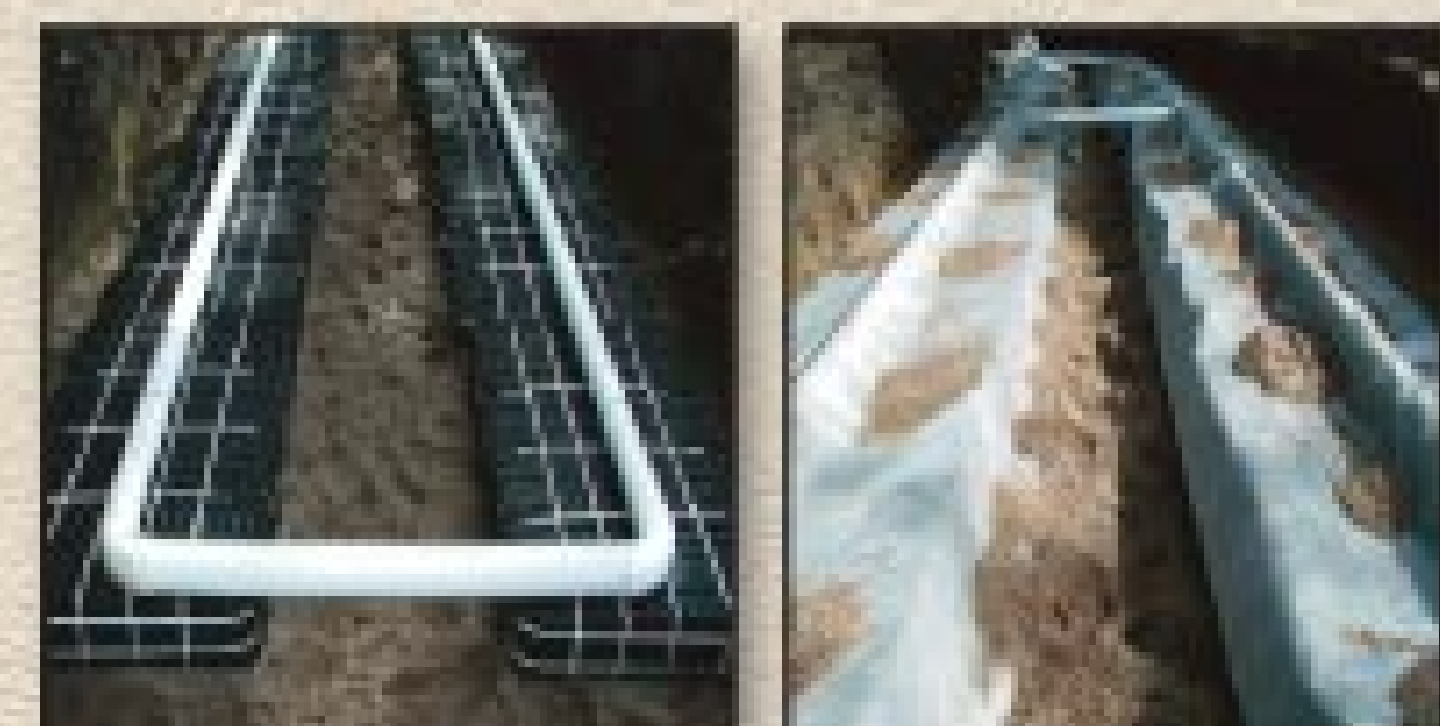
In 2009, she was asked to serve on the Alternative Onsite Sewage Systems Emergency Regulations Ad Hoc Committee, formed to advise the Virginia Department of Health. She also serves on the board of the Virginia Onsite Wastewater Recycling Association (VOWRA). In her spare time, she is a Master Gardener volunteer with the Virginia Cooperative Extension and enjoys spending time with her three children and five (soon to be six) grandchildren. ■

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This feature in Onsite Installer reports noteworthy conversations that take place in Installer Discussion, an e-mail based forum for industry professionals sponsored by COLE Publishing. The discussion forum enables exchange of information and ideas on a wide range of topics related to onsite wastewater treatment. To find out more about Installer Discussion, or to subscribe, visit www.onsiteinstaller.com.

A Design for Laterals

A contractor asks for comments on an orifice-down design for piping in drainfields with pressure distribution networks

Question:

Before new rules were issued in British Columbia, it was common practice in my area to design a distribution network with the laterals facing down. We would build the system with the orifices facing up, and after the pressure test, rotate the laterals 180 degrees and cover with more rock.

I always liked this method. There is no need for extra drain holes because it is obviously free draining, you save some money and installation time on installing shields, and — this is my observation only — the distribution is better, because the effluent hits the nearest drain rock and is diverted sideways. This does a nice job of breaking up the spray and distributing it farther than it can go under a small orifice shield.

I have walked up and down many networks set up this way, before covering, and I have never seen an orifice that seemed restricted in its flow. This method also eliminates the need, at least in our warm climate, for a weep hole in the manifold to ensure that the network drains.

I have always thought this was a counterproductive feature in a system, as you are introducing the effluent at a lower separation distance, and quite a lot of it, as after the pump shuts off, more of the network's remaining effluent will drain to this low spot. I am just looking for input. Is anyone else using this method?

Answers:

➔ We prefer the holes down in our pressure distribution networks for the same reasons you have mentioned, perhaps with the exception of the argument of better distribution. I have a colleague who prefers the holes up, and he has his reasons.

My concern is potential freezing if water stands in the pipe between doses. He tries to design his systems so that the pipe drains back to the tank. I don't think either one of us would win a debate with any significant evidence as to which is better.

We test them with one orifice in a cap on the flush assembly at the end of each lateral. Then the cap is replaced with a solid cap after testing. This works well. You don't really need to see the discharge out of every hole.

To be more accurate, you could use a standpipe on the flush fitting on the end of the lateral, rather than an orifice. The orifice is easier.

We have probably 30 years of experience with hundreds of these types of installations with very few problems — almost none — and those are not related to whether the holes were down or up.

And, we do have a company that provides maintenance services on onsite systems, so we do get out of the office to monitor our designs to a significant extent.

➔ I've seen pressure distribution done in a number of states in the southeastern United States, and my recommendation would be to go with the design employed in North Carolina. It's the most robust method I have found.

➔ You are correct as far as you go, but you still need at least one up-facing orifice at the distal end to allow the air to bleed out of the lateral on pressurization, and you will find in time that it will overload the manifold end of the lateral because the orifices closer to the manifold will start to discharge well before those at the distal end on every cycle.

➔ It certainly will depend on several design choices made, but we have not found either of those problems in our system designs. In fact, I believe that the water tends to rush toward the distal end rather than hang around the orifices near the manifold. (I can't prove it because I've never been in there.)

But in our designs we typically use 1/8-inch-diameter holes and design for residual heads in the range of five to 10 feet. If you use larger holes with less head, you may find the problem described above.

As a side point, always design the laterals with cleanouts so that they can be flushed on a regular basis. You will find that solids tend to build up in the ends of the laterals over time and need to be flushed out or they will clog the last hole. This is due to the slow velocity in the lateral ends.

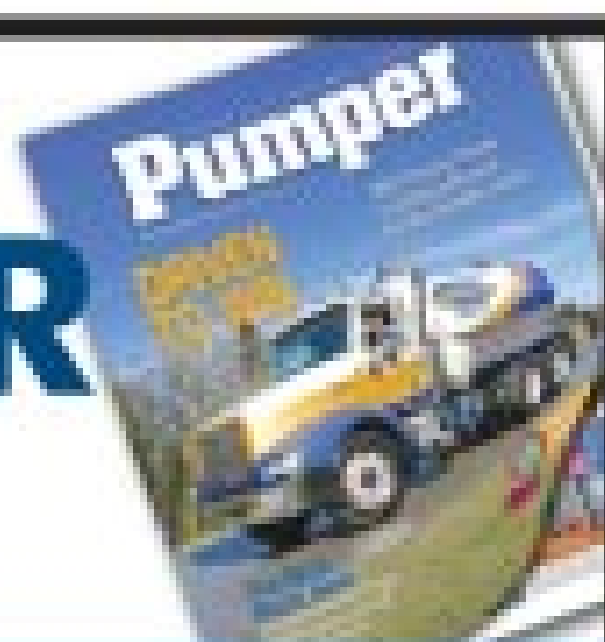
Then the second-from-last hole becomes the last, and it will eventually clog, working backwards toward the manifold, and overloading the inlet side of the system. A neglected system will eventually show signs of surfacing near the inlet.

➔ Whether the orifices are faced up or down, there is a somewhat higher volume discharged at the manifold end. During pump startup, if the force main drains back to the tank, it can be more significant. But if there is a check valve in the tank, then the system remains charged and distribution is more uniform. With the orifices faced down, the effluent essentially "falls down" through the nearest orifice.

On the issue of cleanouts, they are important. As long as the lines are flushed regularly, it doesn't really matter what they look like, but if maintenance is neglected, as it often is, then it is good to have a sweep design so they can be mechanically cleaned.

I have flushed systems that are not very old and have found several feet of sludge at the ends of the laterals. I also have a few systems with poor cleanout design and maintenance, and they are now partially plugged. It's a problem that doesn't get much press for some reason. ■

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MSA Offers Workman Tripod

The Workman tripod from MSA is designed for confined space entry and features an internal leg-locking mechanism, maximum height indicator on the legs, cut-resistant leg-pin retention chains, reduced weight and integral carrying strap. **877/672-2222; www.msanet.com.**

Liberty Pumps Offers 2-Inch Guide Rail

The GR22 pump guide rail from Liberty Pumps features cast-iron construction and single-rail design that allows for easier installation or removal of submersible pumps in deeper pits. The unit has a 2-inch discharge. Internal 2-inch thread on the pump mating claw allows for adaption to other pumps. **800/543-2550; www.libertypumps.com.**

Aquaworx Introduces Tracker Telemetry Panel

The Tracker intelligent pump control telemetry panel from Aquaworx is designed for secure remote access from a password protected Web site. Incorporating pressure transducer technology, the panel offers accurate, real-time liquid levels 24 hours a day. **877/278-2979; www.infiltratorsystems.com.**



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High-flow (3F Series) grinder pumps from E/One are designed for systems that require lift station total dynamic heads of up to 95 feet and flow up to 180 gpm. High-head (3H Series) pumps are made for systems that require total dynamic heads up to 170 feet and flow up to 100 gpm. The 3F Series pumps are available in 3 and 5 hp, while the 3H Series are available in 3, 5 and 7.5 hp. Both simple and duplex stations are available. **518/579-3279; www.eone.com.**



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How experimental green retro-aggregate pipe systems brought challenges to south-west Missouri

Experimental green retro-aggregate pipe systems brought challenges to south-west Missouri. The article discusses the challenges and solutions for these systems.



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System Profile

Profile information for the featured article, including author and contact details.

High Water

High water levels are a concern for many industries. The article discusses the challenges and solutions for these levels.



High water levels are a concern for many industries. The article discusses the challenges and solutions for these levels.

Executive Committee Elected

Bruce Fox of Allstate Septic Systems in Bangor, Pa., was elected president of the Pennsylvania Septage Management Association at its annual conference. Other officers include Susan Miller, vice president; Joseph Valentine, secretary; Jeff Rachlin, treasurer; and Ray Erb, education director. For more information, call PSMA communications director Stacy Henninger at 717/763-7762.

WOWRA Recognizes Members

Chris Olson, Door County Assistant Sanitarian, and Aaron Ausen, vice president of the Wisconsin Onsite Water Recycling Association, were named Persons of the Year for bringing awareness to tank corrosion and durability issues and finding possible causes and solutions.

The 2010 board members are Todd Stair, president; Aaron Ausen, vice president; and Sue Schambureck, Christopher Fellner, Mark Wieser, Chris Olson, and Mark Prevost, directors.

In response to the coming stormwater runoff rule revisions and tighter phosphorus regulations, the Wisconsin Liquid Waste Carriers Association agreed to fund a research project to determine how much phosphorus is in septage. WOWRA contributed \$1,000. The study could cost up to \$5,000.

Daniel Kaminski, son of Roman Kaminski, won the Lindner Memorial Scholarship and Derek Madson, son of Kevin Madson, received the Kaminski Gretchen McQuestion Scholarship. Since 1990, the association has awarded \$104,500 to 95 students.

Conventional Hydrology Challenged

A study by scientists from Oregon State University and the U.S. EPA shows that a century of research based on assumptions about how water moves through soil in seasonally dry climates needs reconsidering. The researchers discovered that soil clings tenaciously to the first

precipitation after a dry summer and holds it so tightly that it almost never mixes with other water. The finding, published online in *Nature Geoscience*, could affect the present understanding of how nutrients and pollutants are transported from soils to streams.

Fight Ignorance, Spread Facts

With the influx of federal stimulus money to municipal projects, the Ontario Onsite Wastewater Association (OOWA) states that it is rapidly losing ground as municipalities significantly expand sewers into subdivisions. Further, installers report examples of municipalities withholding information from the public and possibly even disseminating erroneous information about the efficacy and benefits of onsite systems within existing subdivisions, the association charges.

OOWA has too small a voice to educate the Ministry of Municipal Affairs and Housing staff (MMAH), which has an antiquated understanding of septic systems, says engineer Robert A. Passmore. Since most contractors in Ontario are not OOWA members, the association lacks the people willing to commit their time and resources to spreading facts and defending the industry, he states.

CALENDAR OF EVENTS

June 6-9

National Onsite Wastewater Recycling Association Educational Conference and Exhibition, Albuquerque, N.M. Call 866/956-2258 or visit www.neha.org.

June 10-11

No-Dig Show, Mississauga Grand Hotel, Toronto, Canada. Call 330/467-7588 or visit www.nodigshow.com.

TRAINING & EDUCATION

Alabama

Licensing classes are the joint effort of the Alabama Onsite Wastewater Association (AOWA)

and University of West Alabama (UWA). Courses are at UWA-Livingston campus unless stated otherwise:

- June 24-25 – Continuing Education, Dothan
- July 8-9 – Pumper
- July 28-30 – Basic Installer
- Aug. 12-13 – Continuing Education, Hanceville
- Aug. 25-27 – Advanced Installer Level I

The first day of Continuing Education classes is for installers and the second day for pumpers and portable restroom operators. Call 334/396-3434 or visit www.aowa.org.

Arizona

The Arizona Onsite Wastewater Recycling Association has the NAWT Inspection Training and Recertification course on June 8 in Flagstaff. Call Kitt Farrell-Poe at 520/621-7221 or e-mail kittfp@ag.arizona.edu.

Florida

Courses are at the Florida Onsite Wastewater Association Training Center in Polk City unless stated otherwise.

- June 9 – Installer Program I, Jacksonville
- June 10 – Installer Program I, DeFuniak Springs
- June 14-15 – Master III-Basic FL Soils
- June 16-17 – Master I-System Design & Function
- June 17-18 – Master II-System Materials & Regulatory Requirements
- June 23 – Installer Program II, Hialeah
- June 24 – Installer Program II, Bradenton
- July 7 – Onsite Installer Maintenance Training, Part A
- July 8 – Onsite Installer Maintenance Training, Part B
- July 14 – Installer Program II, Hawthorne
- July 15 – Installer Program I, Daytona Beach
- July 21 – Installer Program I, Key Largo

- July 22 – Installer Program I, Clearwater
- Contact FOWA at 321/363-1590 or www.fowaonsite.com.

Iowa

The Iowa Onsite Wastewater Association is offering Site Evaluation: Gathering the Needed Info for System Design on July 23 at a location to be determined. E-mail Alice Vinsand at execdir@iowwa.com or visit www.iowwa.com.

Kentucky

The Kentucky Onsite Wastewater Association has a Certified Installers of Onsite Wastewater Disposal Systems class for six CEUs on June 17 at the Bluegrass Community Technical College in Lawrenceburg. Call 270/314-7110 or visit www.kentuckyonsite.org.

Minnesota

The University of Minnesota Extension has these classes:

- June 7-8 – Inspecting Onsite Systems, Waseca
- June 9-10 – Soils, Brainerd
- June 11 – Soils Continuing Education, Brainerd
- June 18 – Soils Continuing Education, Rochester
- June 24 – Soils Continuing Education, Willmar
- July 8 – Soils Continuing Education, Grand Rapids

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

Missouri

The Missouri Smallflows Organization is offering these CEU courses:

- June 15-16 – Operation and Maintenance, Jefferson City
- July 13-14 – Marysville

Call Tammy Yelden at 417/739-4100 or visit www.mosmallflows.org.

New England

The New England Onsite Wastewater Training Center at the University of Rhode Island in Kingston has these workshops:

- June 1-2 – National Operation and Maintenance

May 2010



Scott Rietsema

SJE-Rhombus Promotes Rietsema to Distributor Sales

SJE-Rhombus has promoted Scott Rietsema to distributor sales manager for the United States and Canada. Rietsema joined SJE-Rhombus in 2006 as regional sales manager and has 25 years of sales experience. He will manage the company's factory sales and distributor networks.

Medo USA Launches New Web Site

Medo USA's new Web site, www.medo-water.com, features the company's LA Series of aerators and their linear motor-driven, free-piston system.

PSMA Holds Wastewater Conference, Trade Show

The 2010 Pennsylvania Septage Management Association Wastewater Conference and Trade Show, held at the Lancaster County Convention Center & Lancaster Marriott, Jan. 25-26, attracted more than 130 attendees. Produced in cooperation with the National Association of Wastewater Transporters, the Pennsylvania Association of Professional Soil Scientists and the Pennsylvania Onsite Wastewater Recycling Association, highlights included legislative and Home Improvement Consumer Protection Act updates as well as EPA management guidance information. The 2011 conference will be held Jan. 23-25 at the Lancaster County Convention Center. For more information, visit www.pasma.net or call 717/763-7762. ■

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- July 28-29 – Advanced Soil Morphology

Call 401/874-5950 or visit www.uri.edu/ce/wq. For soil course information, call Mark Stolt at 401/874-2915 or e-mail mstolt@uri.edu.

North Carolina

The North Carolina Pumper Group and Portable Toilet Group have an educational seminar on June 19 in New Bern. Call Joe McClees at 252/249-1097 or visit www.ncpumpergroup.org or www.ncportabletoiletgroup.org. ■



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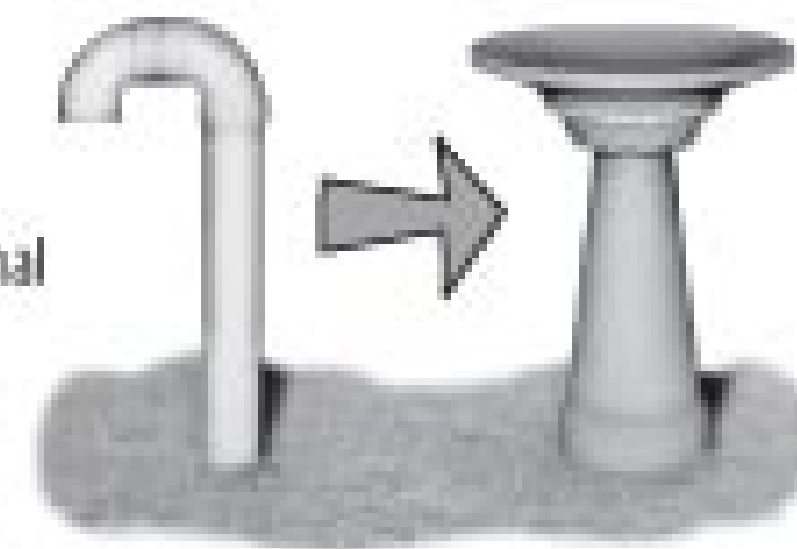


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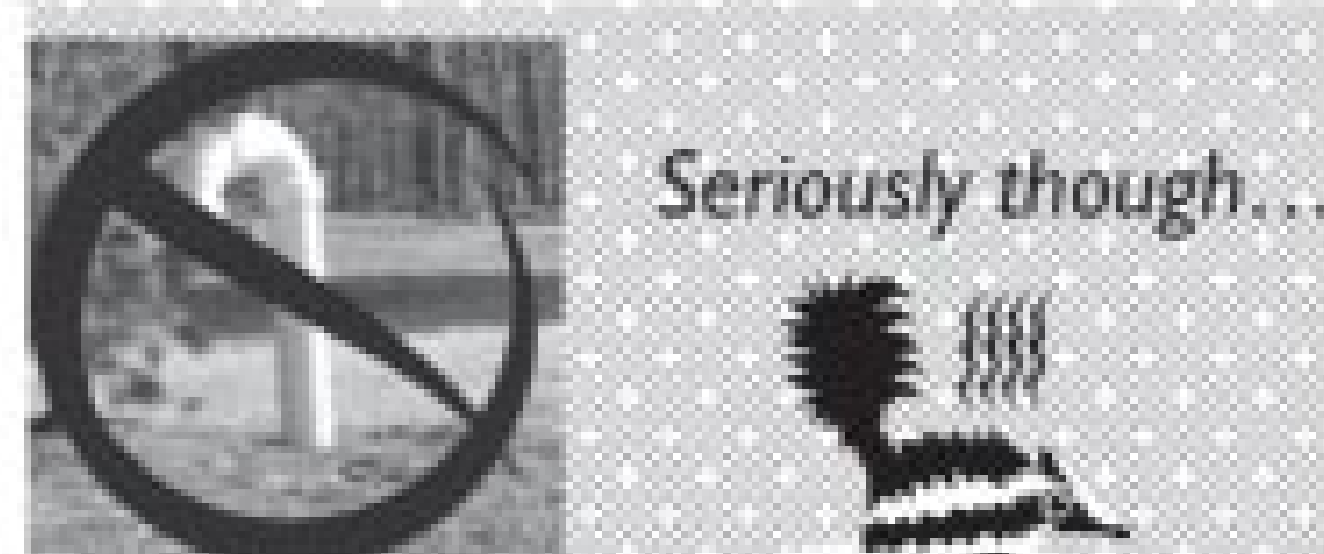
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