

June

2011

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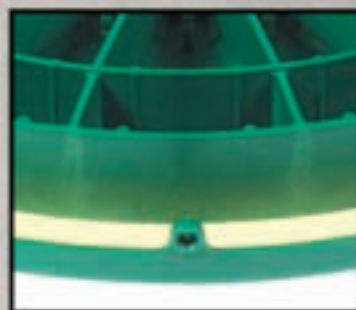
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The First One They Call

By becoming a trusted source of information for your local news media, you can raise your company's profile in your market area

By Ted J. Rulseh, Editor

In the town of 13,000 where I work, there's a stockbroker/investment advisor whose name appears regularly in the big-city daily published 100 miles south. That paper covers essentially the entire state, and it circulates widely where I live and in the bigger cities within an hour or so.

Now, this broker (let's call him Fred) is likely no better or worse than the hundreds of other brokers scattered around the area. And yet, often, when business reporters from the big-city paper are doing a story about stock market trends, they call Fred. They could call any number of brokers right there in the big city, yet they call Fred. And Fred gives an opinion on what he sees happening in the world of stocks.

Hundreds of thousands of readers see those stories and see Fred and his company mentioned. So one can only guess that Fred gets business out of it.

But why do those reporters call Fred? Simple: Because once upon a time he made the effort to get to know a couple of them. And when they call, he always drops what he's doing and talks to them. As a result, he gets publicity and wins recognition and respect far out of proportion to the sheer size of his business.

How's your profile?

What has this to do with you? Well, how would you like to be seen as the go-to expert on any subject in your community related to

onsite systems and their installation and maintenance? Wouldn't that be a nice addition to your marketing program?

Now, I'll admit, many more people are interested in trading stocks than in building and caring for septic systems. And much more is written about stocks and investments than about backhoes and aerobic treatment units.

And yet, onsite systems are an important part of the landscape in rural communities served by weekly papers and small dailies and local news radio stations. There will be times when a newspaper or radio reporter is working on a story that touches on your profession. And chances are they'll be looking for reliable sources of information. You can be one of them.

How do you go about it? It's easier than you might think. You simply have to devote a little time and be willing to shed the low profile that many small businesses, perhaps notably onsite businesses, seem to prefer.

Step into their shoes

To see how this works, it helps to understand news reporters. They're often young and inexperienced. They have to write about almost every subject imaginable, yet they are experts on none, or very few. So when they need to write about an unfamiliar topic, they have to rely on experts.

That's where you come in. Getting to know them is not quite as simple as stopping in, saying hello,

and handing them a business card — although that can be a good start. You'll need to earn their confidence by offering them unbiased, useful information.

Reporters aren't interested in talking about how big or wonderful your company is, or how long you've been in business, or what

Assuming the reporter is willing to listen, you don't want to start trumpeting all your wonderful services. Just talk objectively about onsite treatment — why it's important, how regular inspections can be beneficial, what an inspection involves, how much it typically costs.

Reporters are often young and inexperienced. They have to write about almost every subject imaginable, yet they are experts on none, or very few. So when they need to write about an unfamiliar topic, they have to rely on experts.

generation of the family business you and your son or daughter represent. If you want to talk about that, visit the ad department.

But suppose some issue related to your business starts making news around town. Suppose for example that the county is talking about a new mandatory septic system inspection ordinance. There's an opportunity to call the reporter who's writing the stories and share some information about onsite treatment.

Being a resource

First find out when the reporter's deadline is, and call at some other time of day. Or start by dropping an email (many papers print reporters' addresses along with their bylines). Offer to provide a little extra insight into the issue — why it's important and what it means to homeowners.

Expect to get maybe five or ten minutes of the reporter's time. Stay longer if he or she is interested, but don't over-stay your welcome (these are very busy people juggling many priorities at once).

If you provide interesting information that helps a reporter develop a story that informs the community and earns praise from an editor, you're on your way to becoming the first person that reporter calls on any issue related to your profession.

If and when he or she does seek you out again, stop what you're doing and take the call. Now you're on your way to building a relationship that will elevate your stature in the community and help you stand out from all your competitors. Just like that small-town stockbroker named Fred. ■

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More About Those Flies

I want to comment briefly on Jon Houseknecht's letter ("Flies a Good Thing?", *Onsite Installer*, April 2011). In Cochise County, Ariz., these flies are pervasive. The county inspects our trucks yearly, and part of the inspection is that we have proper caps on our suction and dump hoses for this very reason — not to spread these pesky critters.

So they know they are transmitted by our hoses. These flies are capable of spreading disease, although I have not seen any documentation of that. Our county also has a grant from Homeland Security for a vector inspector. He is constantly checking for infiltration or breach on the border for anything that would cause a health issue to us from draconian sources.

I would never introduce or think of introducing an insect that has a diet from feces. They are neither normal nor healthy. However, the larvae do feast on organic matter — scum. They have to be out of the water sitting on the scum or, as I have found, on floating plastic debris. In the tanks I have looked into, they are making no headway eating the massive scum, and the end result is more flies.

Yes, they can come in from a roof vent, although that is yet to be proven, at least to my knowledge. Until my comments about filters, I never heard mention of the problem at least in our industry (pumping and installing).

If they stay in the tank, so be it, but when they migrate up the line into the kitchen — not good. When they plug filters in less than two months — not good. Yes, 6-inch filters would defer the plugging for longer periods. When a filter plugs, the tank overloads, and the effluent level rises and falls, causing debris to be pushed into the second chamber. When this happens, there will be shorter and shorter intervals of filter cleanings. I fully explain all my recommendations to customers so they can make an intelligent decision about their maintenance and my part of that.

Most of our residents do not know they have a filter in their tank, and it does not become evident until they have a catastrophic backup. The rule was introduced in 2001, and installers in our part of the country were told the filters could go years before you had to worry about them. The homeowners were never told that they had filters in their tanks.

When I get a call on the phone with trouble, the first question I ask is, "How old is your system?" If it was installed in 2001 or later, the second question is, "Do you know that you have a filter?" Only within the last two years have I received one or two answers in the affirmative.

My goal in any investigation is to help my customers, and it is not always an easy, practical, or conventional solution. Maybe someday there will be a solution to being rid of these flies in septic systems. We always appreciate the information that we read in COLE publications.

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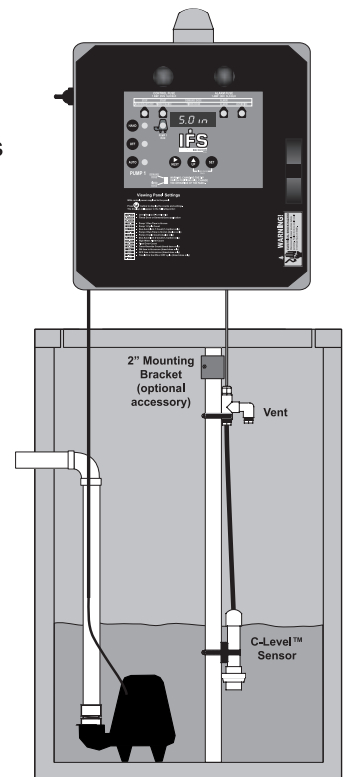
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Amazing Grace

An Alabama installer and his family survived a massive tornado even as his home and shop were blown away

By **Scottie Dayton**

Dale Mask, president of Dale's Septic Service in Eclectic, Ala., has a remarkable story to tell. When the killer tornado struck on April 27, it ripped a three-quarter-mile-wide swath across the landscape. Mask, his wife, and two granddaughters hid in a closet as the twister destroyed two-thirds of their home.

"It's something we'll never forget," Mask says, whose onsite installation business was profiled in the June 2007 *Onsite Installer*. "By the grace of God, the one section of roof that didn't blow off was over the closet. My family and I walked out unscathed." His 84-year-old mother had a similar experience. She heard a knock at the front door. When she opened it, no one was there.

Then the house collapsed around her. Eight feet of the chimney went through the lift chair in which she had been sitting. "The only safe place was under that door jamb where she

stood with her walker," says Mask. "We're certain that dad knocked on the door. He drowned in a freak accident in 1970."

The tornado blew out the windows at his business and destroyed some of the building, but left enough usable equipment for Mask to mobilize two of his four crews. He expected to have the other two crews up and running by June, and to have his shop rebuilt a couple of months later.

"I ordered the metal, as getting materials is no problem," he says. "I'm paying as I go because I can't afford to wait for the insurance money. My philosophy is to roll up your sleeves and go back to work."

Mask and his family are staying with friends. Once he settles the insurance issue on his house, he will bulldoze the remains and start over. "We thank God every day that we're alive and uninjured," he says. "We were truly blessed." ■

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Thriving in Paradise



A fourth-generation contractor enjoys success on Maui, helping landowners make challenging repairs and install systems on difficult sites

By Gil Longwell

Tom's Backhoe and Excavation Co. Inc., Maui Island, Hawaii

OWNERS: Tom and Gabe Hoeffken

YEARS IN BUSINESS: 32

MARKET AREA: Maui Island, Hawaii

BUSINESS MIX: 25 percent new systems, 75 percent replacement/upgrade

SPECIALTY: Solutions for failing systems and challenging sites

EMPLOYEES: 5

WEBSITE: <http://info.tombsbackhoe.com>

Tom Hoeffken, a third-generation entrepreneur, grew up in the excavating business his grandfather started in the 1890s.

Today, he and his son, Gabe, operate Tom's Backhoe and Excavation Co. on the Hawaiian island of Maui. Amid the island's challenging soils and topography, they specialize in remedies for failing systems and in new installations for difficult sites. Founded in 1978 as Tom's Backhoe Services, the company has become one of the largest onsite installation businesses in the Islands.

"In the 1950s, our family's excavating and road building business was the largest in Illinois," Tom Hoeffken says. Today, the company's service territory is restricted to Maui, not by any law or regulation, but by many miles of ocean.

Gabe grew up in the family business, although he took a detour

for schooling. "I was doing the low-end handwork, and I wanted to get away from dirt," he says.

After earning a master's degree in educational technology and turning 30, he rejoined the company as part of its management team. He has led the company's onsite installation business for five years as Tom transitions into a working retirement. "My whole life was on-the-job training and I did not realize it," he says.

Back to the earth

Tom decided to move from Illinois to Maui for one basic reason: "To get away from the hot, humid summers and bitter, cold winters." On arrival on Maui in 1972, Tom opened the island's first pizza shop. Soon, he returned to excavating, and in 1978 he bought a used backhoe.

The first generation of modern onsite systems used in Hawaii was

"Usually, there is not a single solution for a site. We believe informed customers are better customers and we offer options regardless of cost."

— Tom Hoeffken

cesspools. "Until 1991, this was the only onsite technology approved for installation," Gabe says. "Then, reacting to federal mandates, the state of Hawaii stopped allowing cesspools in favor of conventional septic tank and drainfield systems."

Early on, the Hoeffken's business focused on cesspool installations. In 1991, they transitioned from cesspool work to conventional systems for new construction. The mix then was about 1 percent replacement systems and 99 percent new construction.

(continued)

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Gabe Hoeffken overlooks a recently dug leachfield for a septic system.

On the excavation side at that time, they were doing a good bit of commercial site preparation work. “Our earth-moving equipment was diverted to installation work without the need for capital investment, and that gave us a competitive advantage, too,” Tom adds. “When conventional systems were first introduced, we installed a lot of trench systems, but the simple sites have been mostly used. Rectangular excavations known as absorption beds are becoming the predominant absorption area type.”

As property values go up, lots are getting smaller — 10,000 square feet is typical. That reduces the area available for onsite systems. Repair installations are more challenging because access is often limited on established lots. Even where space is available, homeowners do not want to remove established plantings to accommodate systems. In both situations, beds become the default choice.

More recently, the state, responding to U.S. EPA policies began a program of identifying and replacing large-capacity cesspools — single or multiple cesspools that serve two or more homes or more than five bedrooms. These large cess-

pools did not have to be failing to trigger replacement.

Another impetus for upgrading was a mandatory time-of-sale inspection. The state required replacement systems to use one or more septic tanks and a conventional absorption area. “Our business followed this mandate, and we found about 25 percent of our work coming from this new ‘market,’” says Gabe.

Challenges welcome

Gabe notes that the company lost the easy jobs to small operators years ago. The firm is sought out by engineers who have encountered challenging sites and situations. “Engineers are required to prepare system designs here,” says Tom. “They know situations occur that can’t be anticipated, and they have grown comfortable with our field assessments and the solutions we recommend.”

Homeowners also seek out Tom’s Backhoe. Tom and Gabe believe it is important to give property owners choices. “Usually, there is not a single solution for a site,” says Tom. “We believe informed customers are better customers, and we offer

Owners Tom Hoeffken and son Gabe.



Island Operations

Operating a business on an island brings its own set of challenges. “My grad school experience taught me the value of careful planning and paying attention to details, and that has been a major advantage as I move into the manager’s role,” says Gabe Hoeffken, co-owner of Tom’s Backhoe and Excavation.

From the office in Kula, on Maui, the straight-line distance to each of two farthest points on the island is about 24 miles — in opposite directions. In both cases, the road mileage is about double that, and the drive time can range from one-and-a-half to four hours to either location. Distance, travel time and the related costs are major factors in every aspect of the business.

The island, with steep slopes and significant relief (elevations from sea

level to 10,000 feet) presents a wide variety of geologies, soil conditions, and flora, fauna and climate zones. Soil conditions and even temperature change rapidly in moving up the mountains. “We have encountered sites with no slope to sites with slopes over 25 percent,” Hoeffken says.

Nearly everything needed for construction must be shipped to the island, and that can mean long waits. Technology transfer can also be slow. Hawaii has not yet recognized spray or drip irrigation systems or pressurized elevated systems. Conventional systems dominate — typically with “puka pipe” (perforated pipe) in aggregate. “When newer technologies become available,” says Hoeffken, “we will be ready to convert change into opportunity.”



Operator Jeremy Smith excavates a leachfield for a septic system in Haiku, Maui, while mechanic/operator Chad Kailiehu (left) and Gabe Hoeffken measure the field depth.

(continued)

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Gabe observes, “There is a tendency to continue using what has worked in the past, what owners may be comfortable with. Aerobic treatment units are permissible, but many designers are unfamiliar with them and are somewhat reluctant to include them.”

Gabe and Tom hope to change that. “We see the greatest use of aerobic systems in close proximity to wells and to tidal areas,” says Gabe. In one case, the designer and permitting authority were considering conventional technology to resolve a malfunction until Gabe pointed out the combination of high water tables and closeness to a beach. He suggested an aerobic system from Jet Inc., which eventually was installed.

Rarely do the men travel off-island for installations: The logistical challenges of moving equipment are too great. All work stays relatively close to home, at least in straight-line miles.

Change and opportunity

Through the years, the owners have found it essential to embrace evolving opportunities. They have capitalized on the change from cesspools to conventional systems, learned to work in a broad range of microenvironments, and positioned themselves ahead of the demand for advanced treatment units by becoming a Jet dealer.

Tom’s Backhoe is also in the quarrying and road building businesses. Quarrying gives them direct access to low-cost aggregate for use in onsite systems. The quarry lies on the far east end of the island. “Dad acquired some land in Hana as an investment,” Gabe says. “As it turned out, the land was naturally suited for quarry development, and we operate a quarry there.”

Roadwork is a different matter. “We got into the road maintenance business in 2007 when onsite system work was a bit slow and we saw an opportunity to do contract road maintenance work,” Gabe says. The work kept their employees busy; they already had most of the equipment they needed.



Installation technician/truck driver Randall Kotrys, left, and Chad Kailiehu backfill a trench in an area that the backhoe can't access.

“Engineers are required to prepare system designs here. They know situations occur that can’t be anticipated, and they have grown comfortable with our field assessments and the solutions we recommend.”

— Tom Hoeffken

To protect its capital investment in road surfaces, the Hawaii Department of Transportation initiated a pavement management strategy. Breaking the “build it, forget about it, rebuild it” cycle, the department wanted a contractor to apply a systematic approach to road surface management. “No other company was interested so we stepped up,” says Tom. “We are now a well regarded slurry seal contractor for the state and for private pavement owners as well.”

About two years ago, the recession forced another refocusing of onsite system work. Now onsite work is primarily repairs or conversion. “We bid on jobs we previously did not even consider,” says Gabe. “We also go after government-sponsored water and sewage treatment plants, and distribution and collection systems.”

Cross-trained personnel

Tom and Gabe think of their employees as co-workers. They are willing to do any job they would ask an employee to do. They see

employees as valuable assets in whom they have invested a great deal. Their diverse service menu demands diverse skills. Rather than field an army of focused specialists, they dispatch a few generalists.

Jeremy Smith brings operator, driver and plumbing technician skills to every job site. Chad Kailiehu is a mechanic and operator and he pre-assembles every Jet system in the shop before it is delivered to the site. Dan Vasey, located in Hana at the quarry, is also a mechanic, plumbing technician, driver and crusher operator. Gabe heads up the onsite projects, while Tom handles tasks beyond onsite work and is heavily involved in marketing.

Nora Masters, office manager, supports the onsite work by assembling the post-construction package of as-built drawings, construction photos, and completed permit documents. Nancy Hoeffken, Tom’s wife, gave up her role as office manager in favor of spending time with three grandchildren.

All of the men are cross-trained,

and that is essential when getting from place to place consumes so much time and so many payroll dollars. Although she doesn’t work in the business full-time, Tom’s daughter Cherie is an equipment operator in Colorado. “When she comes home, part of her visit always turns into a working vacation,” says Tom.

The onsite side regularly draws on the excavation equipment fleet. In addition to dump and service trucks, the most used items on installation jobs are two Case backhoes; a 2002 580 and a 680L. Both are four-in-one models equipped with the Extend-a-Hoe option. A Cat 312 excavator, a Hitachi excavator, and a Cat D4 dozer also get significant use.

Cluster of strengths

Hoeffkens recognize that pumpers find many things wrong with systems, and appreciate the many repair job referrals they get from pumper friends. However, they are not going into pumping, which they see as a poor fit with their other activities.

“We do not see onsite system operation and maintenance as a service we will soon add,” says Tom. “It requires a specialty license from the state, and that is a considerable obstacle at this time. We are required by Jet to provide a two-year maintenance program for new installations, but because that service is included in the purchase price, the additional license is not required. Like everything we do, it is part of providing what the customer wants and needs.”

By putting themselves in the customer’s shoes, father and son try to anticipate every question and to be ready with the appropriate answer. By carefully observing and reacting to industry trends and economic conditions, they enjoy success on an island paradise where riding the wave of change is more essential than the skill to ride the waves at Diamond Head. ■

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Riding High

An installation for a children's camp meets challenges posed by high groundwater using ATUs with a pressure-dosed drainfield

By **Scottie Dayton**

Jenni and David Belford, through their experiences with Adventures for Wish Kids, decided to build a year-round fun camp for children with serious illnesses. They broke ground for Flying Horse Farms in Mt. Gilead, Ohio, in fall 2009.

Aaron Heydinger, P.E., of Advanced Civil Design in Columbus, and Joe Keiser, P.E., of StreamKey in Cincinnati, designed the onsite treatment system. Dynahoe Construction and Excavating in Circleville won the bid. Superintendent Nick Mets oversaw the installation of the gravity-fed system with fixed activated sludge treatment (FAST) and pressure-dosed drainfield.

The project lasted six months. Half the time, Mets and his crew battled high water, trees and roots.

The electrics, pumps, and controls took the remaining months. The camp opened in fall 2010.

Site conditions

Soils are heavy glacial till with percolation rates of 0.13 gallons per square foot per day within the top 6 inches. The water table is 24 inches below grade. The wooded drainfield area has a 3 to 15 percent slope.

System components

Heydinger designed the system to handle 10,000 gpd. Major components include:

- 3,000-gallon fiberglass lift station and wet cell (TOPP Industries) with duplex three-phase 2 hp Zoeller grinder pumps.
- 5,000-gallon precast septic tank. All tanks made by Wier

System Profile

Location:	Mt. Gilead, Ohio
Facility served:	Flying Horse Farms children's camp
System designer:	Aaron Heydinger, P.E., Advanced Civil Design Inc., Columbus, Ohio; Joe Keiser, P.E., StreamKey Inc., Cincinnati
Installers:	Nick Mets, Dynahoe Construction and Excavating, Circleville, Ohio
Site conditions:	Glacial till, percolation rate 0.13 gallons per square foot per day within the top 6 inches, water table 24 inches below grade
Type of system:	Fixed activated sludge treatment discharging to drip dispersal
Hydraulic capacity:	10,000 gpd



Workers set the 12,000-gallon tank with a Lixor 6.0 aeration system from Bio-Microbics.

PHOTO COURTESY OF DYNABOE CONSTRUCTION AND EXCAVATING

ser Concrete.

- 20,000-gallon equalization tank with duplex single-phase 1/2 hp Zoeller pumps.
- 12,000-gallon tank with Lixor 6.0 aeration system from Bio-Microbics.
- 9,000-gallon tank with Bio-Microbics 9.0 HighStrength FAST ATU.
- 20,000-gallon dosing tank with duplex three-phase 1.5 hp Goulds turbine pumps and Cool Guide laminar flow collar from American Manufacturing Co.
- 1,570 feet of 2-inch force main to drainfield.
- 1,570 feet of 1.5-inch return line from drainfield.
- 28,800 feet of Perc-Rite 1/2-inch pressure-compensating drip tubing, 25 gpm hydraulic rack with auto-backwashing disc filters, and PLC-driven combination pump control panel with Web-based telem-

etry from American Manufacturing.

- Low-flow system with 2,400-gallon tank with Bio-Microbics 0.9 HighStrength FAST ATU.

System operation

Wastewater gravity feeds through 10- and 12-inch PVC sewer mains to the lift station, then is pumped to the septic tank and flows through a Bull Run valve (American Manufacturing). When the camp is active, the valve is set to high flow, sending effluent by gravity through the primary treatment system. During the off season, the valve is set to low flow, sending liquid by gravity through the smaller ATU to the disposal tank.

In the primary system, effluent flows from the septic tank to the equalization tank, then to the aeration tank in which six regenerative blowers send large volumes of air to six submerged aerators and mixing diffusers. A venturi in the aerators



The primary treatment train (right) with the low-flow system — a 2,400-gallon tank with FAST aerobic treatment unit — to the left.

“We turned off the pumps and let the water seek its own level. Once it had, we shot an elevation, took it to Aaron, and he calculated raising the tanks 18 inches to avoid flotation.”

Nick Mets

breaks the incoming airstream into smaller bubbles, producing a vacuum that pulls in surrounding liquids. The turbulent plume creates horizontal and vertical mixing patterns that handle 18 to 30 pounds per day BOD.

Effluent flows from the aeration tank to the larger ATU for further treatment. A boxlike container suspended from the lid contains media to which bacteria cling. Above ground under a poly box is the blower unit with a blower motor and air filter. The system reduces BOD and TSS to less than 30 mg/l with 65 percent nitrogen reduction.

After 24 hours in both the aeration and ATU tanks, effluent flows to the dosing tank. The heavy load on the turbine pumps makes them

run warm. To prevent overheating, the pumps sit inside laminar flow collars — lengths of 1/8-inch PVC pipe with three rows of 3/4-inch holes near the top. When the pumps activate, they draw liquid up through the holes to cool the pump jackets.

The pumps cycle 24 times per day, sending 1,200 to 1,500 gallons through the hydraulic rack to the drainfield. The 12 zones, each with 16 laterals 150 feet long on 6-inch centers, are dosed sequentially via an electric valve opened by the control panel. The 1/8-inch emitters in the drip tubing operate at 10 to 60 psi. The return line from the drainfield backflushes components and drains into the dose tank.

Installation

The only suitable soils for the drainfield lay 1,570 feet beyond the dosing tank in a densely populated wooded area. While four inches of snow covered the frozen ground, Mets’ crew cut trees with 6-inch trunks or smaller and cleared the undergrowth. Bobcat excavators moved debris to a chipper. The machinery did not compact or damage the soil.

The crew returned in late April to excavate the 130- by 35-foot trench for the lift station and primary tanks set in series. The low-

flow ATU tank abutted the equalization tank. The deeper the crew dug, the higher the water rose. Mets deployed a 12-inch diesel pump, then several 2- and 3-inch gasoline pumps, but could not get ahead of the flow.

“We turned off the pumps and let the water seek its own level,” says Mets. “Once it had, we shot an elevation, took it to Aaron, and he calculated raising the tanks 18 inches to avoid flotation.”

The men also daylighted to a nearby waterway, an 18-inch bleeder line with 8-inch finger drains encircling the trench. The line, combined with the pumps, kept the area dry enough to enable work. Workers backfilled the trench with 5 to 6 feet of soil to bring it to its new grade, then added 6 to 8 inches of gravel to bed the tanks.

Nine semi-trailers delivered the precast sections. The three-piece 20,000-gallon tanks were each 30 by 12 by 11 feet and weighed 42,000 pounds. “We set all the tanks in two 12-hour days with a 250-ton crane, piping as we went,” says Mets. The tanks were quickly backfilled with stone almost to the top seam and topped off with soil.

Before beginning on the drainfield, the crew cleared the remaining brush from the area with compact loaders on rubber tracks.

“The grade and contours made installing the tubing very difficult,” says Mets. “The vibratory cable plow has a 35 hp diesel engine, but we had to pull it with a mini-excavator to manage the slopes.”

The workers precut the tubing for each run, hooked one end to the plow, and left the remainder coiled on the ground. A sentinel continually monitored the coil and sounded the alarm when the plow kept moving but the tubing stopped. Roots snagged the lines, ripping them in half or stretching them beyond usage.

Besides being limited by the contours and elevations, the crew tried to stay four to six feet away from the bases of trees. The tubing went six inches deep in some locations and lay on the ground in others. “It took five weeks to install the drainfield, averaging about 1,000 feet per day,” says Mets.

Maintenance

StreamKey trained the camp’s maintenance supervisor to check the system daily. For two years, a StreamKey technician will do standard maintenance three times per year. Then the owners must sign a service contract with a provider of their choice. ■

MORE INFO:

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Bio-Microbics, Inc.
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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 Transporters. Readers are welcome to submit questions or article suggestions to Jim and Dave. Write to ander045@umn.edu.

Finishing Touches

The job isn't done when the tank is in the ground. Proper backfilling, ease of service access, and watertightness are all essential to the job.

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

This is the last in our series on installation of septic and sewage tanks. From here, we will move on to pump stations and pump controls as we work through system components. This month we look at backfilling tanks, tank access and watertightness.

Tanks should be backfilled with granular material to at least the midseam of tanks that have seams or halfway up the tank. From there, native soil materials can be used as long as they do not have rocks, pieces of concrete or

finished grade. The ground should be sloped away from the covers to prevent surface water inflow. Access risers for concrete tanks are available in the whole spectrum of materials from concrete to polyethylene, polypropylene, and ribbed PVC tubing.

Polyethylene and polypropylene risers are typically connected to a precast tank with an adapter ring cast into the tank. These joints should be checked, and the installer should apply mastic as well to further seal the connections. Another

Watertightness is critical to septic tank performance. If the tank is leaky, untreated sewage can be delivered into groundwater or bedrock. From an operation standpoint, water introduced to the system from surface water or inflow from groundwater can immediately overwhelm the soil treatment part of the system.

other materials that can damage the tank. The backfill should be applied in lifts no more than 2 feet in depth and compacted.

If the tank bottom is rounded, then the compaction should take place in 6- to 12-inch lifts. As always, recognize that these are general guidelines — tank manufacturers may have specific requirements that must be followed.

Sealing the connections

Risers for the access holes in the tank for cleaning and maintenance should extend to the final

option is to mechanically attach a flange to the tank top using butyl rubber and stainless bolts. The riser can be sealed with mastic and other adhesives.

Whatever the material, one of the largest issues to ensure that a tank remains watertight over its lifetime is how the connections are made. In dryer climates, watertight also means the joints are resistant to root penetration. In cold climates, good connections will stay in place even with the expansion and contraction involved with freezing temperatures.

Vacuum testing on a concrete tank in place.



Checking for leaks

Watertightness is critical to septic tank performance. If the tank is leaky, untreated sewage can be delivered into groundwater or bedrock. From an operation standpoint, water introduced to the system from surface water or inflow from groundwater can immediately overwhelm the soil treatment part of the system. Watertight means there should be no water entering or leaving the tank except through the piping.

When inspecting tanks before installation, verify that the concrete walls are watertight, without cracks. Check to see that the drainage hole at the bottom has been plugged, or be prepared to plug it as a part of your installation.

Tanks with mid-wall seams

have a high probability of not being watertight. These seams should have some type of tongue-in-groove construction. The joints should also be sealed with mastic and wrapped with a type of tape that provides a mechanical connection at the joint to keep the joint from separating during installation and backfill.

Testing tanks

Tanks can be tested for watertightness before and during installation. This can be done by filling the tank with water (hydrostatic testing) or by vacuum testing. Methods for testing can be found in many practice manuals issued by universities and other educational organizations, and by tank manufacturers.



Tanks with mid-wall seams need to have those seams properly sealed before installation.

For vacuum testing concrete tanks, there is a standard procedure recognized by the National Precast Concrete Association. The advantage of vacuum testing is that it takes less time than hydrostatic testing.

All piping and risers should be installed in place at the time of the test. All openings are plugged, and a special insert is installed on one of the manholes. Using a pump, air is evacuated from the tank to a standard vacuum level.

The concrete tank standard is a vacuum of 4 inches of mercury for 5 minutes. Up to a 1/2 inch of mercury loss during the first period is allowed. Then the pressure is brought back to 4 inches and the vacuum must hold for 5 minutes with no pressure drop. Be careful not to exceed the recommended vacuum level — the tank could implode, which would of course ruin a good installation.

Water testing steps

When water testing plastic or fiberglass tanks, take care. The tank should be backfilled before the test to just below the midseam so the seam can be observed during the test. It is important for these tanks to be supported by soil as much as possible to maintain their strength.

Here are the basic steps for water testing:

1. Plug the inlet and outlet pipes with a watertight plug, pipe and cap or other seal. Seal the pipes away from the tank to test

any pipe connections.

2. If testing a midseam tank, make sure the seam is exposed for the test.

3. Fill the tank to the top.

4. If there is a riser, add water into the riser at least 2 inches above the seam. Take care not to overfill, as the top section of a two-piece tank can become buoyant.

5. Measure and record the level of water.

6. Wait 24 hours. Any obvious leakage during this time should be evaluated and remedied by the application of the proper sealant.

7. If the test reveals leaks that cannot be repaired, the tank is unacceptable.

8. Refill concrete tanks to the original level after 24 hours, as they absorb some water.

9. Check again after 24 hours. If less than one gallon is lost in a concrete tank, the tank is considered acceptable.

In cold climates, if overnight temperatures will be below freezing during the test, cover and protect the opening to make sure the water does not freeze. Failure to do this can lead to erroneous readings, since the density of water at a very low temperature will result in a large drop in the water level. Even more important, if the water freezes, the expansion of the ice may crack the tank.

As always check with your state and local regulations to see what is required for watertightness testing. ■

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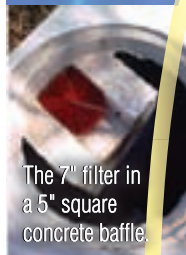


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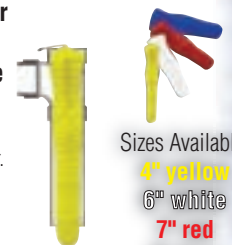
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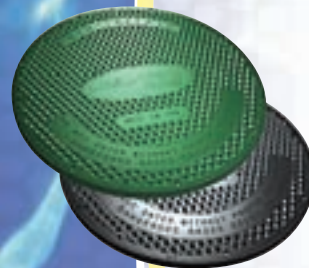
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Bringing Home the Benjamins

Iowa state champion Casey Mallon wins the top prize in the 2011 NOWRA Roe-D-Hoe at the Pumper & Cleaner Expo

By Ed Wodalski

His hair was soaked with nervous perspiration; around his waist rested the champion's belt; in his hand were clutched ten crisp \$100 bills.

Casey Mallon, the Iowa Onsite Wastewater Association representative, took on all comers and for the second time in three months proved to be the best, winning the 2011 NOWRA National Backhoe Roe-D-Hoe, held at the Pumper & Cleaner Environmental Expo in Louisville March 3-5. As Iowa state champion, Mallon automatically qualified for the finals.

The competition tested the skills of nearly 200 backhoe operators, competing in three timed events. Contestants had to drop three basketballs through a hoop, move three bowling pins into yellow PVC tubes, and set a golf ball on a string atop a plastic cone.

Mallon, owner of Mallon Excavating in Slater, Iowa, completed all three events in a total of 1 minute, 26 seconds. Having won at the state level, he knew what to expect in Louisville. But did he think that was an advantage?

Ball of nerves

"No," said Mallon, 36, who also received a first-place commemorative belt buckle. "I'm still just a ball of nerves." His technique in the basketball event may have comprised the winning strategy. Rather than pick up the balls individually from the front, he swung the bucket from the side, collecting all three at once and, without tipping a cone,

dropping them through the hoop.

"I thought, 'You've just got to go for it,'" Mallon said. "I saw a couple of guys yesterday attempting it. It seemed to work for me."

His greatest challenge was the golf ball event: "It did the same to me in Iowa too. I'm not a good golfer in real life, and I don't know why I would be a good one in this competition."

Runner-up Josh Reading, 31, finished with a time of 1:33. He received \$400 and a commemorative belt buckle. Reading, 31, works for family-owned M&J Underground and Jean's Septic of Monee, Ill., and owns JR's Johns of Grant Park.

Like Mallon, he struggled in the golf event. "That was my nemesis coming in," he said. "It gets swinging and I just didn't figure out the technique to get it done fast."

Beats his boss

Tim Boswell, 37, placed third with a time of 1:41, nearly 30 seconds faster than his boss, Jerry Stewart, who finished seventh. Boswell cashed in despite missing on his first attempt to put three basketballs through the hoop and had to go back for a fourth try. "It's nervousness, that's all," said Boswell, who works for family-owned Stewart's Septic Service of Fairfax, Va. "One time I did 1:31 and 2:10 the next time. It's just how you do at the moment."

Boswell didn't have a strategy for the event, just experience: "I've been running equipment for about



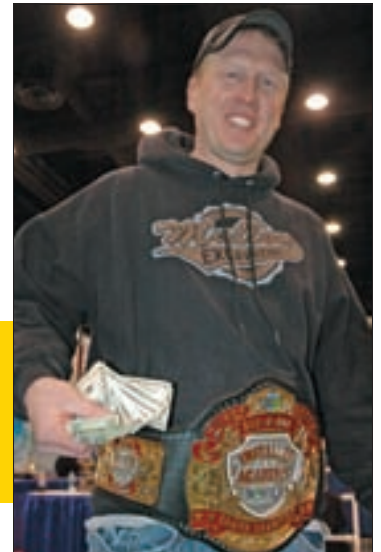
Runner-up Josh Reading (right) with Roe-D-Hoe director Tom Fritts. (Photography by Ed Wodalski)



Tim Boswell took third place in the Roe-D-Hoe.

20 years." He received \$100 and a commemorative buckle. The other finalists were:

- Chris Diesco of New York, 1:43.
- Andrew Rieger of Michigan, 1:51.
- Kenny Lee of Georgia, 1:53.
- Jerry Stewart of Virginia, 2:07.
- Dwain Dantel of Tennessee, 2:13.



Winner Casey Mallon with his \$1,000 winnings and first-place commemorative belt buckle (above) and showing off his form during the competition (below).

- Nick Sergeant of Michigan, 2:15.
- Terry Camden of Indiana, 2:33.
- Ralph Williamson of Georgia, 2:37.

Numbers increase

NOWRA executive director Eric Casey said about 175 operators competed, some going through the course more than once. He estimated that entries were up about 50 from 2010. "Because we did this last year

for the first time with COLE Publishing, people now know to come here and look for it," said Casey. "That in large measure is why we had more people competing." Among the younger operators were 6-year-old Caleb Welsford of South Carolina and 11-year-old Michael O'Brian of Ontario.

The Roe-D-Hoe sponsors included Jet Inc., Bio-Microbics, Infiltrator Systems, Norweco, and Presby Environmental. IHI Compact Exca-

vator Sales supplied the three electric backhoes used in the competition. COLE Publishing and the Pumper & Cleaner Expo provided exhibit space, show services and marketing support.

Tom Fritts, Roe-D-Hoe director, said he's looking forward to next year's nationals at the Pumper & Cleaner Expo in Indianapolis. "The times were amazing," he said. "These guys are good, aren't they?" ■



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By **Scottie Dayton and Doug Day**

“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.

Missouri

The attorney general recommended that Camden, Miller, Benton, and Morgan counties work together to create a regional sewer district whose boundaries surround the Lake of the Ozarks. Experts suggest the system could cost \$150 million and take 10 to 20 years to complete. The recommendation also included legislation requiring all onsite systems within 2,500 feet of the lake to pass a point-of-sale inspection.

Additional recommendations included amending the septic code to enhance the inspection authority of the state Department of Health and Senior Services and the civil and criminal enforcement authority for county prosecutors, and implementing a tax credit for homeowners wishing to replace grandfathered systems.

Florida

If attempts fail to kill legislation requiring septic tank inspections every five years, a Senate analysis found that the mandate would create hundreds of private-sector jobs for certified inspectors. The Department of Health estimated that annual inspections would increase from 17,000 to 500,000 per year. Legislation (HB 13 and SB 168) to repeal the environmental program passed several subcommittees.

Montana

The Lewis and Clark City-County Health Department approved regulations governing how onsite system owners meet county maintenance standards. Owners can file paperwork detailing household water use and septic pumping history, and the data would be used to determine how often the system

should be pumped. They also can hire certified inspectors every four years and base a pumping schedule on the inspections. The law, which becomes effective July 1, will be phased in over several years, targeting vulnerable groundwater areas first.

Maine

The York Water District pressured the town of York to enforce its 15-year-old ordinance requiring certain property owners within the Cape Neddick River watershed to pump their septic tanks every three years. Nearly half the 55 property owners who received a notice requesting records to prove their tanks were pumped sent documentation. Those who failed to comply because the tanks were buried under deep snow were given another 90 days. In May, the town sent letters to another 1,000 property owners informing them to have their tanks pumped every five years.

Inspectors from the Department of Environmental Protection early this year found 15 of 126 septic systems around Northern Bay had failed. The Town of Penobscot was ordered to develop a remediation plan within 30 days, though work was not expected to take place until later in the year. Local officials say they will work with the property owners to repair or replace the failed systems.

Mississippi

The House and Senate passed legislation modifying a 2009 law that required completed onsite systems to be approved by the state Department of Health before the home’s water was turned on. Under the House bill, sites of two acres or more would not need health department approval provided the property was not next to water, professional engineers could design the systems, and licensed contractors could install them without constant state supervision. The Senate bill repeals a 2009 law and

reverts back to the health department recommending systems to property owners, but having no authority to force them to use it.

Washington

King County officials sent letters to 200 islanders within county-designated marine recovery areas stating that they must have their onsite systems inspected by July 1 or be in violation of county health codes. The county established the marine recovery areas four years ago, but many homeowners with inadequate systems do not want to pay for replacements.

Minnesota

The Minnesota Pollution Control Agency proposed to extend septic tank design registration for all manufacturers to April 4, 2012, since the agency is still amending the Subsurface Sewage Treatment System rules. The 2008 rules required tanks to be tested for structural integrity and watertightness, then registered with the agency.

California

The community of Calabasas is suing six property owners for failing to have their septic systems inspected. The mandatory inspection program was passed in August 2009 and gave residents until May 2010 to have their system checked. The deadline was extended to October, and a letter reminding people of the requirement was mailed again in December 2010. Legal action is pending against four more homeowners.

Two environmental groups have filed suit against California for failing to adopt new septic system rules to comply with a 2000 law (AB 885). The original deadline was January 2004, but as of March the California State Water Resources Board has yet to pass new regulations. ■

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By *Scottie Dayton*

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Multiple-layer tank

The **Roth Industries MultiTank** has an inner layer of FDA-approved virgin HDPE, two inside layers of polyethylene for improved stability, and an outer layer of black UV-stabilized polyethylene. It includes lifetime corrosion protection. **866/943-7256; www.roth-usa.com.**

1,500-gallon tanks

Ace Roto-Mold 1,500-gallon septic tanks, manufactured from HDPE, use a horizontal flow design for belowground installations up to 36 inches and can withstand up to 500 pounds per square foot pressure. The custom-molded gasket system locks firm for a watertight seal. The unit is IAPMO approved and has a trapezoidal, deep rib design and innovative interior baffle system. **800/342-3408; www.acerotomold.com.**



Holding tank

The **Pro-Pumper 250** low-profile plastic holding tank from **Kentucky Tank** is designed for above-ground waste storage. It holds 250 gallons and is sized to slip under trailers or for use in other mobile situations (dimensions 16 inches high, 46 inches wide, 93.5 inches long). The tank comes with seven 3-inch threaded inlets and one 10-inch lid with stainless steel tether.

The tank's molded-in features include forklift legs for shipping with no pallet, a handle to simplify positioning and pumping, and interlocking sections for stacking and shipping. It can be heated with approved heaters and is FDA-approved for potable water. With 16 available colors, users can easily distinguish waste tanks from water tanks. **888/459-8265; www.kentuckytank.com.**

Watertight joint

Containment Solutions watertight access joints help eliminate infiltration and exfiltration contamination. **877/274-8265; www.containment-solutions.com.**



Effluent filters

WW1 and WW4 effluent filters from **Clarus Environmental** prolong onsite system life. The deep-pleated design provides 1/16-inch filtration and solids retention. Used where the maximum flow rate is 1,000 gpd, the WW1 effluent filter includes a bypass protection sleeve to keep solids in the septic tank even during cleaning. It is available with or without a 4-inch sanitary tee for installation in new or existing septic tanks.

The WW4 has a maximum flow rate of 4,000 gpd and is useful in commercial applications. It also includes a bypass protection screen. Multiple-filter units may be installed in parallel for higher flows. The unit fits a 4-inch SCH40 PVC or a 4-inch SDR35 outlet. **800/928-7867; www.clarusenvironmental.com.**



Natural treatment

The **Puraflo** peat biofilter from **Bord Na Mona** is a natural onsite wastewater treatment system that uses biofibrous peat filter media. No blowers or recirculating pumps are required. Time dosing protects the drainfield and ensures high treatment performance, with ammonia levels less than 5 mg/l. Where no power is available, a siphon system can be used for time dosing. **800/787-2356; www.bnm-us.com.**



Specialized vaults

Kerkstra Precast specialized vaults are available in a wide variety of custom sizes and can be constructed to meet HS-20 loading requirements. There is an option to precast a hatch in the top to maintain a watertight seal around the opening. **616/291-5183; www.kerkstra.com.**

Concrete septic tanks

TOPP Industries offers **septic tank risers and covers** to fit new and retrofit old concrete septic tanks. Corrosion-resistant polyethylene risers eliminate the need to cut tubing from awkward lengths. They are available in 24-inch and 6-inch heights, and 6-inch extensions are offered. Risers use tapered lightweight construction with four built-in recessed side pockets for easy handling of pipes. Covers are lightweight and durable with a non-skid surface. **800/354-4534; www.toppindustries.com.**



Single or double compartment

Dominator single- or double-compartment septic tanks from **Snyder Industries** are available in 750-, 1,000-, 1,250- and 1,500-gallon sizes. The top male ribs add strength against top loading, and the bottom male ribs counteract high hydrostatic forces. Tanks also have stabilization and lifting lugs. 402/467-5221; www.snydernet.com.



Tank access kits

RiserPak tank access kits from **Orenco Systems** provide sturdy, non-corroding, watertight tank access to grade. The company provides a Riser-Pak with the correct riser, lid, safety grate and riser/tank adapter for the application and supplies the right epoxy for a secure watertight connection. Ribbed PVC risers come in 18-, 21-, 24-, 30- and 36-inch diameters, in 6-inch increments of length. Strong non-skid green or brown fiberglass lids come in 18-, 21-, 24-, 30-, 36- and 48-inch diameters. Polypropylene safety grates fit over the tank opening. Multiple styles of tank adapters fit all sizes of openings. The appropriate fast-cure epoxy bonds the riser to the adapter. 800/348-9843; www.orenco.com.

Disc filters

Disc filters from **Netafim USA** provide final filtering of effluent before field dispersal. They are available in 3/4- to 3-inch sizes and can be fitted with a 400, 175, 125, 100, 70, 55, 40 or 20 micron disc cartridge. They are designed for easy cleaning, handle pressures up to 140 psi, and come with pressure gauge mounts on all filters 1 inch and larger. The units withstand temperatures ranging from -40 to 160 degrees F. The filter body and cover are reinforced polyamide, the disc rings are polypropylene, the o-rings and seals are nitrile and EPDM, and the clamps, springs and bolts are stainless steel. 888/638-2346; www.netafimusa.com.



Plastic septic tank

The **IM-1060** septic tank from **Infiltrator Systems** is a lightweight two-piece tank injection molded from polypropylene for long-term strength and available with the company's custom-fit risers and heavy-duty lids. A precisely designed midseam joint accepts an engineered EPDM gasket, eliminating seepage.



The unit is suitable for use as a septic tank, pump tank, or rainwater tank. The gasket design uses technology and materials from the sanitary sewer pipe industry for a watertight seal. The sections are permanently fastened using a series of non-corrosive plastic alignment dowels and locking seam clips. The tank can be installed with 6 to 48 inches of cover and can be pumped dry. It includes inboard lifting lugs, and structurally reinforced access ports to eliminate distortion during installation and pumpouts, reinforced structural ribbing and fiberglass bulkheads. 800/221-4436; www.infiltratorsystems.com.

Aerated effluent filter

The **RetroFAST** aerated effluent filter from **Bio-Microbics** enhances existing septic tanks and helps prolong septic system life. Adapted and inserted into the tank, it helps rejuvenate or recover failed drainfields. The

unit introduces dissolved oxygen (DO) with an above-grade external air blower to break down the biomat layer, promote digestion of organic matter (including nitrogen reduction), and allow wastewater to enter the soil. 800/753-3278; www.biomicrobics.com.

Diaphragm pump

The **ET80** linear diaphragm pump from **Polylok** provides a clean, oil-free air source that is quiet (as low as 30 dB) and vibration free. It is housed in a portable weatherproof compact casing and offers plug-and-run operation. Models offer a variety of flow rates with minimal maintenance apart from tool-free filter change. 800/701-3946; www.polylok.com.



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The C-Con converter box from SJE-Rhombus is designed to convert most simplex and duplex control panels to utilize the floatless technology of the C-Level sensor. The C-Con unit converts the signal from the C-Level sensor to simulate float levels (up to four floats). Activation can be set and adjusted at the converter box. The unit features a Type 1 enclosure for indoor use and can be mounted inside a control panel. **888/342-5753; www.sjrhombus.com.** ■



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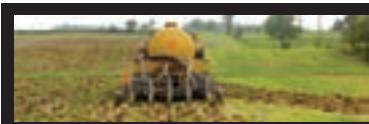
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Super Summit

The National Onsite Wastewater Recycling Association (NOWRA), State Onsite Regulators Alliance (SORA), and National Environmental Health Association (NEHA) are sponsoring the Onsite Wastewater Systems Summit June 17-20 in Columbus, Ohio. The event, the biggest national meeting of onsite wastewater professionals this year, will serve as the annual NOWRA Conference for 2011.

Activities include a field trip to onsite-related locations on Friday afternoon, a welcome reception that evening, two education tracks on Saturday and Sunday, and an education day sponsored by SORA on Monday.

The NOWRA business meeting and member reception will be held Sunday, June 19, from 6:30 to 8 p.m. Speakers will update members on the association's recent activities and plans for the future. A casual reception follows the meeting.

Wastewater Alley, an exhibit hall, will be open on Saturday and Sunday, June 18-19. To register for the conference, visit www.nowra.org.

Winning Combination

For the third consecutive year, the Michigan Septic Tank Association purchased television airtime to blanket the state with three public service announcements, provided free from the National Environmental Services Center.

Humorous videos delivered the message that homeowners are responsible for safeguarding drinking water through proper onsite system operation and maintenance. The announcements, modified to include the association's logo and Web address, were so successful at reminding customers to have their septic tanks pumped that the membership pushed the board to begin the campaign again in May. The Michigan PSAs are at www.msta.biz. The originals are at www.nesc.wvu.edu/subpages/psa.cfm.

Junk Legislation Stopped

Pressure from the Georgia Onsite

Wastewater Association stopped the House Natural Resources Environmental Quality Subcommittee from considering a bill that would restrict issuance of onsite permits in the metro Atlanta area. Members contacted their representatives and committee members in such numbers that the author of the bill did not attend the legislative meeting to present it.

The proposed Water Conservation Act maintained that septic systems robbed rivers of flow in critical times. Members countered that by citing studies demonstrating that streams surrounded by septic systems continue to flow long after those surrounded by sewers dry up. The Department of Community Health Division of Environmental Health called the bill unworkable because more than 25 percent of homes in the area have onsite systems and the state has no funds to sewer them.

First in the State

An onsite installation near Collins Chapel, Ala., was the first in the state to use tire aggregate for drainfield media. The project was eligible for a \$2,500 reimbursement under a state Department of Environmental Management initiative to encourage use of the material in such applications. Only contractors licensed through the Alabama Onsite Wastewater Board may install the systems. Applications for the program are available at www.adem.alabama.gov or from the Scrap Tire Marketing Program, 334/271-7700.

Monitoring Greenhouse Gases

According to a report in Environmental Science Technology, empirical measurements of septic tank emissions are about half as high as estimated by the Intergovernmental Panel on Climate Change (IPCC).

The panel estimated that an average tank emitted 0.23 metric tons of carbon dioxide equivalent per year. Environmental engineer Chris Cappa of the University of California-Davis and colleagues

collected samples from eight septic tanks. Gas chromatography showed an average 11 grams of methane compared to the IPCC estimate of 25.5 grams.

Cappa found that carbon dioxide emissions averaged 33.3 grams per day, and nitrogen dioxide emissions were negligible. Overall, the team reported that septic tanks produce between 0.1 and 0.12 metric tons of carbon dioxide equivalent per year. Temperatures inside the tanks did not seem to influence methane emissions, Cappa says.

Identical Standards

The Nebraska On-Site Waste Water Association (NOWWA) is working with the state's On-Site Wastewater Advisory Committee (OWAC) Board to ensure that everyone follows the same standards for onsite systems as described in Title 124.

According to NOWWA president Matt Weider, the problem is the number of installers who violate the code because they are unwilling to change. Then there are those who put in mound systems illegally. The state Department of Environmental Quality has yet to provide preliminary plans endorsing common mound systems for three- to five-bedroom homes with high groundwater issues.

The plans, when approved, would allow only certified installers to follow a basic design that would not require an engineering firm, reducing the cost for homeowners. The association also is working through OWAC to keep the septic code current and to clear up gray areas. Revisions often include increasing the difficulty of certification exams to encourage service providers to stay informed about code changes, installation methods, new products, and industry issues.

CALENDAR OF EVENTS

June 9-10

Arizona Onsite Wastewater Recycling Association Onsite Wastewa-

ter Educational Conference, Radisson Suites, Tucson. Email Suzanne Ehrlich at suzanne.ehrlich@co.yavapai.az.us.

June 15-17

North Carolina Septic Tank Association Symposium, Sea Trails Resort, Sunset Beach. Visit www.ncsta.net or email ncsta@earthlink.net.

June 16

Utah On-Site Wastewater Association mini-conference on pressure distribution system design, operation, and use. Division of Natural Resources Building, Salt Lake City. Call 435/797-3155 or visit <http://uwrl.usu.edu/partnerships/training/uowa.html>.

TRAINING & EDUCATION

NAWT

The National Association of Wastewater Transporters has these training sessions:

- July 21-22 – Inspector Training and Certification, Sonora, Calif.
- Sept. 22-23 – Operation and Maintenance, Part 1, Citrus Heights, Calif.

Call Kit Rosefield at 530/513-6658 or visit www.cowa.org.

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:

- July 7-8 – Pumpers
- July 20-22 – Advanced Installer I
- Aug. 11-12 – Continuing Education, Guntersville
- Aug. 24-26 – Advanced Installer II

The first day of Continuing Education classes is for installers, and the second day is for pumpers and portable restroom operators. Call the training center at 205/652-3803 or visit www.aowatc.uwa.edu.

Arizona

The Arizona Onsite Wastewater

Recycling Association, in sponsorship with the University of Arizona Onsite Wastewater Education Program, has a Soil and Site Evaluation for Onsite Systems class Aug. 17-18 in Coconino County. Call Kitt Farrell-Poe at 520/621-7221 or email kittfp@ag.arizona.edu or visit www.ag.arizona.edu/waterquality/onsite.

California

The California Onsite Wastewater Association is offering these NAWT classes:

- July 21-22 – NAWT Onsite Inspector Training and Certification, Sonora
- Aug. 12 – System Controls, Citrus Heights

Call Kit Rosefield at 530/513-6658 or visit www.cowa.org.

Florida

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

- July 6 – DOH Onsite Treatment and Disposal Systems Forms, Wauchula
 - July 7 – DOH Onsite Treatment and Disposal Systems Forms
 - July 13 – DOH Onsite Treatment and Disposal Systems Forms, Ft. Lauderdale
 - July 14 – DOH Onsite Treatment and Disposal Systems Forms, Ft. Meyers
 - July 19 – DOH Onsite Treatment and Disposal Systems Forms, Jacksonville
 - July 20 – Advanced Treatment Systems I, Tallahassee
- Contact FOWA at 321/363-1590 or www.fowaonsite.com.

Michigan

The Michigan Onsite Wastewater Training and Education Center at MSU Tollgate Center in Novi has an Onsite Systems Evaluator course Aug. 27-28. Call Barb DeLong at 517/355-4720 or visit www.egr.msu.edu/age/outreach.html.

Minnesota

The University of Minnesota Extension has these classes:

- Aug. 3 – Sampling Onsite Systems, Waterville
- Aug. 23-26 – Service Provider, Brainerd

Call Nick Haig at 800/322-8642 or visit www.septic.umn.edu.

Missouri

The Missouri Smallflows Organization is offering these CEU courses:

- July 19-20 – Operations and Maintenance, Liberty
- Aug. 30 – Media Filters, Cape Girardeau
- Aug. 31 – Aerated Treatment Units, Cape Girardeau

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 courses:

- July 13 – Microbiology for Wastewater Professionals
- July 14 – Surveying Techniques for the Wastewater Professional
- July 20-21 – Advanced Soil Morphology
- Aug. 11 – Surveying Basics for the Onsite Wastewater Contractor

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

North Carolina

The North Carolina Soils and On-Site Wastewater Training Academy has these courses:

- July 14 – Global Positioning and Geographic Information, webinar
- Aug. 4 – Soil Survey in the 21st Century, webinar
- Aug. 9 – Subsurface Wastewater System Operator, Mills River

Call Joni Tanner at 919/513-1678 or visit www.soil.ncsu.edu/training.

The North Carolina Pumper Group and Portable Toilet Group are holding the four-hour septage management training and three-hour land application seminar on Sept. 24 in Asheville. Call Joe McClees at 252/249-1097 or visit www.ncpumpgroup.org or www.ncportabletoiletgroup.org.

North Carolina Septic Tank Association has these classes:

- October 20-21 – Installer/Inspector, Hickory
- October 26-28 – Installer,

Inspector, Pumper, Land Application, Greensboro

Visit www.ncsta.net or email ncsta@earthlink.net.

Pennsylvania

The Pennsylvania Septage Management Association is offering these Onsite Wastewater Treatment System Inspection courses:

- July 13-14 – Advanced Level, Downingtown
- July 20-21 – Basic Level, Chesterfield, N.J.

Call 717/763-7762 or visit www.pasma.net. ■

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SSPMA Elects Officers, Welcomes Members

The Sump and Sewage Pump Manufacturers Association elected Susan O'Grady of Pentair Water to a two-year term as president. Mark Huntbrinker of Zoeller Co. was elected vice president and Jeff Hawks of Champion Pump was elected secretary-treasurer. Directors elected were Charlie Cook, Liberty Pumps; Scott Stayton, Franklin Electric Water Transfer Systems; and Greg Simon, Alderon Industries. Nike Professional Services provides management services with Pamela Franzen serving as managing director. SSPMA also welcomed new members Glentronics Inc., Wayne Water Systems and Motor Protection Electronics.



New SSPMA member company representatives (from left) are Linda Kerdolff, director of marketing for Wayne Water Systems; Charles Murphy, vice president of sales for Wayne Water Systems; Alan Schulman, owner of Glentronics Inc., and John Evans of Motor Protection Electronics.



New SSPMA officers (from left) are Mark Huntbrinker, vice president; Jeff Hawks, secretary-treasurer; Scott Stayton, director; Susan O'Grady, president; and directors Greg Simon and Charlie Cook.

Bear Onsite Achieves NSF Standard 46 Certification

Six effluent filters (ML3-910, ML3-916, ML3-925, ML3-932, ML3-948, ML3-964) from Bear Onsite LLC have received NSF/ANSI Standard 46 Certification.

Gorman-Rupp Mansfield Division Receives ISO Certification

The Gorman-Rupp Co.'s Mansfield, Ohio, division achieved certification to ISO 14001:2004 for its Environmental Management System. Certifi-

cation of the pump manufacturer recognizes the use of best management practices, technical advances, continual improvement and environmental awareness.

McDermott Hosts Annual Dealer Meeting

A.I. McDermott Co. Inc. held its 66th Annual Dealer Meeting in February. The theme for the meeting was "Team McDermott — The Pro's Source for Three Generations." Speakers included manufacturer representatives, state regulators and a representative from Wisconsin's Focus on Energy. New products and technologies were introduced at the 30 exhibit booths.

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SJE-Rhombus Mentors Winning Robotics

Sam Esser and Tom Bergh of SJE-Rhombus were among seven mentors for the Detroit Lakes (Minn.) High School QWERTY robotics team that placed first in the Minnesota North Star Regional FIRST Robotics competition. The team of 11 students advanced to the April nationals in St. Louis. ■

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