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# Being Versatile

**Diverse terrain provides challenges for a progressive installer in British Columbia**

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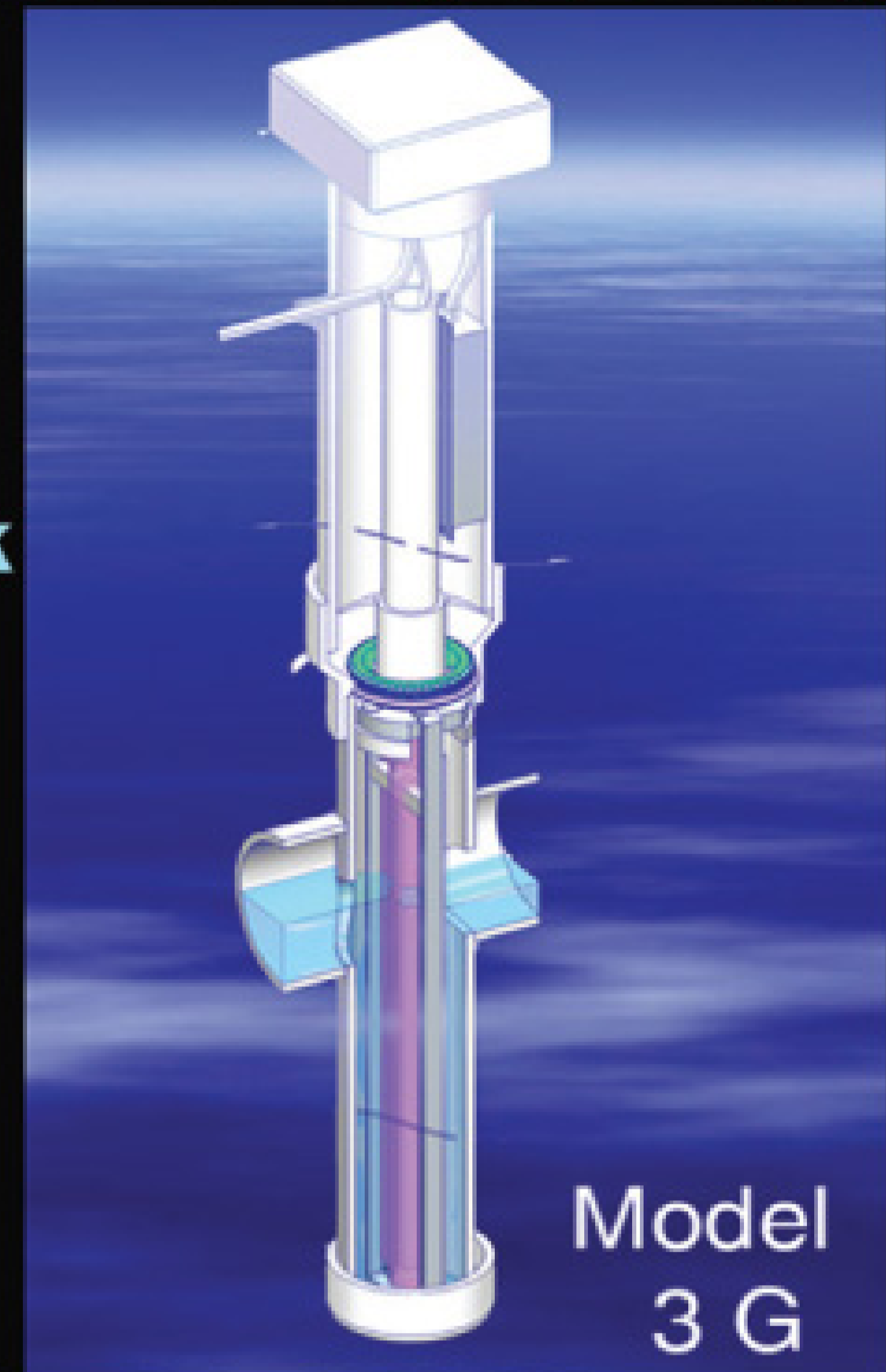
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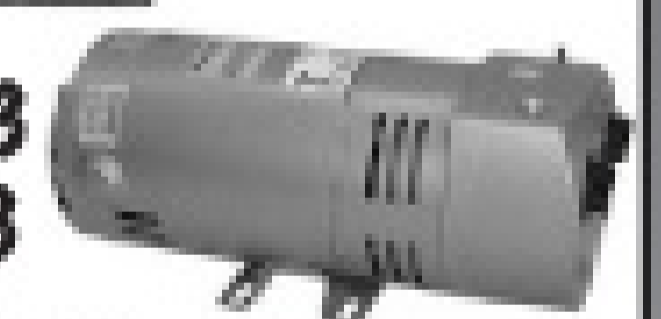
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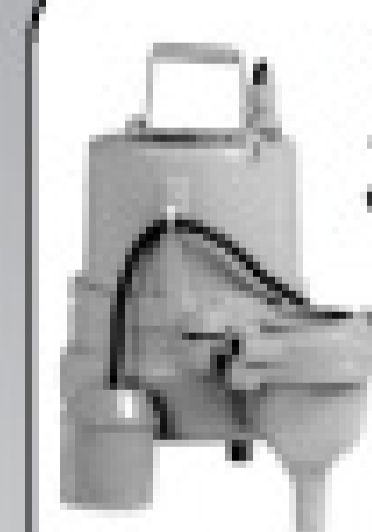
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## Being Worth It

It takes courage to stand aside and let others play the price game. The rewards of that choice are better customers, happier employees, and higher profits.

By Ted J. Rulseh, editor

In the movie comedy “Ruthless People,” Danny DeVito plays a vicious fashion executive who at one point snarls about how deeply he despises any salesman who cuts his price to get orders.

Now imagine that character listening on the phone while the kidnappers holding his wife for ransom lower their demands. It’s a hilarious scene: You can almost see the hot blood rise and burn a hole in the top of DeVito’s balding head.

On a more serious note: How do you set your prices? There is a time and a place for everything — including low prices — so long as you do it selectively and for a strategic reason. Suppose a low-margin quote on a small job gets you a chance to show your stuff to a customer with huge long-term potential. That may be a good bet.

But as a way of doing business, price-cutting is not rewarding. You’ve heard the reasons why a dozen times. Maybe you’ve worked your way past the habit — or never had it — and if that’s true, more power to you. But if you still struggle over pricing (and even many long-standing companies do), then maybe it’s worth asking why.

My experience shows that price-cutting is often less a conscious decision or a business strategy than a symptom of weaknesses in the business and its management. Yes, for some companies — Wal-Mart and Motel 6 for two — low price is a strategy, and it works spectacularly for them. But chances are it doesn’t work so well for you. Here is what a constant impulse to “race to

the bottom” may say about you:

**1. You need to plan more effectively.** If you had a business plan, it would include a vision for the kind and level of service to provide, how your people and equipment will look, the kind of lifestyle you expect, and the income you want your employees to enjoy. You would invest to fulfill that vision and set rates and prices accordingly, with reasonable attention to the needs, expectations and means of prospective customers.

If your plan is inadequate, or you have none, you’ll tend to chase any business that helps keep the lights on. To do that, you may fall into competing on price. Once you do that, you’re letting competitors (usually not the best companies in town) dictate how you run your business. You’ve lost control. Instead of working to a profit plan, you’re scrambling, hoping there’s enough left at the end of the month to pay your salary.

**2. You need to improve your salesmanship.** Quoting prices isn’t selling. Neither is haggling over prices. Selling is about convincing customers that your service has value — that you can solve a problem for them and do it better than the other guy, *and* at a reasonable (not the lowest) price. It’s also about providing what customers need instead of what they think they want.

Suppose a customer asks for a smaller septic tank than the one you recommended, and questions the effluent filter in your proposal. You could quote a new price against

the bare-bones proposal your customer apparently wants. Or you could stand by what you recommended and explain why.

“Mr. Smith,” you might say, “I could do what you’re suggesting, but then I wouldn’t feel confident your system will perform as well or last as long as it should. If you do what I’m suggesting, and if you take care of your system properly, you can expect it to serve you well for as long as you live here.”

Do this and you’re on your way to a discussion that can lead to a profitable job — and a satisfied, loyal customer who will speak highly of you to others.

**3. You need a sharper value proposition.** At the end of the day, what is it you offer to customers? Is it just a basic installation job performed for a competitive price? Or is it a set of less tangible but in the end more compelling benefits? Like long-term system reliability? Peace of mind? Respect for the home and property? The right job, done right the first time? Sell values like these — in your advertising, on your Web site, in every customer contact — and you elevate yourself out of the price game.

**4. You need to target different customers.** Some people are simply price shoppers by nature. You’ll never bring them around. Decide whether it’s worth your time even to deal with such people. If not, forget about them.

Instead, develop a customer profile. Target people of certain ages and income levels, businesses of certain types, builders who have

been good customers in the past, and people with other characteristics that indicate they appreciate value. Direct most of your advertising and promotion to people who fit those profiles.

**5. You need to develop more respect for your business and your services.** You are a professional; the services you offer are essential. You shouldn’t devalue them by selling them for lowest dollar.

I once attended a town meeting where citizens criticized the volunteer fire department budget. The fire chief promptly stood up and defended his operation. Every man in the department was fully trained, he said. Every one was a licensed emergency medical technician. Department members were on call around the clock to cover every corner of the township. “I would say,” the chief asserted, “that you’re getting by real cheap with a real good service.” That was the end of the discussion.

What would you say in defense of your business if someone challenged your prices? Perhaps it’s worth your while to develop a value statement you could give if called upon — and to put a little passion into it the way that fire chief did.

If selling on price is working — if you like the way your company is running, you’re content with your profits, and your employees are happy enough to stick around — there may be no reason to change. But if you’re like most business owners, you’d really rather not play the price game. Make a resolution now to learn how to aim higher. ■

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Jim Rose, owner of Rivermist Holdings Ltd., lowers a load of earth for backfilling. (Photography by Wayne Hooton)

# Being Versatile

Diverse terrain provides challenges and diverse services provide stability for a progressive installation firm in Kamloops, B.C.

By Doug Day

## Rivermist Holdings Ltd., Kamloops, B.C.

**OWNERS:** Jim and Debra Rose

**FOUNDED:** 1985  
(incorporated 1999)

**EMPLOYEES:** 7

**SPECIALTIES:** Onsite planning and installation, general excavation, civil construction, irrigation intakes

**AFFILIATIONS:** British Columbia Onsite Sewage Association, Applied Science Technologists and Technicians of BC (certification board for onsite wastewater installers and planners)



**F**rom septic tanks to snow plowing and civil work, Jim Rose keeps his seven employees at Rivermist Holdings busy year-round in Kamloops, in the Southern Interior of British Columbia.

Septic system installations account for 50 to 60 percent of Rivermist's business, which began in the mid-1980s as a sole proprietorship. Over time, the business has branched out, and now offers road building, topsoil services, foundation excavation, and self-storage units. The company even has its own gravel pit, used mainly to support the onsite installation side of the business.

Managing growth and the variety of businesses can be a challenge, Rose admits. That led him to incorporate as Rivermist Holdings Ltd., in 1999. "We were getting more equipment and it was all in my name. That becomes a liability issue," says Rose, who operates the

business with his wife Debra. His two sons, Jamie and Jordan, also work there, and both, like their father, are certified onsite system installers.

### Rivers to mountains

In the last year, the company has installed more than 50 septic systems. British Columbia regulations delineate three types of onsite installations:

- Type I: Treatment by septic tank only.
- Type II: Treatment that produces effluent consistently containing less than 45 mg/l TSS and less than 45 mg/l BOD5.
- Type III: Treatment that produces effluent consistently containing less than 10 mg/l TSS, less than 10 mg/l BOD5, and a median fecal coliform density of less than 400 colony-forming units per 100 ml.

**"You can have three or four types of soil in the same area, and you have to make sure you're getting an accurate reading on the soil. You get 80 percent clay in one spot, and then another is all sand and gravel. It goes from too fast of a perc to a slow perc, and the two can be side by side."**

— Jim Rose

The systems Rivermist installed include 32 Type I, 18 Type II (including seven with Enviro-Septic leaching systems from Presby Environmental Inc.) and a pair of Type III designs.

Like his business, onsite installations can be quite diverse because of the variety of terrain around





Engineer Rob Arden, system designer, makes preparations to observe a squirt test on a Rivermist onsite system and to inspect the installation.



From left, foreman and Registered Onsite Wastewater Practitioner Jordan Rose, company owner Jim Rose, equipment operator Evan Dryer, and laborer and Registered Onsite Wastewater Practitioner Thomas MacKenzie.

Kamloops, about three hours north-east of Vancouver. Kamloops sits at about 1,400-foot elevation near the 9,400-foot Mount Paul in the middle of the Cascade Range. Two branches of the Thompson River

flow through town and feed Kamloops Lake.

The scenic city is surrounded by mountain forests, desert-like hills, and transitional grasslands. It doesn't take long to go from the

## Regulatory Changes

British Columbia changed its regulatory structure in 2005, and it looks as if another change is on the way. While there are restrictions on who can design and install septic systems, and while plans have to be approved by regulators, the government does not do system inspections. The system installer also inspects the final installation to make sure it meets the design requirements.

That arrangement has prompted criticism and, according to critics, makes British Columbia the only province or state in North America that doesn't require regulatory review of installations.

"There are always a few grey areas in the standards and practices manual, but they've been working hard at upgrading that and have done one revi-

sion," says Jim Rose, owner of Rivermist Holdings in Kamloops. He and his two sons are all licensed for both design and inspection of Type I and Type II systems. Type III systems are designed for them by licensed engineers.

The Provincial government in September presented a plan to respond to the criticism of the regulatory scheme. Rose thinks the system is working satisfactorily. "It's something you have to stay on top of, but environmentally and as far as inspections, I think it's working out quite well having installers taking care of their own projects," he says. Bona fide guys are going to do a good job, and it kind of keeps fly-by-night operators out of the picture."

valley floor to 5,000-foot elevations in the nearby hills. "You can have three or four types of soil in the same area, and you have to make sure you're getting an accurate reading on the soil," says Rose. "You get 80 percent clay in one spot, and then another is all sand and gravel. It goes from too fast of a perc to a slow perc, and the two can be side by side."

In a mountain valley, bedrock offers challenges many installers don't face. "It can be from two feet to 10 feet below the surface, and you really have to be cautious to make sure you get a system that is going to work and handle the effluent so that it's not just running down the bedrock into the lake, rivers, or water table," says Rose.

### Tackling big jobs

The variety of soil conditions is made even more difficult by the terrain, as illustrated by a 2008 project in the hills outside Kamloops. "We had to get 400 cubic meters of fill to put a sand mound on, as well as 135 cubic meters of sand," recalls Rose. "We had to load it one bucket at a time, 85 feet up a hill along a goat trail. We couldn't get any trucks up there."

That Type II system required a three-in-one tank with pumps at the house and a trench up a steep grade to the drainfield. It took more than a week to finish the job.

Rose tries to keep his crews busy with onsite work, but he likes to have one large project going at all times that uses the company's strength — its broad scope of services. One such job was a local marina, RV court, restaurant, and 36-unit housing development. The complex required a Type III system with a pair of 45-foot long, 10,000-gallon septic tanks feeding two drainfields of more than 10,000 square feet each.

"We had more than three years of work on that site," says Rose. "We did the water and sewer installations for the whole site to connect everything to the septic system, along with road building and excavations for foundations and major structural fills to stabilize the foundations."

The crew has a new project just like it now. Rose says long-term jobs are nice work and that being able to meet all of a customer's needs helps build business. "You can go onto a site to look at a septic system and find out they're

"You can go onto a site to look at a septic system and find out they're looking for an excavator and end up building the road into the property and digging foundations. Quite often, we'll end up getting the whole works and will be there for a few weeks instead of a few two-day septic jobs."

— Jim Rose

looking for an excavator and end up building the road into the property and digging foundations," he says. "Quite often, we'll end up getting the whole works and will be there for a few weeks instead of a few two-day septic jobs."

### Right-sizing

The variety of work helps keep revenue flowing year-round, but Rose has to be cautious. "You can get too busy," he says. "We have to make sure we don't stretch ourselves too thin." In fact, he's already gone through one business change — reducing from 14 employees to seven.

"I'm more content with the

smaller number," he says. "I found myself working harder and putting in more hours, and I wasn't making any more money, so I decided to cut back. It was the best thing we did."

Now, he does only one big project at a time, supplementing it with onsite installations. With his two sons being certified, the three can do the plan together, and the boys do most of the hands-on installation work.

The team keeps the work fleet lean. It consists of three excavators (2005 EX200 Hitachi, 2001 EX120 Hitachi, Cat 303 mini), a 2004 Mack dump truck, pup trailers, two Cat 950 loaders, a 2004 Ammann 84-inch packer, a water truck, and a



Rivermist works in a wide variety of terrain in British Columbia and deals with a wide range of challenging site conditions.

half-dozen snowplow trucks that help keep the business going during the long winters.

Rose enjoys giving back to the industry through involvement in associations that serve designers and installers across the province. He is a member of the British Columbia Onsite Sewage Association, and of Applied Science Technologists and Technicians of BC, a certification board for the province's onsite installers and planners.

The self-storage business is the latest venture for Rivermist. While it seems to go against his wishes of

staying small, it's not very labor intensive. "It's more for security down the road," he says. "And we are currently expanding the mini-storage by adding three more buildings."

And at least that will give him something to do in his "retirement" years as the kids take over the company. ■

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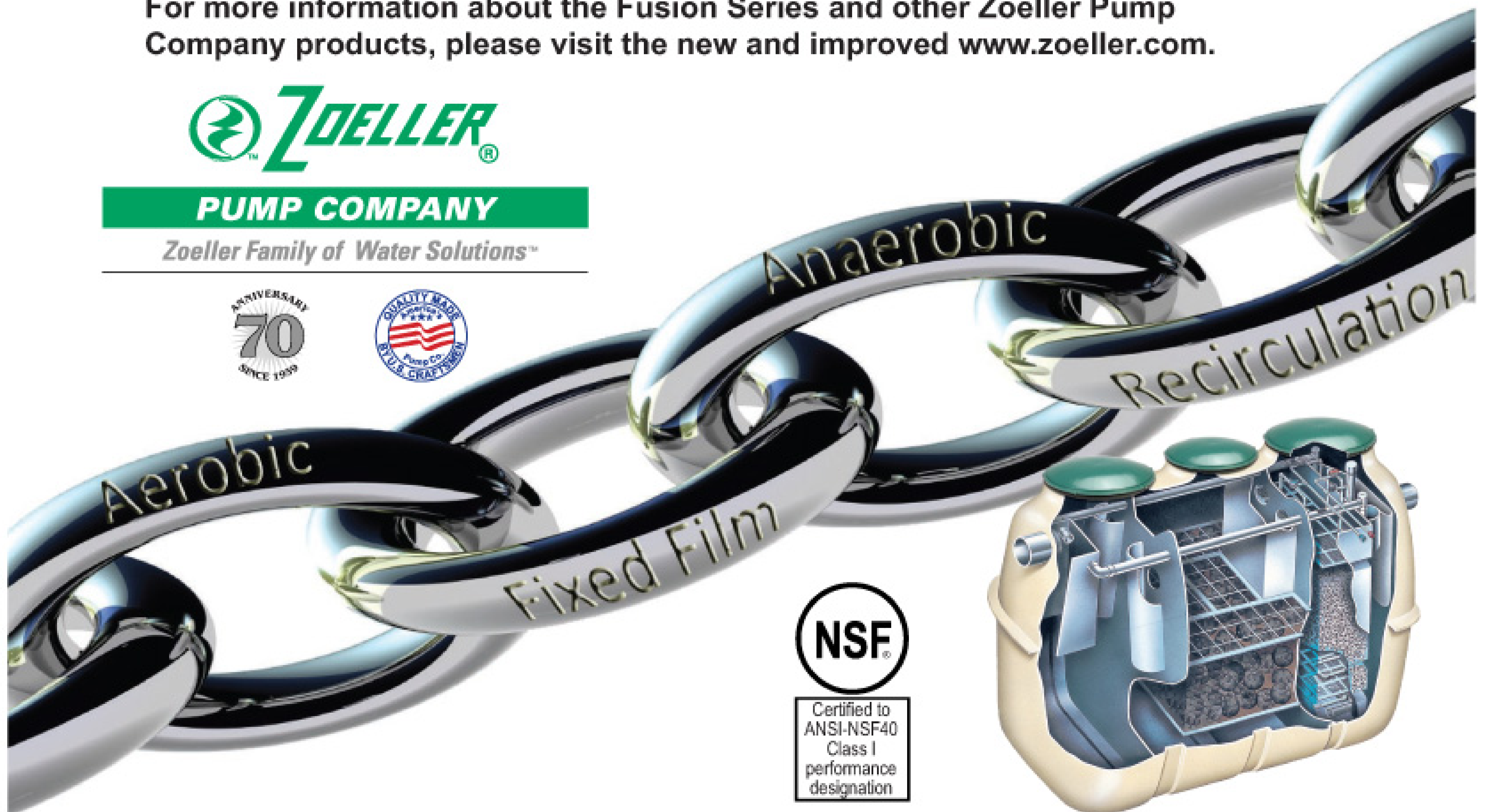
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*Jim Anderson and David Gustafson are connected with the University of Minnesota onsite wastewater treatment education program. Dave is extension onsite sewage treatment educator. Jim is former director of the university's Water Resources Center and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

# The Handiest Tools

**Here are ten devices every installer should carry to the jobsite. How about others? Which tools and gadgets do you consider essential?**

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

**W**hen the editor of this magazine asked if we could write an article about the 10 handiest tools in an installer's kit, we immediately said yes, no problem!

Well, that was before we started talking about what each of us thought those handy tools would be. First, how do you narrow down the lengthy list of installers' tools and equipment? Second, we discovered we didn't necessarily agree. So we expect you will look at our list and start to come up with your own. In fact, we would enjoy hearing from you on the tools you feel are the handiest.

Tool number one is not really a tool at all, but without it you won't

be an installer for long. That tool is a good healthy dose of common sense. This runs the gamut from how to deal with the variety of people you do jobs for, to the technical sense to know when something will work and when it will not. The ability to look over a site and anticipate problems is invaluable when you're bidding a job. It helps you avoid putting yourself in a position where you have promised a client too much.

Number two is so common it will probably not make many lists: It is the shovel. While backhoes and other machinery are necessary to complete a job, the shovel is essential for finishing and close work. It is handy in hard-to-get-at areas and where you may be trying to avoid electric or gas lines.

The third tool, related to the shovel, is a 3-inch bucket auger. You can use this tool to evaluate the soil in the area of the treatment system. By taking a few well-placed soil borings to make sure of the soil condition where you will be digging, you can prevent some mistakes. And what you find may actually lead to a discussion with the designer, which in turn may result in design changes that improve the system.

Fourth is a laser level. As you already know, keeping things level



**A laser level and a shovel represent the high and low ends of valuable tools for installers. (Photos courtesy of Jim Anderson and Dave Gustafson)**

is one of our guiding principles. The advent of the laser has made life a lot easier in terms of setting grades or making sure your trench or septic tank excavation is level. In the old days, setting up the transit and making sure it was level was a job in itself. It led to a lot of bad choices, such as "eyeballing it," because it was such a hassle. Now, no more excuses! Of course, a laser level doesn't replace the need to know and understand surveying basics, but it does make the job easier.

Fifth is a digital camera. Again,

with this improved technology, taking photographs to document work and problems has never been easier. Having pictures of a job from start to finish can be very valuable in case questions arise in the future about what the site looked like, or why you handled a certain aspect of the job the way you did. The camera provides an easy way to document your work.

**A three-inch-diameter bucket auger for soil borings.**





Dan Wheeler from the University of Minnesota Onsite Sewage Treatment Plant uses a tile probe (T & T Tools) to locate onsite system components.

sions about how far away the well is, or the distance to the corner of the garage, like actually measuring the distance. It's important to know setbacks and other critical distances accurately, instead of just relying on pacing or guessing.

Tenth is a tile probe, to locate tanks, drop boxes, and trenches at repair jobs. The probe allows you to scout the area quickly and locate those system parts so you can troubleshoot the system or plan your repair strategy.

Well, there you have it — our 10 handiest tools list. You'll notice

**Having pictures of a job from start to finish can be very valuable in case questions arise in the future about what the site looked like, or why you handled a certain aspect of the job the way you did. A digital camera provides an easy way to document your work.**

Sixth is a variety of cordless equipment. This includes drills along with saws of different varieties and sizes. When on job sites, it is common to work in areas where it is difficult to get electricity. Being able to work without running a generator or rolling out lengthy extension cords is a luxury.

Seventh is a companion piece to the cordless equipment, and that is a battery charger. We feel it deserves its own slot because if you have ever gone without a charger, you understand that there is no advantage in cordless tools. So, a charger is a must for all the sizes of equipment you plan on using.

Number eight is sharp drill bits. Drilling holes in plastic pipe or other material is a lot easier if the bits are sharp. If you're drilling holes in pipe for pressure distribution, it's very important to have clean holes without burrs or plastic pieces sticking up. Those defects can result in orifices plugging down the road, and you're likely to get them if your drill bits are dull.

Ninth is a 100-foot tape measure. Nothing puts an end to discus-



**A Trimble laser level.**

that we avoided anything with a motor or an engine. We could probably do a top 10 list of the handiest equipment needs, like a small-tracked Bobcat, a gooseneck trailer, or ...

But wait — maybe that's a topic for an article in the future! Enjoy discussing your favorite tools, and feel free to send us your thoughts on this subject. ■



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# Pushing Up

Installation professionals explore possible reasons for soil rising in a mound system using plastic drainfield chambers

## Question:

I installed chambers in a mound system. The soil has pushed up and filled the chambers. The chambers have not sunk because I uncovered all 400 feet and all elevations were okay. Also, the design engineer did a perc test on the mound after the lines were removed in undisturbed soil in the mound, and the soil is rising there also. Does any-

one know where I can get information on this?

## Answers:

I am going to guess it is serious mole action. I now put cloth tightly around my lateral cleanouts because so many of the valve boxes got completely filled with soil. I don't know how you would stop that in a chamber system.

I'm going to respectfully disagree with moles or frost heaves. We have seen this in Alaska where there are no moles.

My completely unscientific input (that is, I'm not an engineer and haven't done long-term studies on this like some of the colleges) is that it's very much like the dehydrated sponges you can buy that 'grow' the first time you soak them.

With virtually all leach systems except chambers, there is ground loading upon all of the infiltrative surfaces — the entire receiving soil has the weight of the earth above sitting hard upon it. Therefore, the weight of the ground above keeps this phenomenon from happening.

With chambers, the only ground loading that occurs is along the edges of the chamber, where it contacts the ground. The rest of the protected receiving soils area, the void space under the chambers, has nothing to force it to stay down. As the soils become damp, they expand slightly, not unlike a frost heave but not necessarily freeze-induced. Over time, this protected area has plenty of inducement and opportunity to expand, but little or no incentive or opportunity to dry out and settle again.

This is completely seat-of-the-pants, but it certainly makes sense to my blue-collar mind. Now, if we can just get someone to prove it.

A fellow installer had a similar problem about four years ago with a mound. The problem was the water (effluent) could not escape the mound due to soil compaction during the installation (non-track excavator). This limited

the surface absorption area and caused the ground to swell (fill chambers about five inches). He ended up redoing the mound at a loss (of course). This took all of five months to show up.

I am the technical director at Infiltrator Systems Inc. and would be happy to help understand your site. Some questions I would ask are:

- How long has the system been installed?
- What type, make and model of chamber was used?
- What was the depth of soil below the chambers?
- What is the sand specification for the fill?
- Are there other, similar mound installations with chambers in the neighborhood? Are they having the same results?

ISI has numerous chamber installations in mounds all over the country — I would venture to guess in the tens or even hundreds of thousands in our more than 20 years of history, since mounds are quite common in many states.

Chambers filling with soil is very uncommon, so my initial thought on this site is that some non-typical conditions occurred that caused this abnormality. I am very interested to understand the conditions that made this occur so we can learn from it. ■

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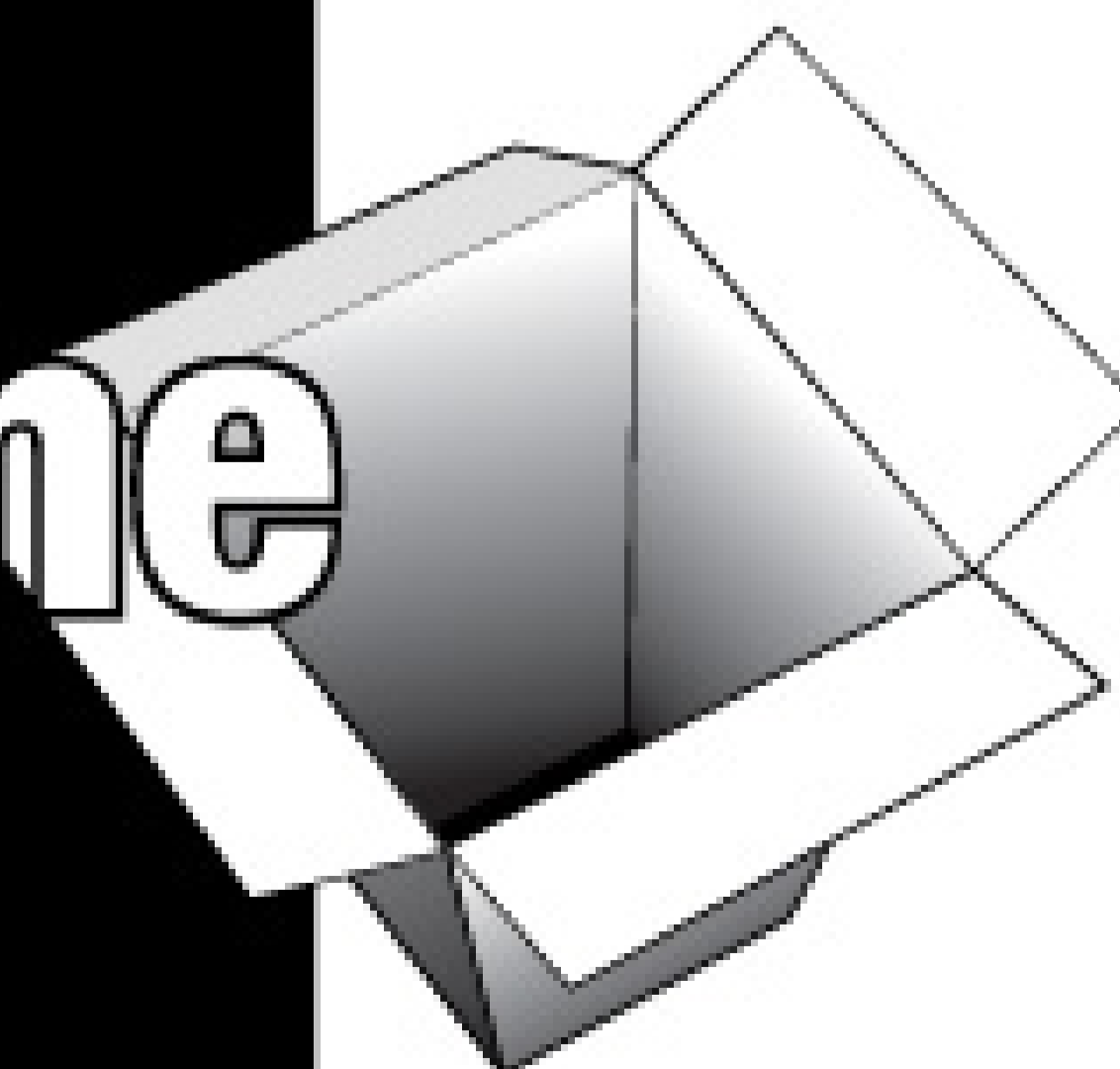
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\*Patent pending



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Wednesday, February 24th, 2010

## SOUTHERN SECTION COLLECTION SYSTEMS COMMITTEE

### ROOM C204-C205 - SSCSC

- 8:00 - 9:00 Manhole Inspections 'The Need'
- 9:30 - 10:30 Combination Truck Maintenance and Safety, Sewer Hose Maintenance and Nozzle Technology
- 11:00 - 12:00 Jetting Nozzles - Their Design, Technology and Effective Usage
- 12:00 - 1:00 **LUNCH BREAK**
- 1:00 - 2:00 Elevating the Quality of Your CCTV Inspection Program
- 2:30 - 3:30 Critical Steps in Prioritizing Sewer Rehabilitation
- 4:00 - 5:00 Traffic Control - The Critical Factor in Pipeline Inspection

## NATIONAL ENVIRONMENTAL HEALTH ASSOCIATION

### ROOM C105-C108 - NEHA

- 8:00 - 9:00 Decentralized Systems - The Next Wave in Our Industry
- 9:30 - 10:30 Septic Tanks: A Gift That Keeps on Giving
- 11:00 - 12:00 Selling CIOWTS Certification to Installers and Regulators
- 12:00 - 1:00 **LUNCH BREAK**
- 1:00 - 2:00 Softeners and Onsite Systems
- 2:30 - 3:30 Advanced Wastewater Treatment Systems
- 4:00 - 5:00 Maximize Efficiency by Working Closely with Regulators and Within the Regulatory System

## NATIONAL ASSOCIATION OF WASTEWATER TRANSPORTERS

### ROOM B101-B102 - NAWT

- 8:00 - 9:00 Sampling Protocols and Methods for Alternative Technologies
- 9:30 - 10:30 Dealing with Restaurant or High-Strength Waste
- 11:00 - 12:00 O & M for ATUs
- 12:00 - 1:00 **LUNCH BREAK**
- 1:00 - 2:00 O & M for Drip Irrigation
- 2:30 - 3:30 What to Expect When the EPA Comes A-Callin'
- 4:00 - 5:00 A Template for Keeping Your Employees Trained

## NATIONAL ASSOCIATION OF SEWER SERVICE COMPANIES

### ROOM C101-C104 - NASSCO

- 8:00 - 9:00 Pipe Inspections without an Operator?
- 9:30 - 10:30 Ways to Increase Your Daily Sewer Cleaning Production Rates without Increasing Your Costs
- 11:00 - 12:00 Proper Preparation of the Substrate Results in Coating Longevity
- 12:00 - 1:00 **LUNCH BREAK**
- 1:00 - 2:00 Collection System Asset Management - Getting from Reactive to Proactive
- 2:30 - 3:30 Trenchless Lateral Renewal Technologies - Lessons to be Learned
- 4:00 - 5:00 Zoom Camera Technologies: The Next Level of Infrastructure Inspection

## WATERJET TECHNOLOGY ASSOCIATION

### ROOM C203 - WJTA

- 8:00 - 9:00 The Impact of OSHA's Combustible Dust National Emphasis Program on Industrial Vacuuming
- 9:30 - 10:30 Waterblast Safety
- 11:00 - 12:00 Waterjet Applications and Business and Financial Considerations

## PORTABLE SANITATION ASSOCIATION INTERNATIONAL

### ROOM C203 - PSAI

- 1:00 - 2:00 Understanding Your True Cost Analysis to Ensure Profitability - Part 1
- 2:30 - 3:30 Understanding Your True Cost Analysis to Ensure Profitability - Part 2

## LEADERS RESOURCE NETWORK

### ROOM C201-C202 - LRN

- 8:00 - 9:00 Creating Your Vision for Success
- 9:30 - 10:30 Getting Your Team On Board
- 11:00 - 12:00 Working Effectively in a Family Business Culture
- 12:00 - 1:00 **LUNCH BREAK**
- 1:00 - 2:00 Creating Your Own Competitive Edge
- 2:30 - 3:30 Winning More Sales
- 4:00 - 5:00 Women in Business: Panel Discussion

## NATIONAL ONSITE WASTEWATER RECYCLING ASSOCIATION

### ROOM B103-B104 - NOWRA

- 8:00 - 9:00 Wastewater Characteristics
- 9:30 - 10:30 Soils and Site Evaluation Overview
- 11:00 - 12:00 Septic Tank Overview: Function, Design, Construction, Inspection and Troubleshooting
- 12:00 - 1:00 **LUNCH BREAK**
- 1:00 - 2:00 Seminar on Aerobic Treatment Units
- 2:30 - 3:30 Seminar on Media Filters
- 4:00 - 5:00 Seminar on Pumps and Controls

## SCOTT HUNTER

### ROOM C109-C112

- 9:30 - 10:30 Relationship is the Key!
- 11:00 - 12:00 The Art of Customer Service
- 12:00 - 1:00 **LUNCH BREAK/BOOK SALES**
- 2:30 - 3:30 Creating an Outrageously Successful Company - Part 1
- 4:00 - 5:00 Creating an Outrageously Successful Company - Part 2





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## THURSDAY

February 25th, 2010

### BUSINESS TRACK ROOM C101-C104

- 8:00 - 9:00 New 4 P's of Marketing  
*Jerard Nighorn/Lenzyme Trap-Clear Inc.*
- 9:30 - 10:30 Quit Learning and Start Doing  
*Bill Raymond/Nexstar Network*
- 11:00 - 12:00 5 Secrets of Winners  
*Kenny Chapman/Nexstar Network*

### INSTALLER TRACK ROOM B102

- 8:00 - 9:00 Risk Assessment for Determining SVC Frequency  
*Colin Bishop/Bord na Mona*
- 9:30 - 10:30 From Theory to Reality  
*Roger Lacasse/Premier Tech*
- 11:00 - 12:00 Timed Dosing and Controls  
*Mark Gross/Orenco*

### LIQUID WASTE TRACK ROOM B103

- 8:00 - 9:00 Understanding the Biology and Function of an ATU  
*Doug Dent*
- 9:30 - 10:30 Permit Required Confined Space  
*Ed Fitzgerald/Jack Doheny Co.*
- 11:00 - 12:00 T.B.D.

### PORTABLE TOILET TRACK ROOM B104

- 8:00 - 9:00 Up-Selling: How to Thrive During a Recession  
*Ray Luden Jr./PolyJohn*
- 9:30 - 10:30 Portable Sanitation Business Overview  
*Deric Boggs, Phil LaRoche/Satellite*
- 11:00 - 12:00 T.B.D.

### MUNICIPAL TRACK ROOM C105-C108

- 8:00 - 9:00 Pipe Cleaning Tools  
*Dana Hicks/ENZ USA Inc.*
- 9:30 - 10:30 Increase Revenues through Pipeline Laser & Sonar  
*Doc Bennet/CUES*
- 11:00 - 12:00 How to Prevent I/I in the Manhole Chimney Area  
*William Goff/Sealing Systems Inc.*

### SPANISH TRACK ROOM C109-C112

- 8:00 - 9:00 Limpieza de Drenajes y Tuberías y la Elección de Boquillas  
*Jim Aanderud/SSCSC*
- 9:30 - 10:30 Formando un Programa Eficaz de Inspecciones CCTV  
*Jim Aanderud/SSCSC*

### WOMEN IN THE INDUSTRY ROOM C203

- 9:00 - 12:00 The Regeneration Process: How to Re-energize, Re-purpose, Re-invent and Handle Everything!  
*Ann Fry*

## FRIDAY

February 26th, 2010

### MUNICIPAL TRACK ROOM C105-C108

- 8:00 - 9:00 Identifying Manhole I/I Sources and Cost-Effective Repair Methods  
*Lee Haessig/Cretex Specialty Products*
- 9:30 - 10:30 Jet Up! Taking Science to the Sewer  
*Scott Paquet/NozzTeq Inc.*
- 11:00 - 12:00 Cured in Place Pipe vs. Digging and Replacing  
*Travis Bohm/Perma-Liner*

### BUSINESS TRACK ROOM C101-C104

- 8:00 - 9:00 Quality and the True Cost of Ownership  
*Matt Sutton/Rapid View*
- 9:30 - 10:30 Vision and Direction: Leading your Service Company to Prosperity  
*Victoria Finley/One Biotechnology*
- 11:00 - 12:00 How to Shop Your Insurance Effectively  
*Mark Herring/Heffernan Insurance*

### INSTALLER TRACK ROOM C109-C112

- 8:00 - 9:00 Safety in Excavation  
*Gary Hooks/Safety Corporation of America*
- 9:30 - 10:30 Comprehensive Control Panel Training  
*Joe Zimmerman, Scott Rietsema/SJE Rhombus*
- 11:00 - 12:00 Onsite Wastewater Effluent Disinfection  
*Jim Cruver/Salcor*

### LIQUID WASTE TRACK ROOM B103

- 8:00 - 9:00 Dewatering Alternatives  
*Kelly Brown/BDP Industries*
- 9:30 - 10:30 Convert a Liability to an Asset  
*Emily Landsburg/Black Gold Biofuels*
- 11:00 - 12:00 The Role of Bacteria and Bioaugmentation in Grease Traps and Septic Systems  
*Dr. Clarence Baugh/Custom Biologicals*

### SEWER & DRAIN TRACK ROOM B102

- 8:00 - 9:00 Drain Cable Technology and Their Real World Applications  
*Keith Nesky/Spartan Tool*
- 9:30 - 10:30 OSHA Procedures Regarding Confined Space  
*Chris Cira/M Tech*
- 11:00 - 12:00 Sonde and Utility Line Locating Techniques  
*Rob Trefz/RIDGID*

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"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](mailto:editor@onsiteinstaller.com).

# Virginia Passes Tougher Onsite System Regulations

By **Scottie Dayton**

**T**he Department of Professional and Occupational Regulation Onsite System Professional licensure program became effective July 1. It requires conventional and alternative installers, soil evaluators, and operators to be licensed.

The code requires operators of alternative systems exceeding 10,000 gpd to have a wastewater works operator license and alternative onsite sewage system operator license. Professionals with valid licenses or certificates in other jurisdictions are

now required to also pass the Virginia examination. However, individuals holding a state Department of Health (DoH) soil evaluator certification valid on June 30, 2009, may apply for an alternative soil evaluator license. The rule is at [www.townhall.state.va.us](http://www.townhall.state.va.us).

A law requiring statewide management of alternative onsite systems will not become effective until the DoH publishes the final rules. As this could take a year, Loudoun County Health Department implemented its own ordinance, and

then advised 1,200 homeowners with nonconventional systems to have them inspected by July 1, 2009.

Inspectors are required to attend a short training session and submit standardized reports. The Virginia Onsite Wastewater Recycling Association expects to learn more about the operation and maintenance of alternative systems from these inspections than from any other activity conducted nationally.

The state is in the final stage of creating sewage handling and disposal regulations that will establish minimum standards for collecting, transporting, treating, and disposing of wastewater.

## Iowa

The governor line-item vetoed the attempt to delay implementation of the time of transfer requirements for onsite system inspections. The program became effective on July 1. It requires onsite system inspection for any occupied building before transfer of ownership.

Inspectors must have two years in the onsite industry and have experience with installation design, inspections, and pumping. They must also pass an inspection course. Certification renewal requires 12 hours of continuing education.

## Georgia

A bill reintroduced from 2008 prohibits new onsite systems in counties with more than 70,000 sewer connections or more than 200 such accounts per square mile of total area served. Residences on lots smaller than three acres within those restrictions would have to disconnect their onsite systems and connect to a sewer.

Three ordinances required by

regulations from the state Environmental Protection Division and Metro North Georgia Water Planning District require homeowners within 300 feet of a sewer to tap into it if their onsite systems fail. The rules will condemn homes as unlivable if lots are too small for new systems and no sewer is nearby.

## Florida

The Marion County Commission passed an ordinance forcing new single-family homes to connect to sewers if within 200 feet of the property. The rule forces more than 90,000 septic tank users in the county to do the same, but gives them a year within notification to comply. It also requires new and replacement systems to be low dosing, and homeowners to have their septic tanks tested every five years.

## New Jersey

The New Jersey Pinelands Commission is proposing that rural boroughs oversee septic tank inspections every three years instead of the Cape May County Board of Health. The commission, focusing on leaking onsite systems to curb high counts of waterborne bacteria that close public beaches, states that enforcement of the inspections and pumping is spotty.

More than 2,000 homeowners in West Milford face fines of \$100 to \$1,000 a day if they do not have their septic tanks pumped within three months. The action is part of an ordinance that took effect in January, requiring homeowners to have their tanks inspected every three years by a licensed contractor registered with the town. Once presented with the receipt, the town will issue free permits for the tanks. ■

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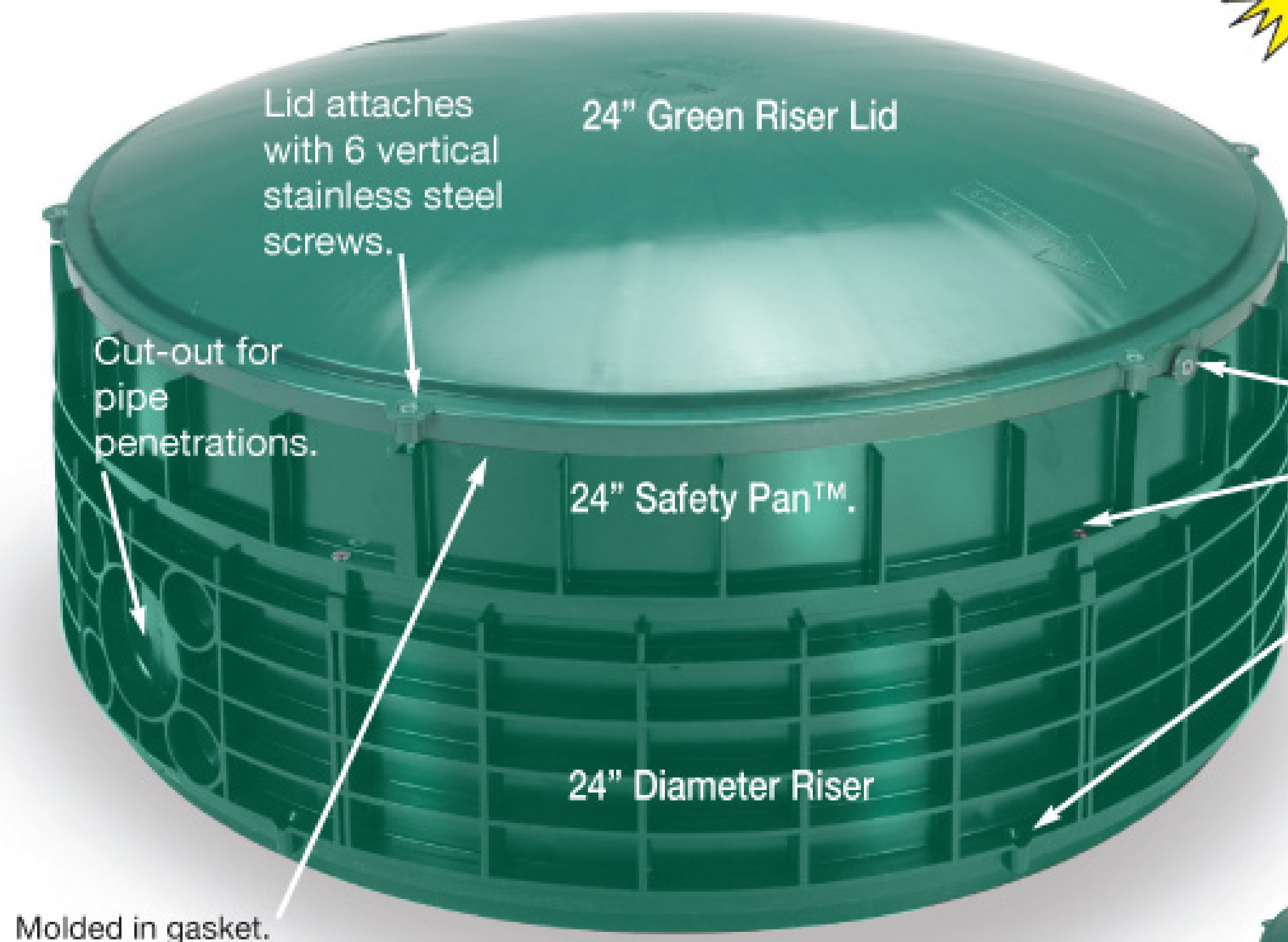
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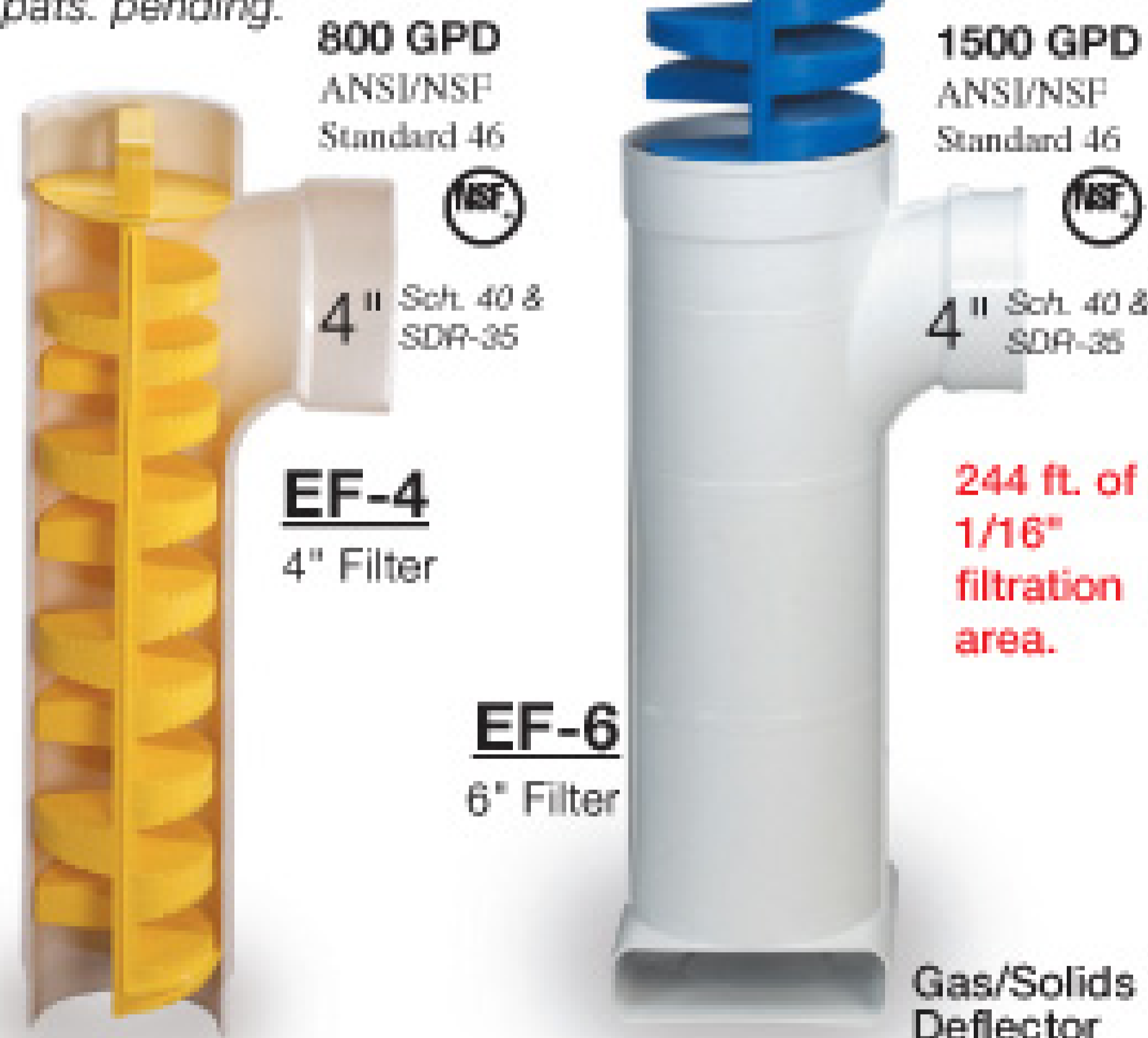
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# Basics or Bells and Whistles?

Contractors can save money by limiting skid-steer options, but going too far may compromise long-term machine productivity

By Kelly L. Moore

**L**ike the rest of America, installation contractors are re-evaluating the way they spend money. Ups and downs in business and a shaky economy have made major purchase decisions, particularly those around new equipment, more difficult than ever.

When that decision involves a skid-steer loader — often the workhorse of the fleet — it can be even more challenging. Because the machines are used heavily on the job, contractors can't afford to skimp on quality. Yet, for the same reason, owners know skid-steers don't typically receive the best treatment from crews.

"The skid-steer is much like the employee pickup that everyone drives," says Rob Breiding, a sales representative for John Deere dealer Erb Equipment, based in St. Louis, Mo. "In terms of maintenance, it's the most neglected machine in a fleet."

## When is used best?

According to Breiding, who has been selling skid-steers for more than 15 years, buyers have shown more interest in used machines this year. He attributes that to a desire to find the best possible value. When helping his customers wrestle with the new-versus-used decision, Breiding suggests they answer three questions:

**1. Who will operate the equipment?** "Consider if this is going to be the first piece of equipment a new operator will cut his

teeth on," says Breiding. Whereas a used machine may be suitable for a contractor buying for a rookie operator, it may not be as attractive to an owner/operator who plans to be at the controls eight hours a day.

**2. Is there a warranty?** And if not, can you afford needed repairs? Breiding warns that a used skid-steer may need repairs that cost more than the value of the machine. Most dealerships do not repair used equipment before the sale because that would mean a higher selling price. Therefore, the repair cost falls to the new owner.

**3. Can new equipment incentives and financing help you afford a new machine?** End-of-year tax benefits and dealer incentives have real potential to affect the new-versus-used decision. Buyers should consult their tax advisors to see if there is enough benefit in buying new.

## Keeping it simple

After considering these factors, contractors who decide to buy new iron can still save money by choosing a more basic model, without the bells and whistles many manufacturers offer. "Large-fleet owners have been purchasing bare-bones machines for some time," said Gregg Zupancic, skid-steer product marketing manager with Deere & Co. "Now we're seeing more basic models being purchased by mid-sized companies and middle-level fleet owners."

In choosing a skid-steer loader, it's important to weigh the low price of a bare-bones unit against the long-term benefits of a machine with more productivity features and operator comforts.



"Large-fleet owners have been purchasing bare-bones machines for some time. Now we're seeing more basic models being purchased by mid-sized companies and middle-level fleet owners."

Gregg Zupancic  
Deere & Co.

When purchasing a scaled-back skid-steer, certain options are considered luxuries. For example, foregoing a complete cab enclosure can save thousands of dollars (although a cab may be imperative for crews working in heat or cold).

Other options contractors can trim include creature comforts, such as a deluxe suspension seat. Of course, creature comforts may be more necessity than luxury if operators must work long hours, or if the job environment is tough.

Two-speed transmission and high-flow hydraulics may be less easy to leave off the list, but for contractors who do not need higher

travel speeds, a two-speed transmission is not essential for high performance.

According to Zupancic, a skid-steer with standard hydraulics will power 80 percent of the attachments available, so a high-flow option may not be necessary. A contractor who expects to need attachments that require high-flow (such as a trencher) only occasionally might be better served by renting a high-flow machine for those jobs.

## More essential

There is of course such a thing as going too bare-bones. Kelly P. Moore, skid-steer product manager

for Gehl Company and Mustang Manufacturing Co., believes there are certain options contractors should resist scratching off their lists.

These include heavy-duty tires. Buyers should consider factors including the type of debris typically encountered on the job and the kind of terrain the machine will traverse. He recommends selecting the most durable tire appropriate for jobsite conditions. "Tires are a sound investment in the machine's future performance," he says. "Equipment owners who choose inexpensive or basic tires can end up very disappointed in the long run."

Buyers also should not skimp on safety features, such as backup alarms and strobe lights. Decisions made at the time of purchase have a major bearing on the amount and type of work the machine will be able to do. Zupancic notes that the most important thing buyers can do when skid-steer shopping is to think ahead, outfitting new units with no less and no more than their needs will require.

While many options — such as weight kits, towing hitches or radio and auxiliary plug-ins — can be installed later in the field, other decisions can only be made at the time of purchase. That requires buyers to be diligent.

Another factor all equipment buyers should consider is environmental rules where they plan to work. For example, many states are tightening emissions standards, and localities are requiring equipment to meet noise regulations. "The machine a guy chooses could prevent him from bidding on jobs in certain areas," says Zupancic.

What you buy today will determine the work you can do in the future. Whether buying used or new, loaded or basic, skid-steer buyers must look ahead, matching their vision for the business with the equipment they need to make that vision a reality.

*Kelly L. Moore is a freelance writer based in Des Moines, Iowa. She can be reached at [kelly@kellymooreconsulting.com](mailto:kelly@kellymooreconsulting.com). ■*

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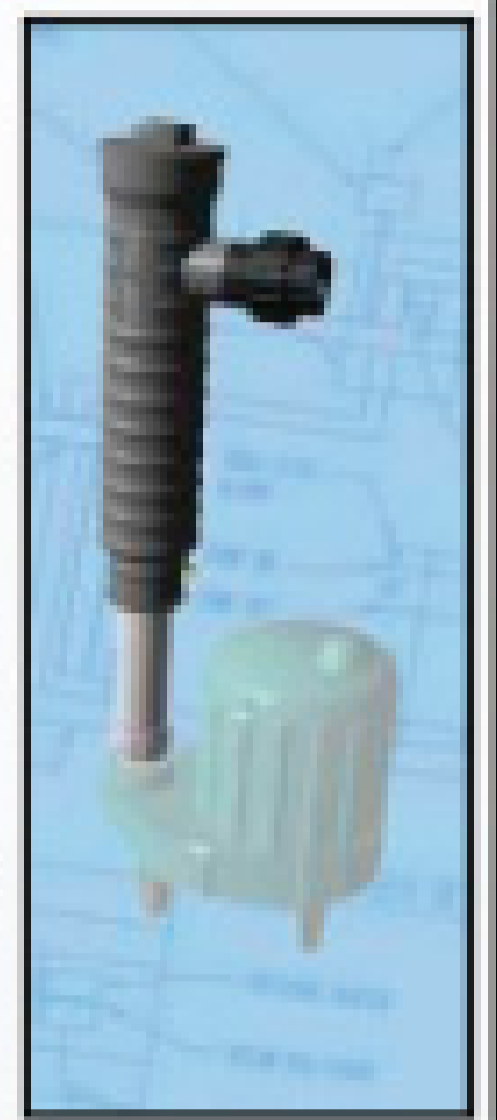


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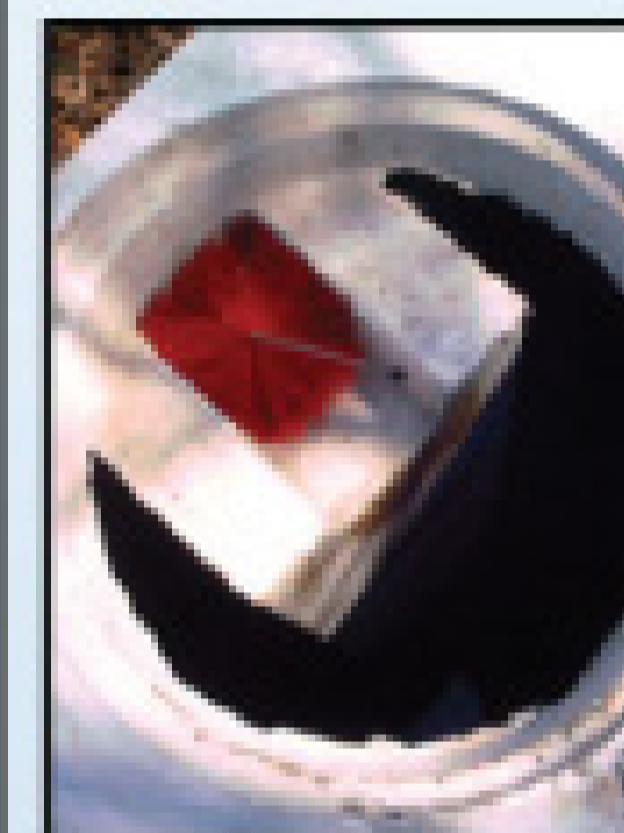
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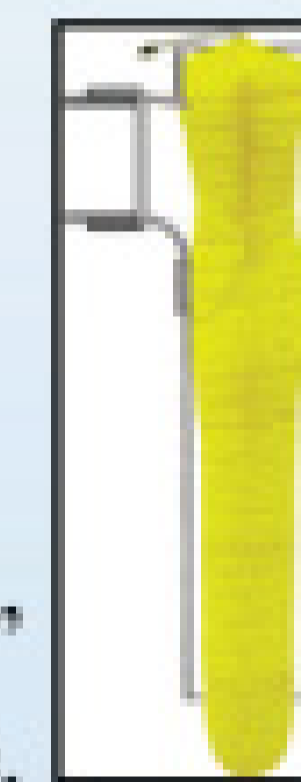


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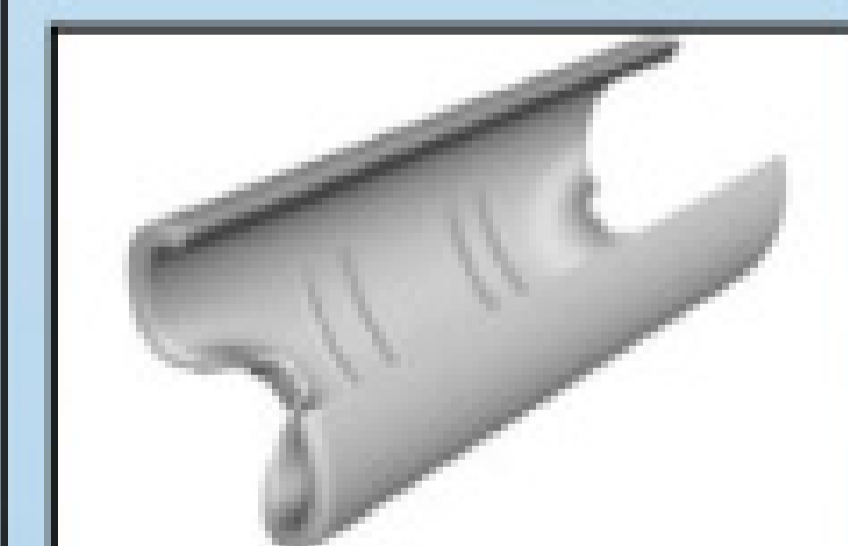
Patent# 6,811,692

### Polycarbonate Covers



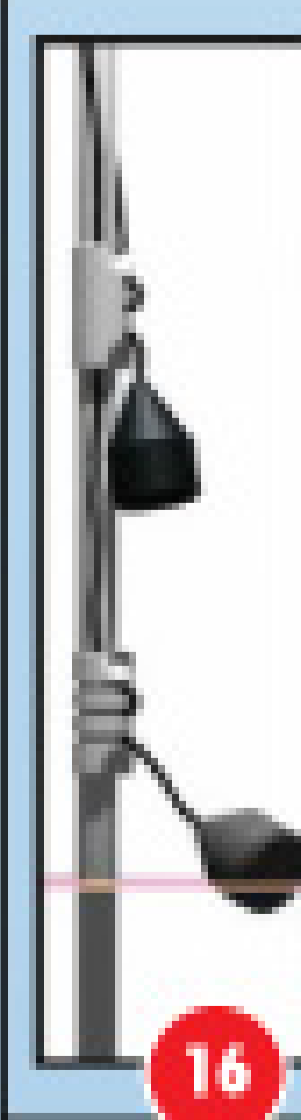
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# Fire in the Hole

Incinerating toilets and aerobic treatment units enable a contractor to install nonconforming repairs in northwestern Washington State

By **Scottie Dayton**

**F**ecal coliforms identified in commercial oyster beds during routine testing led the Pierce County Health Department to sample effluent from the 16 waterfront homes in Gig Harbor, Wash. All were within a mile of the oyster farm.

The agency found two wildcat sewers on adjoining lots. A two-bedroom residence had a 1,000-gallon homemade concrete tank with apparently no bottom. A three-bedroom residence had a 750-gallon precast tank. Both discharged 75 feet into Puget Sound.

The small lots left no room for compliant solutions. Designer Robert E. Goodman in Lakewood, Wash., coordinated with Andrew Gunia of A Advanced Septic Services Inc., in

Puyallup, Wash., to plan the non-conforming repairs.

Through creative thinking, appropriate flexibility from the health department, and Gunia's determination to overcome physical obstacles, the team created a quality treatment solution using incinerating toilets and a graywater treatment system. The oysters are once again safe for diners.

## Site conditions

Soils are 18 inches of beach sand over clay with the water table 4 feet below grade. The elevation rises 85 feet from the seawall to the road, a distance of 120 feet. Each property has a potable well, concrete patio, and wood deck. The only suitable area for both systems



Adam Jewell assembles the transport line for the graywater treatment system. (Photos courtesy of A Advanced Septic Services Inc.)

was between the building foundations and seawall, a distance of 10 feet at the narrowest point.

## System components

Goodman designed the system for the two-bedroom home to handle 175 gallons of graywater per day, and the system for the three-bedroom home 297 gpd. The identical major components are:

- Model CF electric incinerating toilet from Incinolet, Dallas, Texas.
- Whitewater DF60 aerobic treatment unit (ATU) from Delta Environmental Products, Denham Springs, La.
- 3G ultraviolet disinfection

chamber from Salcor Engineering Inc., Fallbrook, Calif.

- 24-inch diameter, 68-inch-tall screened pump vault with two PF100511 1/2-hp high-head effluent turbine pumps from Orenco Systems Inc., Sutherlin, Ore.
- 35 (total) ARC36 leaching chambers from Advanced Drainage Systems Inc., Hilliard, Ohio.
- Installer Friendly Series dual-phase control panel, SJE-Rhombus, Detroit Lakes, Minn.

## System operation

The health department mandated incinerating toilets in place of septic tanks. A paper bowl liner inserted

## System Profile

<b>Location:</b>	Gig Harbor, Wash.
<b>Facility served:</b>	Two single-family homes
<b>Designer:</b>	Robert E. Goodman, Lakewood, Wash.
<b>Installer:</b>	Andrew Gunia, A Advanced Septic Services Inc., Puyallup, Wash.
<b>Site conditions:</b>	Beach sand over clay; water table 4 feet below grade
<b>Type of system:</b>	Electric incinerating toilets, Incinolet, Dallas, Texas; Whitewater ATU, Delta Environmental Products, Denham Springs, La.
<b>Hydraulic capacity:</b>	175 and 297 gallons of graywater per day





Skid-steer driver Andrew Gunia lowers a Whitewater ATU into position. A worker then fills the fiberglass tank with water at the same rate that another backfills around it.

before each use protects the bowl and prevents urine from draining to the floor.

Users step on a lever to vacuum flush the liner into the incineration chamber. Pressing the start button turns on a heater and exhaust blower. At 1,200 degrees F, a temperature controller shuts off the heater, then activates it when the mercury falls to 1,000 degrees. The on-off cycle repeats twice per minute, enabling the chamber to reach 2,000 degrees.

The heater and blower stay on for an hour, but the latter continues running until the chamber cools to 130 degrees in 30 to 50 minutes. The toilet function is always accessible, but users must push the start button each time to avoid odors. The germ-free ash has no disposal restrictions.

Graywater flows through a 4-inch PVC lateral to the 600-gallon ATU with round fiberglass outer mixing tank and inner conical set-

The drainfield for the three-bedroom home has 14 chambers in two rows.

### Installation

For the two-bedroom home installation, a neighbor offered his undeveloped property for Gunia's crew to cut a road to the seawall. They covered the roadway with gravel and used plastic sheets to control the running spring water. They then removed the wood decks from both houses.

"Damaging the old, cracked seawall with our equipment was a huge risk," says Gunia. "We drove across one patio to reach the other property, but the concrete was attached to the seawall. We worried what the vibrations from the skid-steer would do as it went back and forth."

The installation required removing 4.5 feet of soil from the seawall back to the foundations, and from property line to property line. The driver of a 10,000-pound Kubota 121 excavator passed the material to a 7-foot-wide, 9,000-pound Takeuchi tracked skid-steer. Its driver made three trips to fill the 0.75-cubic-yard bucket on a Terex loader backhoe.



Adam Jewell plumbs the disinfection unit as Doug Hyland brings the Orenco filter and turbine pump chamber.

**"Space constraints forced us to modify the baffle system and install the UV unit in the clarifier. The light is accessible through a 24-inch riser"**

**Andrew Gunia**

ting chamber. Multiple PVC air-drop lines inject compressed air into the aeration zone — the space between the clarifier and main tank wall. A linear air compressor is above ground in a watertight housing.

Graywater enters the mixing tank and is oxygenated for 24 hours. The mixed liquor flows into the clarifier from the bottom and circulates for more processing. Clear treated water is hydraulically displaced upward and flows through the UV disinfection chamber, then into the pump vault. The pumps cycle every two hours. A 30-second dose sends 25 gallons to the absorption bed through 1.25-inch PVC pipes. The drainfield for the two-bedroom home has nine chambers, each 5 feet long, in two rows.

Backing up the steep access road, the backhoe driver emptied the material into one of two 10-cubic-yard dump trucks. When one was full, that driver left for the gravel pit three miles away, disposed of the soil, and picked up C-33 washed mound sand. It was stockpiled in a cooperative neighbor's parking space.

The backhoe driver always returned down the hill with a load of sand, and the transfer began again. "That driver made more than 100 trips per day," says Gunia. "The weather was dry, so the buckets stayed clean, and we didn't contaminate the sand."

The men worked backward in 15-foot sections, sawing a portion of concrete, excavating the pit,

and installing a component. After placing the ATU, they mounted the disinfection chamber. "Space constraints forced us to modify the baffle system and install the UV unit in the clarifier," says Gunia. "The light is accessible through a 24-inch riser." The health department granted permission to backfill the components immediately.

The pump vault installation was next. "Our code specifies a 1,000-gallon chamber," says Gunia. "We chose a smaller capacity to gain more drainfield, but they are still undersized. Every square inch of space is occupied."

Leaching chambers, bedded on 24 inches of mound sand, were installed two at a time in two rows 12 inches apart. They are 6 inches, not the required 5 feet, from property lines and the seawall. They also are 18 inches (the width of the seawall), not 100 feet from the high-water mark.

Meanwhile, the crew removed the flushing toilets, capped the plumbing at the floor, installed the

incinerating units, and vented them through the bathroom walls. They plumbed the sinks, shower, and washing machine to the lateral, which runs through the abandoned septic tank to the ATU. Installation for the system in the three-bedroom home took two days.

The installation for the two-bedroom house was similar, except the septic tank was removed because it interfered with the drainfield. Workers redirected the home's main trunk line to the lateral connected to the ATU, and coupled the disinfection chamber to the ATU discharge line. The ATU is 18 inches instead of 5 feet from foundations and property lines.

### Maintenance

A Advanced Septic Services is the maintenance provider. Twice a year, a technician does a draw-down test on the pump chambers and ensures that all components are working. He normally would measure the scum in the ATUs, but it is unlikely these systems will have any. ■

## Bio-Microbics Receives Exporter of the Year Award

Bio-Microbics Inc. received the 2009 Exporter of the Year award in the environmental category from ThinkGlobal Inc., publisher of *Commercial News USA*. The award is based on the total number of documented export transactions completed in 2008, the total percentage increase in sales in 2008 compared to 2007, exports as a percentage of total sales, the company's commitment to exporting, customer service, innovation and originality in marketing products or services. ■



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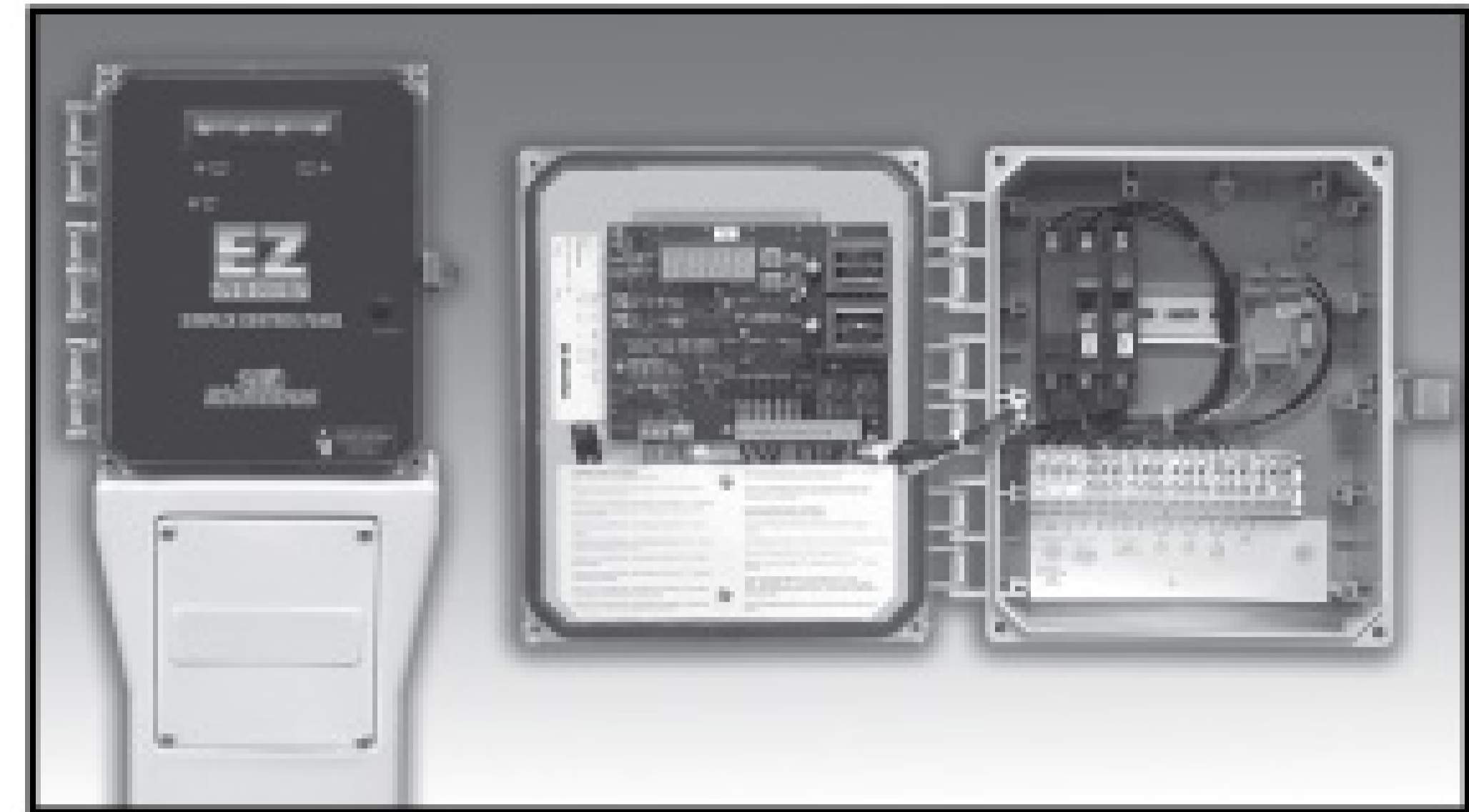
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## Septic Education Program

The community of Prescott, Ariz., has an ongoing debate about whether to sewer certain areas. As a result, Lowell Fagen, Brian Bishop, Suzanne Ehrlich, Geoff Meek and Lou Brown, board members of the Arizona Onsite Wastewater Recycling Association, developed a Septic Education Program for Homeowners.

Two presentations taught homeowners how their onsite systems work, how to recognize problems, and how to maintain and operate the systems to extend the service life and save money. Attendees received an operation and maintenance manual developed by the team. The program is available to all Arizona communities.

## Wetland Research

Researchers at Baylor University in Waco, Texas, constructed five different submerged gravel wetlands and tested their ability to remove contaminants against various dosing systems.

Joe Yelderman, Ph.D., professor of geology, and Margaret Forbes, Ph.D., research associate of biology, found that the wetland with gravel and plants discharged cleaner water during batch dosing when compared against more continuous dosing. Yelderman believes batch dosing allows the wetland to dry out enough for the gravel and plants to better oxidize the wastewater, and allows the aerobic bacteria to better decompose the organic matter.

The results also showed that the wetlands with expanded shale aggregate did not perform as well as expected, but did perform as well as, if not better than, using standard gravel. The majority of the wetlands reduced BOD, phosphorus, and ammonia.

## Rewarding Endeavor

The Johnson County Environmental Department contacted the Kansas Small Flows Association to help sponsor a humanitarian project for an elderly gentleman who needed a new onsite system and could not

afford it. A soil analysis by the county found that only a bottomless sand filter could be permitted for the lot. The association solicited donations of materials, labor, and equipment, then used the installation as a two-day training course for installers and regulators.

## Scholarship Recipients

The Missouri Smallflows Organization awarded the 2009 Daryel Brock Memorial Scholarships (\$500 each) to Anne Dohmen of Jefferson City and Lee Ann Rustemeyer of Salisbury. Dohmen is specializing in renewable resources through the environmental engineering program at Washington University, St. Louis. Rustemeyer, a freshman at Central Methodist University in Fayette, Mo., is specializing in elementary education.

## Mystery in Oregon

The Oregon Onsite Wastewater Association newsletter carried an article by Kim Aldrich, a Yamhill County regulator. Called out for an authorization inspection to connect a replacement dwelling to an existing onsite system, she found the drop box concrete lids uncovered. They fell apart when Aldrich tried to lift them.

The box interiors for the first and second lines were decomposing into a white, semi-solid mush. Aldrich tested the pH of the soil, which was 6.1 and not acidic enough to cause the destruction from the inside out. The owners, who have lived in the home for 10 years, said no one was using chemotherapy medication. If someone knows what is destroying the concrete, you should e-mail [aldrichk@co.yamhill.or.us](mailto:aldrichk@co.yamhill.or.us).

## Future Control

The Washington Onsite Sewage Association hosted discussions on potential revisions to the designer licensing legislation. Current needs include updating the language and timeline dates, and the onsite community's need for education, entry barriers, and opportunities to expand

into stormwater design on residential sites. Visit [www.wossa.org](http://www.wossa.org).

## TRAINING & EDUCATION

### Online courses for wastewater practitioners

The Oregon State University is offering online courses approved by the Oregon Environmental Services Advisory Council for continuing education credits. The Wastewater Installer course covers the physical properties of soil, hydrology of soil materials, soil chemistry, soil morphology and soil color, landscape position, and landform geology of Oregon. The university also offers an Introductory Soils for Onsite Wastewater Practitioners course. The course modules and exams are hosted in Blackboard. Call the university at 800/667-1465 or e-mail [ecampus@oregonstate.edu](mailto:ecampus@oregonstate.edu).

### NAWT

The National Association of Wastewater Transporters has these sessions:

- Dec. 3-4 – Onsite Installer Training, Sacramento, Calif.
- Jan. 12 – Vacuum Truck Technician, East Lansing, Mich.
- Jan. 26-27 – Onsite Inspector Training, Laughlin, Nev.
- Feb. 13-14 – Onsite Inspector Training, Georgetown, Del.
- Feb. 13-14 – Operation and Maintenance Training, Georgetown, Del.

Call NAWT at 800/236-6298 or visit [www.nawt.org](http://www.nawt.org). For California classes, call the California Onsite Wastewater Association at 530/321-2207. For Michigan classes, call Mark Scott at 989/275-5011. For Nevada classes, call Kitt Farrell-Poe at 928/782-3836. For Delaware courses, call Jerry Williams at 302/855-5904.

### Alabama

Licensing classes are the joint effort of the Alabama Onsite Wastewater Association (AOWA) and University of West Alabama (UWA). Courses are at the UWA Livingston campus.

- Dec. 3-4 – Continuing Education
- Dec. 9-11 – Advanced Level II Installers

Call 334/396-3434 or visit [www.aowa.org](http://www.aowa.org).

### California

The California Onsite Wastewater Association has the NAWT Installer Training course Dec. 3-4 in Sacramento, Calif. Call 530/321-2207 or visit [www.cowa.org](http://www.cowa.org).

### Minnesota

The University of Minnesota Extension has these classes:

- Jan. 4-6 – Introduction to Onsite Systems, Hinckley
- Jan. 7-8 – Installing Onsite Systems, Hinckley
- Jan. 11-12 – Maintainer CE, Brainerd
- Jan. 13-14 – Installer Continuing Education, St. Cloud
- Jan. 14 – Pipelayer Certification, Rochester

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:

- Dec. 8-9 – Dispersal and Water Management, Hillsboro
- Dec. 8-9 – Onsite Wastewater Loan Inspection and Evaluation, Columbia
- Dec. 15-16 – Operation and Maintenance, El Dorado Springs

Call 417/739-410 or visit [www.mosmallflows.org](http://www.mosmallflows.org). Call Randy Miles at 573/882-6607 for the Columbia course.

### New England

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

- Dec. 3 – Regulatory Setback and Buffers
- Dec. 10 – Nitrogen in the Environment and Onsite Systems
- Dec. 15 – Designing Nitrogen Removal Technologies

Call 401/874-5950 or visit [www.uri.edu/ce/wq](http://www.uri.edu/ce/wq).

## North Carolina

The North Carolina Soils and Onsite Wastewater Training Academy has the following courses at Raleigh unless stated otherwise:

- Dec. 1 – Inspector Field Practicum, Bolivia
- Dec. 2 – Introduction to Advanced Pretreatment Technologies, Bolivia
- Dec. 8 – Inspector Field Practicum, Plymouth
- Dec. 9 – Introduction to Advanced Pretreatment Technologies, New Bern
- Dec. 9-10 – Troubleshooting and Remediation of Septic Systems
- Dec. 11 – Advanced Design Lab
- Dec. 11 – Pumps and Controls, Manteo
- Dec. 15 – Basic System Troubleshooting, Greensboro
- Dec. 16 – Remote Systems, Greensboro
- Dec. 17 – The Science Behind the Soil and Site Rules, Greensboro

Call Joni Tanner at 919/513-1678 or visit [www.soil.ncsu.edu/training](http://www.soil.ncsu.edu/training).

## Virginia

The Virginia Center for Onsite Wastewater Training has an Effluent Dispersal Systems course Dec. 2-3 in Blackstone. Call Lydia Cox at 434/292-3101 or visit [www.southside.edu](http://www.southside.edu).

## Washington

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

- Dec. 2 – Troubleshooting Onsite Systems
  - Dec. 3-4 – Advanced Soils
  - Dec. 9-10 – Washington Administrative Code/Recommended Standards & Guidance Review, Moses Lake
  - Dec. 16 – Troubleshooting Onsite Systems, Mt. Vernon
  - Jan. 6 – Maintaining Onsite Systems
  - Jan. 7 – Proprietary Systems
- Call WOSSA at 253/770-6594 or visit [www.wossa.org](http://www.wossa.org). ■

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## PRODUCT NEWS

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### Liberty Pumps Introduces SJ10A SumpJet

The SJ10A SumpJet water-powered backup sump pump from Liberty Pumps requires no electricity and features an integrated alarm with optional auto-dialer calling system should the unit become activated. 800/543-2550; [www.libertypumps.com](http://www.libertypumps.com).

### Zoeller Offers Turbine Filtered STEP Systems

Effluent Turbine Filtered STEP Systems from Zoeller Pump Co. are designed for simplex or duplex applications in a single polyethylene pump vault. Made to fit most specifications, the systems feature a flat-bottom design for free-standing applications or pipe supports for suspended applications. The inlet is predrilled from the factory or blank for field customization. The deep-pleated filter design has a large surface area and is easy to remove and clean. 800/928-7867; [www.zoeller.com](http://www.zoeller.com). ■



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### BUSINESSES

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