

March

ON SITE

# Installer™

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2010

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# More than the Minimum

E.C. Bassett takes extra measures to ensure quality installations

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## COVER STORY

### More than the Minimum

By Gil Langwell

**ON THE COVER:** Gene Bassett, owner of E.C. Bassett Construction in Edgewood, N.M., strives for quality and precision in every service he performs for customers. He's shown operating a Cat front-end loader on an installation job. (Photography by Tom Brahl)

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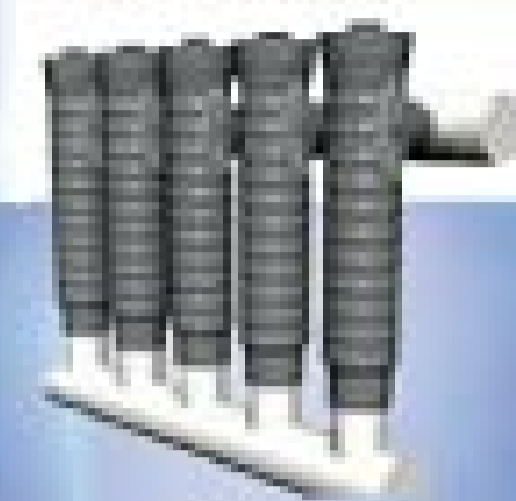
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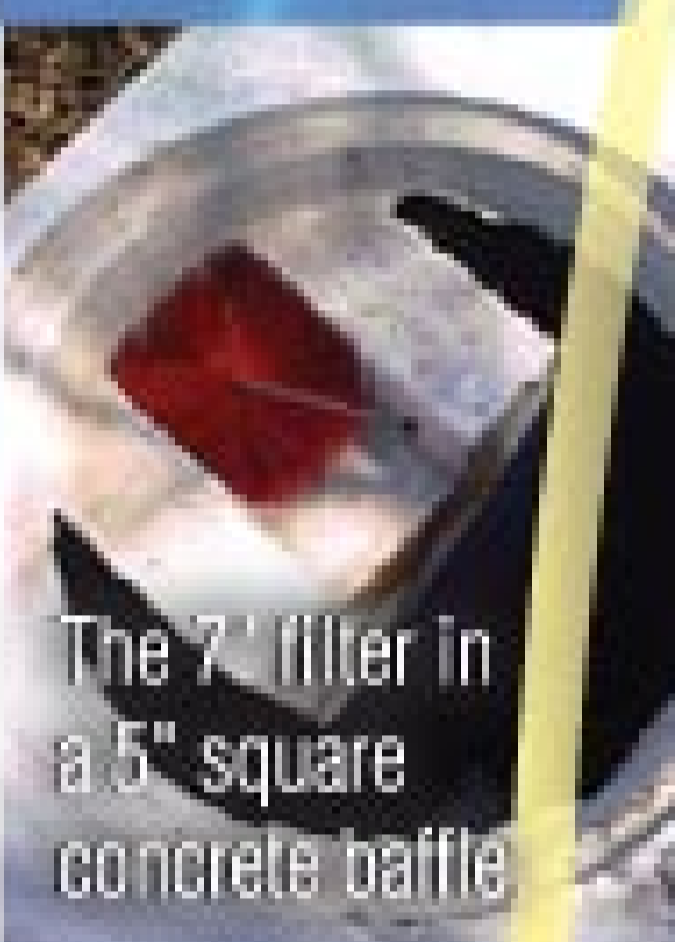


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Patent# 6,811,892

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## Improving the industry

To the editor:

I couldn't agree more with, "Who Cuts the Corners?" (*Onsite Installer*, December 2009). Apparently, we are not alone here in Montgomery, Ala., in facing the challenges posed by those who cut corners in our industry. Your comment that "a trace of frontier mentality prevails" in our business is very true. I often think of how we can tackle the problem. Here is a sampling of my thoughts:

1. In many areas, there are simply too many folks in the business. The states need to reduce the number of licenses issued, and the standards for licensing need to be about tenfold more rigorous. Too many folks in the business leads to cutting corners by those not committed to quality work.

2. The public needs to be more educated about onsite wastewater. Most people I meet have very little knowledge or understanding of onsite systems and thus have a lot of heartache when they find out the price. The property owners who want to handle wastewater haphazardly should be asked what they would say to their neighbor if he wanted to dispose of his wastewater improperly near their water well.

3. An onsite system permit should be required before issuance of a building permit, and ideally, a licensed installer should be identified before issuance of an installation permit. This would prevent situations in which the builder or owner has no idea what to budget for a quality septic system. They don't worry about it until the very end, after all the money has been spent on fancy amenities. Then they want to skim on the onsite system.

4. We need tougher enforcement of our regulations. One local installer's license has been suspended several times for major infractions. Each time the suspension is over, he goes back to the

same old tricks. Other non-licensed individuals offer low prices for weekend installations. Anyone can figure out where that road leads.

5. Just as there are a lot of poor installers, there are a lot of poor engineers and designers. One local "engineer" is actually a former health department employee who apparently was fired for a drug-related offense. He has teamed up with a local PE, who rubber-stamps his designs, but as far as I can tell knows nothing about onsite systems. This former health department employee is one of the most unprofessional people I've ever met, but for some unknown reason, he is allowed to go on.

6. We need to work toward getting a reasonable profit for our jobs. Many installers are not considering all their costs of doing business. Each job should have a reasonable profit. After material and direct labor cost, there should be a gross profit sufficient to cover machine and vehicle costs, insurance, license fees, bonding, tools, supplies, accounting, advertising, and much more. Gross profit should be high enough to provide a net profit after paying all the expenses.

7. The states must get on board with compulsory ongoing maintenance of onsite systems. Our industry will never shake its bad reputation if we continue to allow systems to be installed and then forgotten.

Thanks to all who are trying to do the right thing every day to improve this industry!

**Marty Clarke**  
Water Resource Management LLC  
Montgomery, Ala.

## Enforcement needed

To the editor:

There is certain timeliness to your December editorial ("Who Cuts the Corners?"), especially for most of us living west of the Rocky Mountains, where the real estate

and building booms have hit the skids. I write particularly from the perspective of Arizona, which like Las Vegas and parts of Southern California are particularly devastated.

This is the third economic decline I have weathered, and it has the earmarks of being the longest. As a result, many small, competent installers have simply locked their doors and gone out of business. Some that have stayed, in my opinion, should go out of business, as they fall into your category of those who cut corners.

This "cutting corners" dilemma, most often occurs when business and the public know that government does not have the manpower or the ability to enforce even the basic rules and regulations for septic systems, even for a single-family residence. I must admit I have been sorely tempted to cut corners, and though I did not, I am quite sure I bend the rules. I do not feel this makes me a saint.

In November 2005, the latest Arizona Department of Environmental Quality revision of the state onsite regulation was incorporated as part of state law, essentially eliminating much of what previously existed. Today, these rules are very prescriptive, leaving little to opinion or judgment and making for what has become essentially an enforcement nightmare. As a result, enforcement has been left unattended.

It is precisely because everyone knows there is no effective enforcement of even the basic rules that cutting corners has become standard operating procedure in Arizona. It is only fair to note that the 15 counties now charged with permitting, inspection and enforcement of the rules affecting residential systems have been essentially gutted of personnel by economic conditions in the real estate and building industries.

This serves only to compound the ease of cutting corners, as there is no one watching, and any growth, apparently even "bad" growth, is better than no growth. The old adage prevails: When the

cat's away, the mice will play. Lacking enforcement, how do we stop those in the onsite industry from cutting corners?

In the final analysis, the issue of cutting corners for me always comes down to a question of personal integrity and whether I can look at myself in the mirror and honestly feel OK about the reflection I see. Best regards,

**Paul Miller**  
Phoenix, Ariz.

## Clarity on codes

To the editor:

In the December 2009 edition of *Onsite Installer*, a Letter to the Editor commented on the Uniform Plumbing Code and Uniform Building Code. I agree with and affirm that both codes, when they are adopted, often do have amendments and in fact many jurisdictions have heavily amended parts of them during the process of their adoption.

My additional comment would be that the UBC is no longer being developed and has been amalgamated into the International Building Code (IBC), first published in 2000 (see [http://en.wikipedia.org/wiki/Uniform\\_Building\\_Code](http://en.wikipedia.org/wiki/Uniform_Building_Code)).

Since the publication of the 2000 IBC, many jurisdictions that were using the UBC have adopted the IBC. It is my understanding that there may be a small percentage of jurisdictions still using the UBC. Should you wish to have a reference to the UPC you might wish to start with [http://en.wikipedia.org/wiki/Uniform\\_Plumbing\\_Code](http://en.wikipedia.org/wiki/Uniform_Plumbing_Code).

The code developers also have information on their codes Web sites: <http://www.iapmo.org/Pages/splash.aspx> and <http://www.iccsafe.org/Pages/default.aspx>.

I hope this information adds some clarity.

**John M. Halliwill, Principal**  
Halliwill and Associates  
Beaumont, Calif. ■

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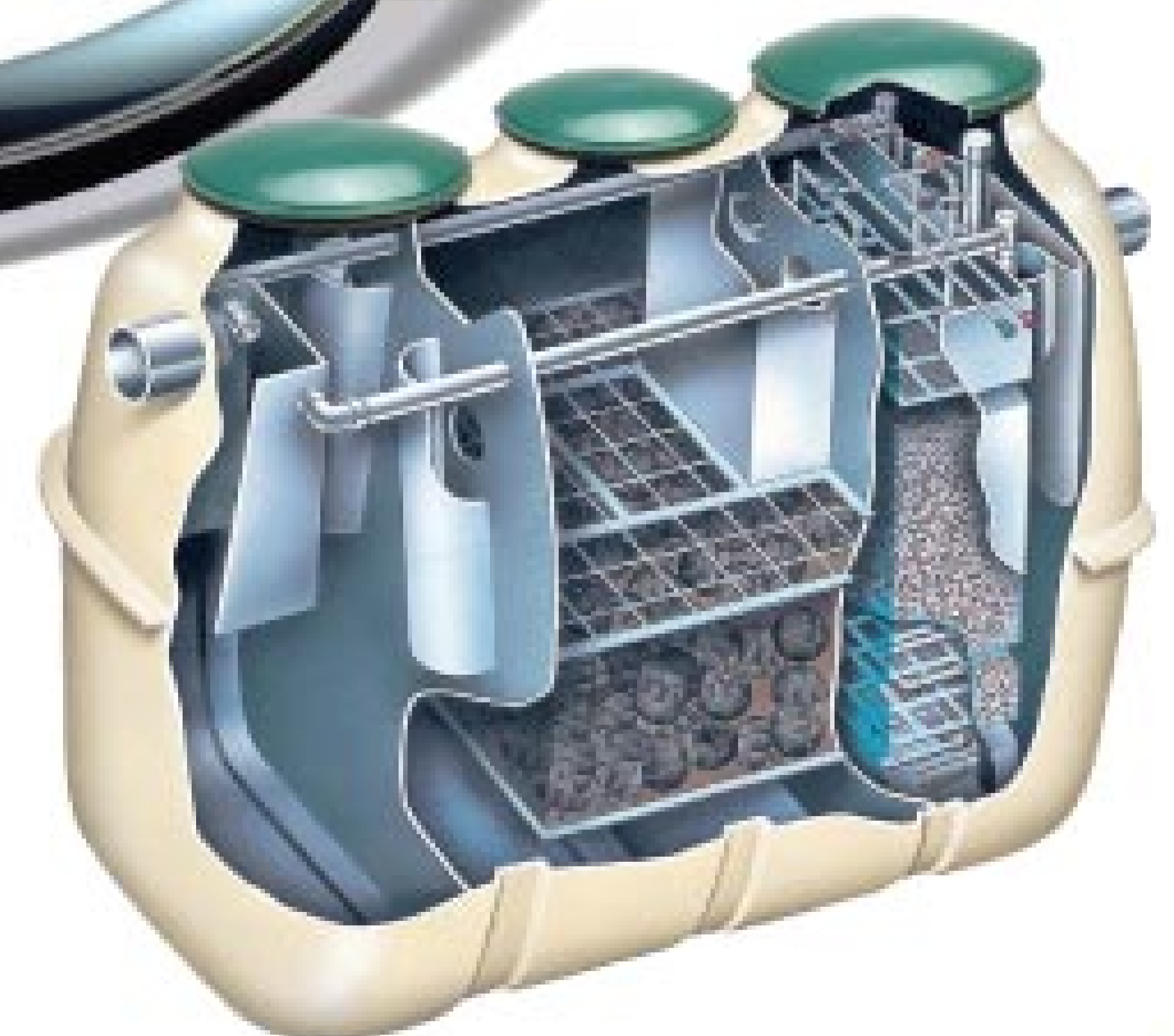


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## Now It's My Turn

This trade magazine editor and city boy will soon become the proud owner of an onsite wastewater treatment system

By Ted J. Rulseh

**F**or 20 years, my wife and I have vacationed with our kids at the same rented cottage on a small, quiet lake in northern Wisconsin. On every week-long visit we've taken a ritual boat ride around the lake, looking at the cottages and lots for sale.

Two summers ago, a nice wooded lot came on the market, directly across the lake from our cabin. Last summer it was still for sale and, being farther on in life and having a few dollars saved, we were tempted.

On the last day of our vacation, I took the boat over to that side of the lake to fish along a bed of pencil reeds. The reed bed ended right in front of the available lot.

As I shut off the outboard and used the trolling motor to get within casting range of the reeds, I said to myself: "If I catch a fish in front of the For Sale sign, we are destined to buy this land."

Well, on the first cast with a floating jointed minnow plug, bingo: a 19-inch, 4-pound largemouth bass. To make a long story short, that turned out to be one expensive fish (which, knowing what I do now, maybe I should have kept and eaten).

### New perspective

All that is by way of saying that in the fairly near future I will be hiring someone to install a septic system. I'm sure the experience will help me understand this business better, and from a different point of view.

The lot we bought already had a soil evaluation and approval for a conventional system. As it turned out, the Oneida County inspector with whom I walked the property before the sale, Curt Bloss, had read *Onsite Installer*. And he was a little surprised to meet someone

who knew the purpose of the test holes that had been dug in three places on the property.

Thanks to what I have learned from this job — and from installers like you — I am better prepared than the average person to embark on a well-and-septic project. I'm

a number of excellent professionals in that area, and I look forward to meeting them.

In the end, I can't help but learn from the experience to come. I'll probably spend more time than most people would observing the installation — seeing from start to

**Thanks to what I have learned from this job — and from installers like you — I am better prepared than the average person to embark on a well-and-septic project. I'm also facing the reality of owning and maintaining a system instead of just writing about it.**

also facing the reality of owning and maintaining a system instead of just writing about it.

When you live in town (as we do) and have sanitary sewer service, it's easy to preach about how new homeowners should approach an onsite project and how installers ought to deal with customers. Now I have to back up the preaching — literally put my money where my mouth is in buying a system and appurtenances.

### Decisions coming

There will be installers to interview, bids to get, decisions to make on things like effluent filters, risers, tank sizes, materials, drainfield sizing, location of the system on the parcel, and more. It will be interesting to deal with installers from a completely different perspective than I'm used to. I know there are

finish just how it all happens. Yes, I've seen installations before, but I've watched with a degree of professional detachment. This time it will be my money going into the ground, my impact on the environment, my system to care for.

It's not as if I'll be installing anything exotic — it looks like a basic "box and rocks" situation. But I'll share the experience with readers to the extent it seems of interest. What I'm most curious about is how the process will change the way I look at my role as editor of this magazine.

So, onward. Whatever may happen, at least I can rest assured that fish I catch from now on will be a lot less costly than last summer's reed bed largemouth. ■

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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).

# Ohio Lawmakers Extend Moratorium on Onsite Rules

By **Scottie Dayton**

**O**hio state legislators extended the moratorium on onsite regulations to July 1, 2010, giving themselves more time to reconcile differences between competing bills.

The debate revolves around the separation distance between the gravel at the bottom of the trench to the clay layer, and requirements for expensive replacement systems for homeowners in Geauga and Cuyahoga Counties. Only a small percentage of systems are not in compliance.

The moratorium on legislation enacted in 2007 was set to expire in January. While the debate continues, county boards of health must decide how to regulate the systems. The lack of state-level rules has led to disparities between counties.

## Virginia

An opinion from the state attorney general has at least temporarily ended a moratorium on advanced onsite treatment systems. As of January 2010, advanced treatment installations are acceptable and

local governments do not have the authority to ban them. The state Department of Health must establish operation and maintenance regulations for the systems by April 30.

## Michigan

A bill requiring contractors to provide portable sanitation at residential work sites was incorporated into state policy. Another bill allowing septage haulers access to county roads during frost restrictions passed the Senate and is in the House. Additional introduced legis-

lation would require local governments that prohibit land-applied septage to have a receiving facility within their boundaries. ■

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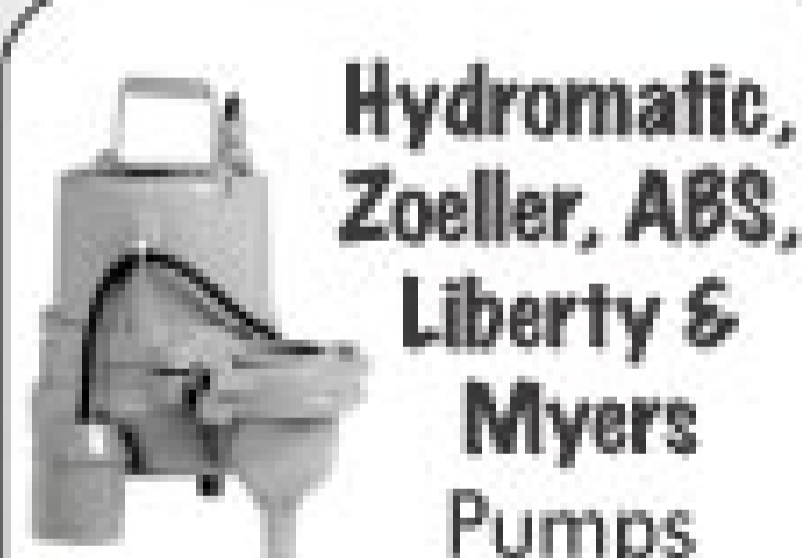


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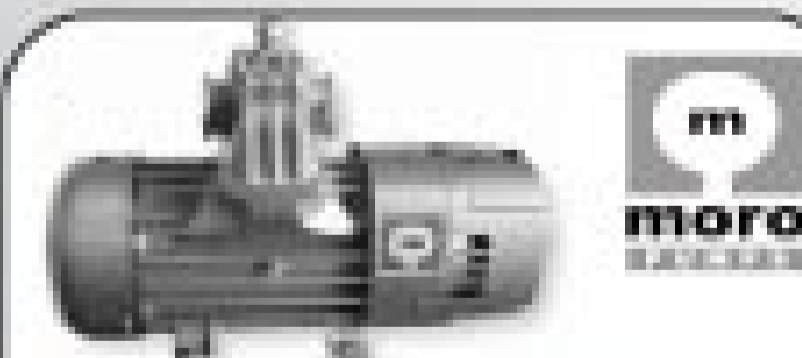


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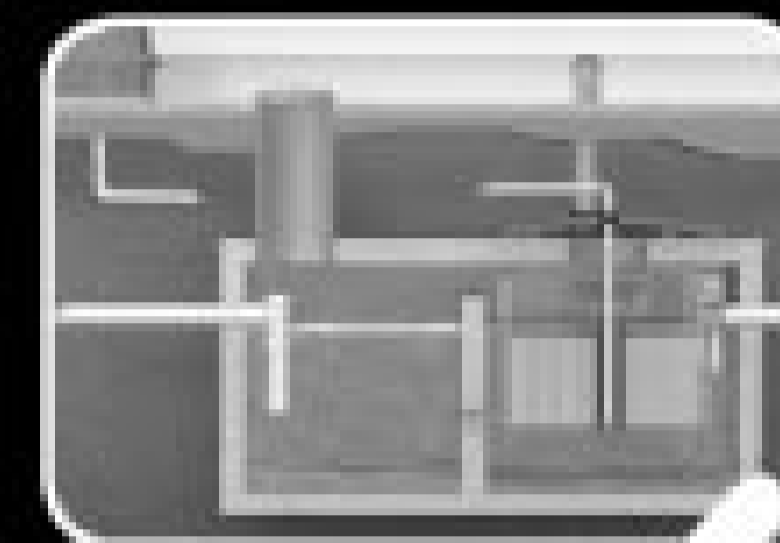
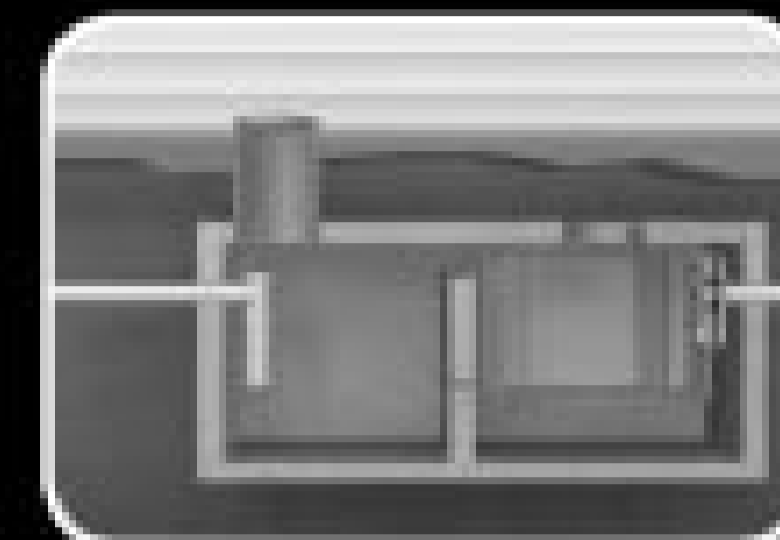
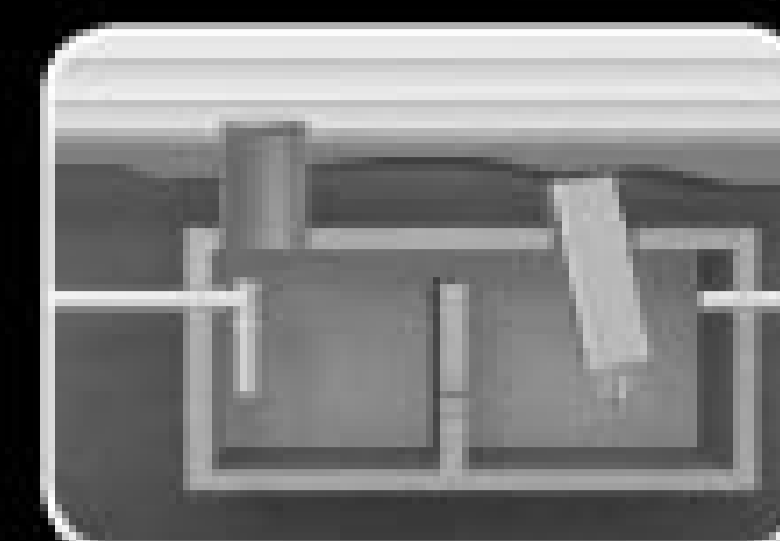
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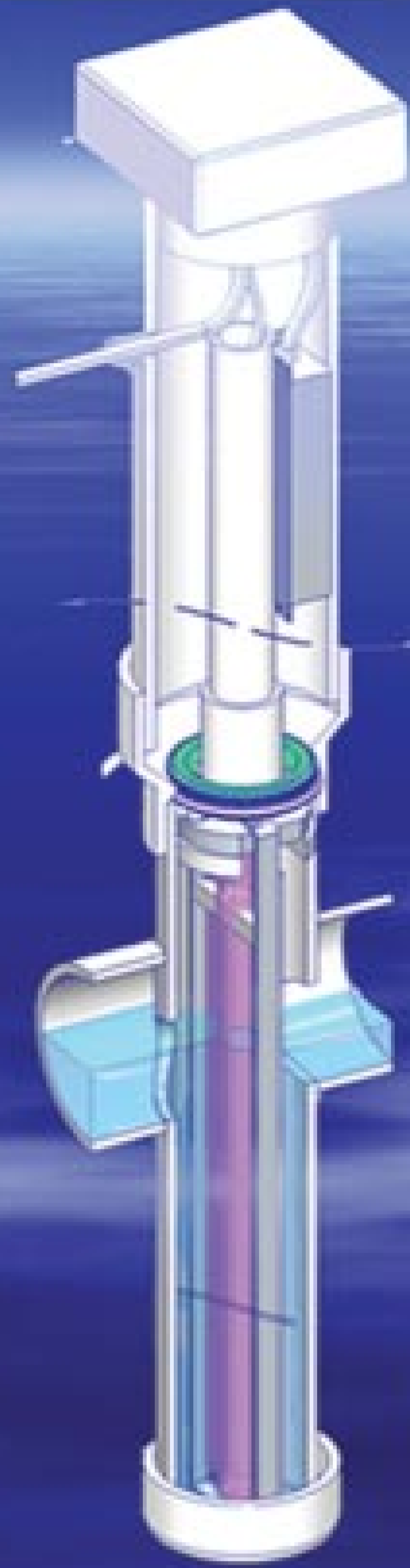
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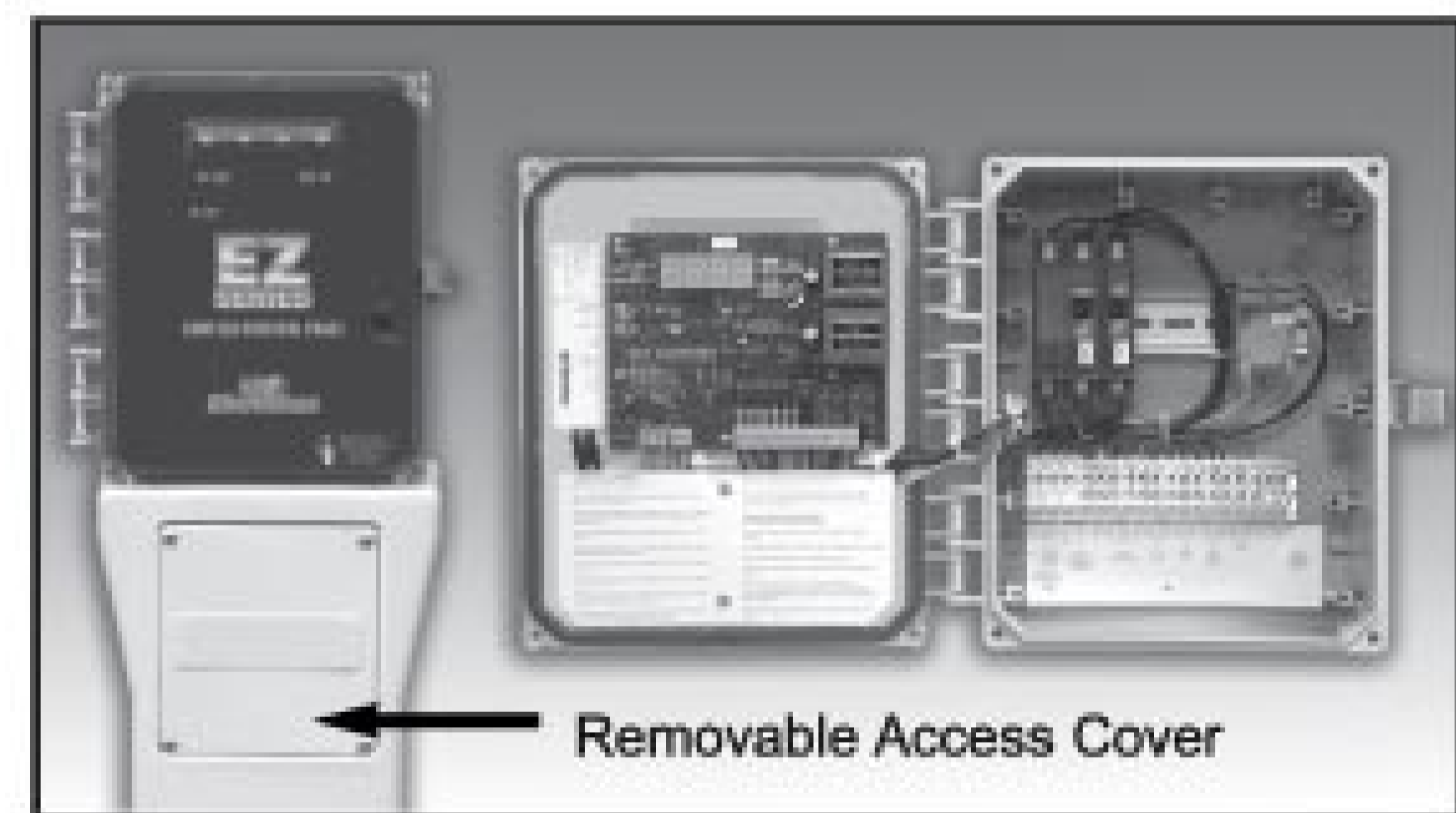
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Patent Numbers  
5,617,679 &  
5,852,901; other  
pats. pending.

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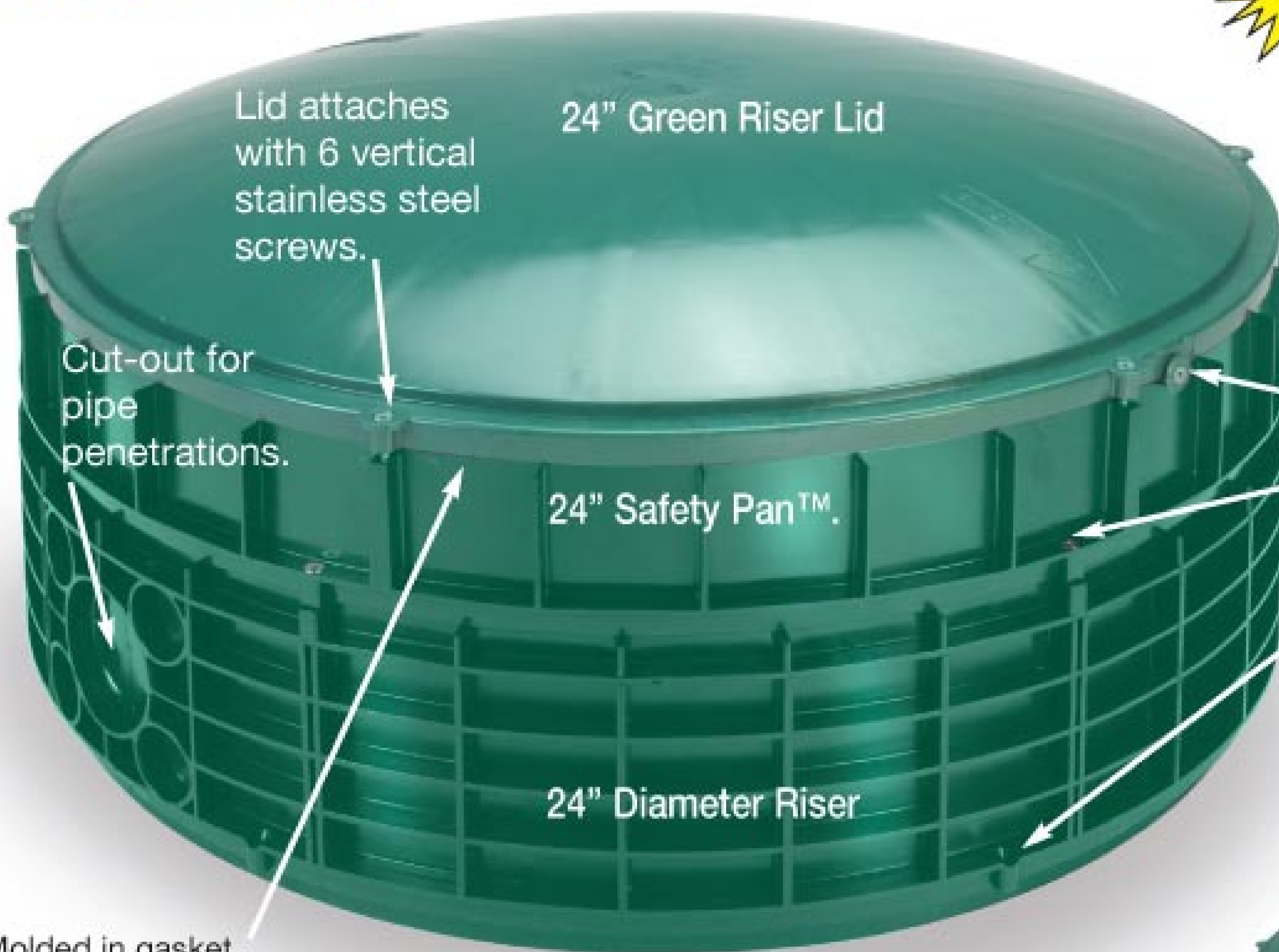
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Patent Numbers  
6,319,403; D 431,629; other  
pats. pending.

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244 ft. of  
1/16" filtration  
area.

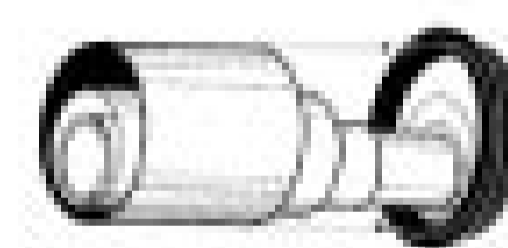
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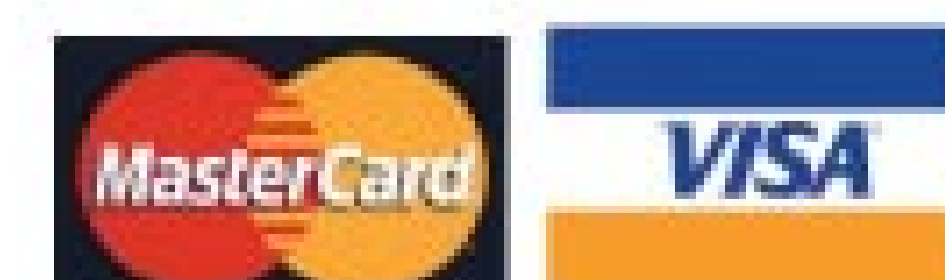
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Patent No's  
5,624,123  
& 5,711,536;



12", 17", or 20"

Tested to 10" vacuum



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

# Getting Pumped

Here are the answers to a variety of common questions from professionals on the finer points of selecting, connecting, and installing pumps

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

**I**n keeping with this issue's focus on pumps, we are revisiting and revisiting some questions we are commonly asked about pump installation and use.

The questions relate to the use of multistage pumps, estimating the cost of operating a pump, making sure that the pump is connected properly to the piping system, watching the piping system to make sure it is not freezing, minimizing solids in lift stations and the impact of solids on pumps.

## Multistage issues

Multistage pumps operate at higher heads for lower flow rates. This is advantageous where septic tank



Onsite systems can use a variety of effluent pumps. The tall unit second from the right is a multistage pump.

effluent is being pumped or on a site with a lot of elevation differences.

These pumps work very well and have been tested to operate for an extremely long time: One manufacturer's estimate of the average

pump life is 12 years. However, these pumps have some specific operating characteristics that you need to consider.

The first is that they will handle very few solids — so make sure these pumps are protected from solids. This may mean installing an effluent vault or using these pumps only downstream from a pretreatment system that removes most of the solids from the wastewater.

We have also seen problems where multistage pumps are used with drip-irrigation systems. Since the intake is sometimes located above the motor, and since cooling of the pump to reduce wear depends on the effluent, a 4- to 6-inch slotted PVC pipe (flow inducer) needs to be installed to move effluent past the pump motor to allow cooling.

These are often specified by the manufacturer or designer. If you are installing a flow inducer, remember that, just like any other pump vault, the effluent vault should handle the same gallons per minute your pump will actually deliver during operation.

This is not the same as the design value, which is the minimum flow the pump requires to operate. A quick way to approximate the operating flow is to take the minimum point below the pump curve and draw a 45-degree angle to the pump curve. A much better method is to calibrate the pump at the site.



Control floats and control panels with alarms regulate the performance of pumps. Alarms notify homeowners or service providers when failures occur.

## Cost to operate

Another frequent question, especially now with growing interest in energy savings, is how much it costs to operate a pump. Monthly power consumption in a residential pump station is substantially less than that of major household appliances.

Power consumption varies based on system operating parameters, but you can approximate it using this equation:

$$\begin{aligned} & \text{Watts} \times \text{GPD} \times \text{Days per} \\ & \text{Month/GPM} \times 60 \text{ min.} \times 1,000 \\ & = \text{kilowatt-hours/month.} \end{aligned}$$

Then, multiply the kilowatt-hours per month by the cost of electricity and you have an approximate monthly operating cost. By

this calculation, a pump drawing 770 watts and pumping 250 gpd for 30 days at 12.4 gpm would consume 7.76 kilowatt-hours per month. At an electricity price of 10 cents per kilowatt-hour, the pump's monthly cost would be about 77 cents per month.

## Proper connections

We still see many pumps improperly connected to the piping system. First, it is important for the pump to be readily accessible from the surface. This means the pipe must be attached to the pump close enough to the top of the tank under the manhole for a service technician to be able to reach it.

There should also be a quick-disconnect device to allow removal

of the pump. This disconnect needs to be something other than a fernco coupling. Using a fernco is not appropriate because of the pressures needed to properly operate the system. (We like to call these "automatic quick-disconnects," which activate at the most inopportune times.)

Also realize that as the required head or pressure goes up, the pressure on all piping components and connections also increases. This makes it critical to use proper materials. A reminder for people who work in warm weather, or install systems that use STEP designs: If there is a check valve in the system, you should also have an isolation valve to shut the piping off and avoid draining it during the service visit.

### Settling and freezing

In cold weather, a chronic problem is the settling and freezing of piping in and around the tank area. This sometimes shows up as a pump that is elevated or hanging at an angle in the pump tank.

The problem is that the backfilling around the piping wasn't done properly, and the piping has settled to create the dip. The dip is where the freezing is taking place.

on natural ground and then across the lid of the tank to make sure that it has little or no opportunity to settle. However, we do not recommend this because it creates the potential for damaging the piping when the tank is uncovered for servicing.

### Solids buildup

The final issue concerns lift stations filling with solids. When this happens, it means the components upstream of the pump tank are not operating properly. There are many possible explanations: lack of maintenance, overloading by the user, or in some cases catastrophic failure of a component.

Because the range of causes is so wide, each needs to be looked at separately. But where solids buildup might cause issues in the pump or downstream components, using some protection in the pump station may be helpful.

An effluent vault or a pump vault may be one of the easier solutions. These technologies protect the pump from drawing in solids, protecting the pump and components downstream.

Another less maintenance-intensive solution would be a bucket

**Monthly power consumption in a residential pump station is substantially less than that of major household appliances. Power consumption varies based on system operating parameters, but you can approximate it using a simple equation.**

The solution has a couple of parts. The first is to backfill in a way that minimizes the pipe's ability to settle. This includes using proper backfill materials, making sure the trenches are wide enough to enable proper compacting of those materials, and being careful during the backfilling process.

Many cold-weather installers sleeve and protect the supply pipe in a stronger material, often 4-inch Schedule 40 pipe. This material is much stronger than the smaller-diameter supply pipe, and it will keep the pipe from settling during the life of the system.

Another choice would be to run that lighter pipe as much possible

surrounding the pump. This raises the elevation of the pump intake, allowing for solids storage in the system. When using this system, be sure to raise the control floats so the bucket will not interfere with the float operation. For example, you can have a significant problem if the "off" float is hung up on a bucket.

These are a few of the issues we encounter regularly in the field. We are sure you run into a number of things as you troubleshoot systems in your neighborhood. We would love to hear about those issues and concerns and, more important, your solutions. We will then share them with others in the onsite industry. ■

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A commitment to higher standards sets Gene Bassett, owner of E.C. Bassett Construction Inc., apart in his industry. (Photography by Tom Brahl)

# More than the Minimum

Whether in designing and installing systems or pursuing professional education, Gene Bassett insists on going beyond the requirements

By Gil Longwell



## E.C. Bassett Construction Inc., Edgewood, N.M.

**OWNER:** Eugene Bassett

**YEARS IN BUSINESS:** 27

**MARKET AREA:** 160-mile radius

**SPECIALTY:** Finding new technologies to employ on difficult sites

**BUSINESS MIX:** Complete system installations, 30 percent; repairs, 30 percent; service and contracted management, 30 percent; balance inspections and miscellaneous

**EMPLOYEES:** 1

**AFFILIATIONS:** NOWRA, Florida Onsite Wastewater Association, Professional Onsite Wastewater Reuse Association of New Mexico (POWRA)

**F**or Gene Bassett, precision permeates every aspect of every installation; it is not an accessory, an option or add-on.

Bassett, owner of E.C. Bassett Construction Inc., in Edgewood, N.M., precisely applies siting and installation regulations for each onsite system he installs or services. State regulatory minimum design standards are not enough: He “designs to a higher standard,” then installs the system exactly as designed and permitted.

Bassett Construction serves an area within about 160 miles of Edgewood, a small town about 20 miles east of Albuquerque. Bassett established his business in 1982, and ever since has been working as hard installing systems as he has to bring more science and emerging technologies into the regulations.

Like many installers, Bassett entered the industry when his gen-

eral excavating customers liked what he did for them and asked him to install their onsite systems. To do the job right, he knew he needed to learn, so he joined NOWRA, and then the Florida Onsite Wastewater Association (FOWA) for what he saw as a top-notch education curriculum.

in the arid southwest,” he says. “Around here, wind and air with very low humidity suck the water upward, then it evaporates.”

Surface vegetation patterns bear that out. Bassett and other installers report that vegetation will thrive above the absorption area’s sidewall along

**“Evaporation and transpiration drive the science in the arid southwest. Around here, wind and air with a very low humidity suck the water upward, then it evaporates.”**

Gene Bassett

### Different science

At training events in Florida and elsewhere, Bassett learned that “east coast” regulations address sites that have significant rainfall. In Bassett’s area, 6 inches of rain is a typical year’s supply. “Evaporation and transpiration drive the science

the boundary between disturbed and undisturbed soil. “The perimeter of the trench or bed is marked by weeds and sunflowers growing as high as 8 feet,” he says.

Soils in arid conditions have different characteristics, too. Bassett seldom encounters a seasonal high





Gene Bassett works on the control panel for a Nibbler treatment unit, manufactured by Aqua Test Inc., on a commercial installation for a small shopping center.

water table that influences site suitability. Groundwater is found between 400 and 1,000 feet down. Clay soil horizons, however, create impervious layers and can severely limit onsite systems.

"It is not that science is different here or that water's behavior is inexplicable," Bassett says. His mission is to recognize and understand how regional variations influence system behavior, then bring that science into the state's regulations. Working with other members of the Professional Onsite Wastewater Reuse Association of New Mexico (POWRA), he has seen continued progress toward that goal.



### Frontier pioneer

Bassett's drive to match onsite technologies and system designs to various site characteristics has placed him on innovation's front line. He is not afraid to be the first to install emerging treatment technologies or apply new installation tools and practices.

He was the first installer in his area to use laser-elevation control to assure "dead-on installations." The technology enabled him to match precisely what he built with what he painstakingly designed and the regulators permitted. When New Mexico became the first state to approve the AdvanTex system from Orenco Systems Inc., Bassett completed the first installation.

An observer of subtleties with an analytical approach to overcoming site limitations, it was a natural for the state Department of Environmental Health to appoint him to its rule-writing committee in 1995. He has been involved ever since. In addition, his participation in POWRA lets him add his to the chorus of installer voices calling for and submitting formal petitions to change regulations the department has not addressed. Many of those proposals have been implemented.

### More than the minimum

Along the way, his experiences, observations and insights have led

**Bassett does routine maintenance and services all systems he installs.**

Bassett with his mother, Josephine, who helps out in the office with paperwork and phone inquiries.



## Investing in the Industry

"I have always wanted to be active in the organizations associated with this business," says Gene Bassett, owner of E.C. Bassett Construction Inc.

From his first days as an installer seeking education through the Florida Onsite Wastewater Association (FOWA), to his tenure on the NOWRA board of directors, to his founding role with the Professional Onsite Wastewater Reuse Association of New Mexico (POWRA), Bassett has lived his beliefs and has helped to advance the industry.

Professional installers know that quality control and performance oversight are appropriate roles for regulators. In 1997, New Mexico began charging a permit application fee to cover the costs of

system inspections by state personnel. Bassett would like to see better-trained inspectors and stepped-up inspections.

"I believe that more than 90 percent of the systems installed in this state do not meet the regulations," he says. Sometimes the industry pushes the regulators, and sometimes the regulators push the industry. Regardless which group is leading, Bassett believes professional onsite associations should be involved in the discussions.

Whether as part of an association or not, he will be on board to help guide the process and shape the end product, while making sure that lessons learned and science are the cornerstones of change.

him to avoid designs that merely satisfy the regulatory minimum. For example, the minimum installation width for trenches is 12 inches, "but most people can't easily work in a trench that narrow," Bassett says. Instead, he designs trenches'

excavation widths from 18 inches (his personal minimum) to 36 inches (the regulations' maximum).

"A typical, minimum-sized system fails in about five to seven years," Bassett observes. He knows that from observation of other

installers' jobs. His other personal minimums include:

- A 1,500-gallon dual-compartment treatment tank for a system serving a three-bedroom house with a design flow of 375 gpd.
- 900 square feet of absorption area for that same house (the state minimum is 750 square feet).
- 300 feet more absorption area for each additional bedroom (twice the state minimum).

When faced with multiple suitable and permissible system options, Bassett educates his customers on the pros and cons of each. He keeps systems as simple as possible, for two reasons. First, the fewer components, the less risk of mechanical or performance problems. Second, fewer components mean less operation and maintenance cost. For these reasons, he avoids drip irrigation systems whenever possible.

Bassett saw his "keep it simple" philosophy built into state regulations in 1997, when the rules were changed to require risers on treatment tank access ports to be no more than 12 inches below grade. Ten years later, the requirement was changed again to require all risers be extended to grade. In addition, risers more than 36 inches high must be 30 inches in diameter.

### Repair solutions

Bassett has seen his share of malfunctions, especially on minimum-sized systems. He finds many trenches where excavation sidewalls have lost their absorptive capacity.

If the failure is not caused by a mismatch between the site and system, he uses a simple approach to renew and expand the trenches. Immediately next to the original excavation, he digs to the same depth. Then, digging the length of the initial installation, he creates a wider absorption area.

Into the newly excavated area, he adds aggregate only. At the terminal end of the old absorption area, he extends the original system's length. Along the length of the original absorption area, the effluent moves horizontally through the void spaces to the newly exposed infiltrative surface. The same process occurs where the new



**Bassett displays the various buckets he uses for digging trenches. He designs trenches from 18 inches wide (his personal minimum) to 36 inches (the regulatory maximum).**

**"When competing against uneducated installers, I become the knowledgeable customer's best friend."**

**Gene Bassett**

aggregate area joins the old "end" of the system.

If the original system used chambers, he removes all soil next to the exposed sides of the chambers, and then adds aggregate. In all cases, he believes the absorptive capacity of the sidewall should be included in system-sizing calculations.

Small, constrained sites require a different approach for both new and repair installations. When nitrogen reduction is required, Bassett turns to the AdvanTex AX-20 system. He also favors that system on sites with shallow bedrock. "In these cases, the higher treatment level is essential," he says.

Another solution when space alone is the constraining factor is use of the recently approved EZflow artificial aggregate distribution system from Infiltrator Systems Inc. Bassett and POWRA worked for nine years to win New Mexico's approval for that aggregate alternative.

### Sharing knowledge

Bassett was, is and will always be education-focused. "When competing against uneducated installers, I become the knowledgeable customer's best friend," he says. When he encounters customers with limited knowledge, he shares his to

make them better decision-makers and system users.

Professional installers support installer training to raise everyone's competency. When New Mexico proposed removing training requirements from the regulations, POWRA stepped up and convinced the state Environmental Improvement Board, a kind of regulator watchdog group, to preserve and strengthen the training requirement.

POWRA also favors a state license for site evaluators, but so far has not been able to gather a strong enough coalition to make it happen. Through all this, Bassett has been at the front of the pack leading the charge, or speaking in formal and informal venues advocating for increased skill and professionalism.

### Small and focused

While highly professional, Bassett's organization is small. The sole employee, Waylen Riley, is Bassett's all-around helper. Bassett operates the equipment, and the two work each job continuously from start to finish. They get in and get out, but while on site, they are focused on their mission.

Supporting his general excavating business, Bassett can call upon

a 2000 430D Cat backhoe or a 1995 John Deere grading tractor for site work. He uses 1985 and 1989 dump trucks and a 2000 International two-axle tractor with trailer to mobilize equipment and haul materials for jobsites. Keeping capital costs down, Bassett rents Cat tracked skid-steers or larger tracked excavators for big jobs. Bassett's mother, Josephine, helps in the office with paperwork and phone inquiries.

### Informed decisions

Bassett initially minimized his service menu and stayed away from onsite system repairs. "I didn't want to get into people's sewage problems," he says. "I believed that was more of a niche or specialty market."

In the early 1990s he rethought his position and has been doing repairs ever since. Today it accounts for about 30 percent of his onsite business. System management is a growing business segment. Bassett is a licensed treatment plant operator, and his license qualifies him to manage systems up to 10,000 gpd.

The bulk of the systems he manages are cluster systems that serve old villages where small lots and constrained sites rule out individual onsite systems. Typically, these systems include septic tank solids separation, 4-inch gravity collection lines, and either gravity, low-pressure or drip distribution of the treated effluent.

Education, a commitment to science-based regulations, attention to detail and a commitment to higher standards set Bassett apart in his industry. "Done right" and "dead-on" are the words he lives by, and the only things he leaves behind at every job. ■

### MORE INFO:

**28 Aqua Test Inc.**  
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# Compact Solution

A hybrid system of biofilters and drip dispersal helps a South Carolina couple build a vacation home on a challenging site with low-permeability soils

By **Scottie Dayton**

**H**eavy clays and restrictive setbacks rendered an acre lot unacceptable for a conventional onsite permit, putting the plans for building a vacation home on hold for a couple in Hollywood, S.C.

They contacted Robert Gross, P.E., of Beaufort Group LLC in Beaufort, S.C., an engineering firm that specializes in alternative treatment designs. Working with Gross, the couple selected a peat-fiber biofiltration pretreatment system because it can handle intermittent usage and the maintenance requirements are minimal.

State code specifies that alternative systems must have a replacement drainfield. As space was limited, Gross selected a subsurface discharge drip-dispersal system. Upon reviewing the plans, the state still

considered the site denied, and placed liability on the homeowners for any treatment problems or system failures. Gross's design is the first in Charleston County to incorporate peat biofiltration with drip dispersal.

## Site conditions

Soils consist of Class III and IV (expansive clays) beneath 12 to 17 inches of humus-rich topsoil. The soil has a long-term acceptance rate of 0.25 gpd per square foot. The seasonal high zone of saturation was estimated at 2 to 5 inches below the surface.

## System components

Gross designed the system to handle 480 gpd. Its major components are:



Ernest Rentz (left) and two employees inspect a newly excavated supply trench from the Perc-Rite filtration unit to the drip-zone manifold. (Photos courtesy of American Manufacturing Company Inc.)

- 1,000-gallon, two-compartment concrete septic tank with A300 Zabel effluent filter, a product of Polylok. All pre-cast tanks made by Knight's Septic Tanks, Summerville, S.C.
- 1,000-gallon concrete pump tank with 0.4-hp simplex pump from Red Jacket Water Products ITI, Seneca Falls, N.Y.
- Four 150-gpd Puraflo peat biofilter modules from Bord na Mona Corp.
- 1,000-gallon concrete dosing tank with 1/2-hp high-head turbine pump in a 6-inch-diameter Cool Guide pump vault from American Manufacturing Co. Inc.
- Perc-Rite drip system components from American Manufacturing, including 1,050

feet of 1/2-inch pressure-compensating drip tubing, hydraulic unit with auto-backwashing disk filters, and PLC-driven combination pump control panel with Web-based telemetry.

## System operation

Wastewater gravity flows into the septic tank, then to the pump tank. Every two hours, the pump in the tank runs for 60 seconds, sending 40 gallons of effluent through a 2-inch Schedule 40 PVC force main to the biofilters. A manifold in each module evenly doses the peat using a distribution grid.

Purification occurs as the liquid percolates through the media over 36 to 48 hours. The peat also suppresses odors. The units produce

## System Profile

<b>Location:</b>	Hollywood, S.C.
<b>Facility served:</b>	4-bedroom home
<b>Designer:</b>	Robert Gross, P.E., Beaufort Group LLC, Beaufort, S.C.
<b>Installer:</b>	Ernest Rentz, Rentz Inc., Hollywood
<b>Site conditions:</b>	Expansive clays with long-term acceptance rate of 0.25 gpd per square foot; 2- to 5-inch seasonal high water table
<b>Type of system:</b>	Puraflo biofilter, Bord na Mona, with drip dispersal
<b>Hydraulic capacity:</b>	480 gpd



The four biofilter modules rest on a 6-inch-deep gravel support bed.



The Perc-Rite hydraulic filtration unit sits on a gravel bed.

PVC drain lines to a sample chamber, then to the top of the dosing tank. The pump cycles every four hours, sending 120 gallons in 12 minutes to the drainfield.

The drainfield has 14 drip lines, 75 feet long on 2-foot centers. The 525 pressure-compensating drip emitters, spaced 2 feet on center, deliver 0.61 gallons per hour per emitter at 50 psi. The high pressure prevents root intrusions. When the pumping cycle ends, air-release valves rapidly drain the drip tubing through the emitters and prevent fine sands from being drawn into them.

The Perc-Rite system automatically forward flushes the drip tubing at more than 2 feet per second at adjustable intervals to prevent slime growth. The hydraulic unit's disk filters are automatically back-flushed at the start of each cycle and every five minutes into the pump run time. The fully automated system is maintenance free.

### Installation

Ernest Rentz of Rentz Inc. in Hollywood installed the system. Gross required a 200-foot-long French (curtain) drain buried 3 feet deep along the up-gradient side of the property to minimize surface runoff into the drainfield. "It had to go in first, and the difficult soils made installing the corrugated pipe challenging," Gross notes.

After clearing the site of brush, Rentz's men used a small backhoe on rubber tires to excavate the trench for the drain. "We were working

below the water table and in clay that you could make pottery out of," says Rentz. "The trench stayed open for only a short time, so we had to work fast and in short segments. It was the most difficult part of the installation, and it took two days."

Because of the high water table, Rentz expected to dewater the holes for the tanks and biofilter modules, but the clay next to the house was so tightly packed that the excavations didn't fill as quickly as anticipated. The tanks and modules were a snug fit between the house and 80- by 50-foot replacement area, offset from the French drain by 5 feet. The distance from house to drain was 30 feet, and the tanks were offset 5 feet from the house.

Each 7- by 4.5-foot by 32-inch-high module weighs 1,800 pounds. Rentz used his backhoe to set them on a 6-inch-deep gravel support

and shallowest part of the seasonal high groundwater. The drip tubing was backfilled with 18 inches of lightly compacted sand, and the cap was planted with grass seed.

Keiger spoke to the homeowners about the importance of directing downspouts away from the tanks and drainfield. The couple had the house contractor install the gutters last and comply with Keiger's recommendation.

### Maintenance

The owners entered into a one-year renewable maintenance agreement with Rentz. Maintenance is a yearly inspection involving opening the septic and pump tanks to check the scum, sludge, and water levels. The effluent filter is also cleaned annually.

The service provider runs a cycle on each pump, inspects the peat media for grease or ponding, and looks for solids or particulates in the biofilter effluent. He also checks the control panel, floats, valves,

**"When the house is vacant for extended periods, the microorganisms living on the media form spores and go dormant. But shortly after the homeowners return, the peat system reactivates to optimal performance levels."**

**Chris Keiger, P.G.**

bed. Once the modules were connected, the system was blown out with the cap off both ends of the manifold, and a pumping draw-down test determined the correct dosing volume.

As Rentz's men graded the drainfield area to provide a 10-foot-long elevated taper with 1:10 slope, someone discovered a potable well on the neighbor's property — and it was too close to the drainfield. To meet the setbacks from a well and nearby drainage ditch, Gross modified the drainfield area from eight lines 100 feet long with a 130- by 46-foot footprint to 14 lines 75 feet long with a 28- by 75-foot footprint.

After excavating 6-inch-wide trenches for the drip tubing, the men added 12 inches of Class 1 medium sand to provide the required separation between the emitters

gauges, and pressures in the drip equipment. The peat should last for 15 years or more, after which it will be vacuumed out and replaced. ■

### MORE INFO:

**27 American Manufacturing Co. Inc.**  
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effluent averaging less than 10 mg/l TSS and BOD, and 99 percent reduction of fecal coliforms with no pathogens.

"When the house is vacant for extended periods, the microorganisms living on the media form spores and go dormant," says Chris Keiger, P.G., business development manager for Bord na Mona. "But shortly after the homeowners return, the peat system reactivates to optimal performance levels."

The treated effluent gravity flows from the bottom of the modules through 2-inch Schedule 40

*Machine Matters is designed to help readers get the most from excavators, backhoes, skid-steers and other mechanical equipment through proper maintenance, operation and financial practices. Readers are welcome to submit ideas for this column and can send them to Ted J. Rulseh, editor, by calling 800/257-7222 or e-mailing editor@onsiteinstaller.com.*

# Where the Rubber Meets the (Off) Road

You can maximize your investment in pickup truck tires by shopping carefully for the right features and performing basic maintenance

By Kelly L. Moore

**Q**uestionable terrain and construction debris are realities of the jobsite, but sworn enemies of the pickup truck tire. Combine these threats with constant use, heavy payloads and budget-conscious owners and you have the perfect storm for tire failure.

The economic climate dictates thrifty behavior, but where the maintenance of vehicles is concerned, perhaps the more important quality for contractors is diligence. "These trying times make it all the more important for work truck owners to do their homework when making tire purchase decisions," says Crystal Sherman, light truck and SUV brand manager for Goodyear.

Sherman recommends that contractor pickup truck owners begin tire shopping by first evaluating the actual need for new tires.

## Do I need new skins?

Aside from trusting the advice of a tire professional or detecting a loosening grip on the road during wet conditions, contractors can use a simple trick to inspect their tires. Every 3,000 miles, truck owners should check the depth of the tread using the simple penny. With Lincoln facing out, stick the penny inside the tread and check to see how much of Abe Lincoln's head is visible. If you can see all of his head, new tires are in order, as the tire's tread is about 2/32 inch — the legal limit.

Of course, it's a good idea to replace the tires before they reach the legal limit, and experts recommend replacement when the tread reaches 4/32 inch.

Once you decide new tires are necessary, the question is where to go shopping, especially if this is your first time replacing tires on your latest pickup. A great option for starting the selection process is to do research online.

Many tire manufacturers offer beefed-up online stores that offer product information along with helpful hints on selecting the right models for specific needs. Once your basic homework is done, a face-to-face meeting with a tire professional will either confirm your ideas or introduce you to alternatives that may be better for your truck and the performance you require.

## Which tires are best?

The main question you need to ask is: Which tire performance qualities are most important to my crew and me?

Sherman explains, "It's important to understand that there are many types of tires. There are winter-specific tires, those dedicated to street performance, others for a comfortable ride, tires for long tread wear, and some for ultimate grip."

If you drive off the road, you're most likely looking for rugged tires with superior traction and a load rating that fits the demands of your jobs. To determine the best fit, ask



Wrangler DuraTrac tires from Goodyear are designed to travel well on the road as well as on rough terrain at job sites. (Photo courtesy of the Goodyear Tire & Rubber Co.)

**"The four tires on a vehicle are the only points that touch the road surface. A tire has to transmit grip, traction, cornering performance, braking, and ride comfort — in any weather. For a work truck, the tire's load rating is critical, as well."**

Crystal Sherman

yourself these questions, and be ready to discuss them with a professional:

**What terrain will you typically drive on?** The answer will help determine the level and types of traction you need and the toughness and puncture-resistance required. Tire models like the Goodyear Wrangler DuraTrac, made with ultra-tough tread rubber, are built specifically to withstand the demands of a work truck, driving over gravel and other rugged terrain

five or more days a week.

**In what types of weather will you drive?** If you drive in snowy climates, an all-weather tire bearing the industry-certified Mountain Snowflake symbol may be ideal. (North American tire manufacturers and the Rubber Manufacturers Association have established a voluntary, industry-wide definition for tires intended for use in severe snow conditions. Tires meeting performance-based criteria display the snowflake symbol.) If you might

encounter extreme conditions, such as driving on ice, tires may need to be pinned for the application of studs.

**What loads will you carry?**  
The amount of load will dictate the most appropriate load range specification of the tire.

**How much will new tires cost?**

As for price, you have a wide range of options. Generally, prices range from \$250 for a set of four purely on-highway tires to \$800 for ultra-rugged, off-road-suitable tires. It may be tempting to go with a less-expensive option, but you rely on your truck for a serious amount of work. A premium set of tires will last longer and may significantly enhance your truck's performance, saving you money in the long run.

"The four tires on a vehicle are the only points that touch the road surface," says Sherman. "A tire has to transmit grip, traction, cornering performance, braking, and ride comfort — in any weather. For a work truck, the tire's load rating is critical, as well."

When buying tires, it's vital to

understand how to extend their life. You should take the truck in for regular wheel alignment and take advantage of road-hazard coverage. You should also rotate the tires every 6,000 to 8,000 miles to help equalize tread wear.

Checking the tire pressure at least monthly helps protect tires from damage. Properly inflated tires perform better, improve ride comfort, and give you optimum fuel economy. Keep the tires inflated to the truck manufacturer recommended levels, as found on the driver's side doorpost or in the glove box. Because load conditions can vary for work trucks, tire inflation based on load is especially important.

By conducting due diligence before you buy, you increase your chances of finding the tires that give you the best performance and the highest long-term value.

*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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### Drainbo Introduces FOG Control Starter System

The FOG control starter system from Drainbo is an all-bacterial natural drain cleaner, grease trap treatment and 24-hour meter system designed to reduce and eliminate organic line and trap deposition and associated odor. 510/581-8728; [www.drainbo.com](http://www.drainbo.com).

### Zoeller Offers Effluent Turbine Filtered STEP System

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# On-site Storage

A contractor gets advice from professionals on freeze prevention for a temporary holding tank to be used during the Winter Olympics

## Question:

I am designing a septage holding system for temporary accommodation during the Olympics. The building is a modular unit placed on a paved parking lot. It will be in use for three months. My plan is to plunk down a big plastic holding tank and install a pump vault under the home.

My problem is: What about freezing? I am considering wrapping the unit with 2-inch blueboard. Do you see any flaws in my plan? I know it will be ugly, and so does the customer, but they declined to go with my more appealing but more expensive options. For the record, we usually get a few weeks of around zero degrees every winter. How about a heat lamp? Agitator?

## Answers:

Where are you located and what is the usual frost line? Not what regulators say it is but the actual at low temperatures. Depending on use, it shouldn't freeze if it's underground, because the ground stays at 48 degrees F most of the year within 1.5 feet from the surface.

What about putting an insulated skirting around the modular unit. If that is too expensive for them, what about a brine solution in the tank? Electric blanket set up on an inline thermostat covered with a canvas tarp?

The blueboard sounds good, but I would also put some kind of heater in the tank, like a cattle stock tank heater. If you don't need it to heat all the time, you could put it on an inexpensive timer.

You could run a circulation pump that keeps it stirred up. Make sure the splash can't hit the sides, or you will have an ice dam forming on the side. Just a mixing pump that takes from the bottom and pumps to the top to keep it stirred up. A little ice on the outside is fine, just so it doesn't freeze solid.

How about putting septic heaters on the tanks? Construction companies use them for their aboveground holding tanks on their portable office buildings.

I think a stock tank heater with a thermostat would be the least costly to operate.

You may want to check with your state regulatory agency. A local pumper ran afoul of the Illinois EPA when he tried to establish a holding facility just to keep from land applying when the ground is frozen. Illinois public health regulations prohibit land application on frozen ground.

The U.S. EPA decided that what he wanted to do was defined as a "regional pollution control facility" which entails studies and a \$100,000 deposit. The agency made that determination because the material is "liquid," even though EPA regulations exempt septage from jurisdiction. The pumper wanted to erect a slurry structure, which EPA promotes for livestock manure management. However, when it comes to septage, that apparently wasn't good enough. ■



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All letters must be signed and limited to 500 words. We reserve the right to edit all letters for length and clarity.

# The Big Back Yard

Related construction developments in a residential market that's still recovering from the recession



### The Public Sector

As the industry recovers, the public sector is becoming a more important part of the market. This is because of the increased demand for infrastructure projects, such as roads, bridges, and water treatment plants. The public sector is also a major source of funding for research and development in new technologies and materials.

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## Bundle of Hope

How experimental power plants aggregate solar systems to help overcome the challenges of such a vast industry

The solar industry is expected to reach a total of \$100 billion in 2013, according to a report by the International Energy Agency. This growth is driven by a combination of factors, including government incentives, falling costs of solar panels, and increasing awareness of the benefits of renewable energy. However, the industry still faces significant challenges, such as the need for better storage and distribution solutions. Experimental power plants are being developed to address these challenges by aggregating solar systems and sharing the resulting energy.



## System Profile

System Profile: A detailed overview of the solar system's components, including the panels, inverters, and mounting hardware. This section provides technical specifications and performance data for each component, as well as information about the system's overall capacity and efficiency.

## High Water

High Water: A report on the latest trends in the water utility industry, including new technologies and regulatory changes. This section provides insights into the challenges facing water utilities and offers solutions for improving efficiency and sustainability.



High Water: The water utility industry is facing a number of challenges, including aging infrastructure, increasing regulatory requirements, and the need for more efficient and sustainable operations. New technologies, such as smart meters and advanced water treatment processes, are being developed to address these challenges. This report provides an overview of the latest trends in the industry and offers insights into the solutions being implemented.



## That Something Ex

That Something Ex: A feature article or advertisement related to the water utility industry, possibly discussing a new product or service.

That Something Ex: This section contains a detailed article or advertisement. It likely discusses a specific topic related to the water utility industry, such as a new technology, a regulatory update, or a case study. The text is partially obscured by the central text overlay.

## Practices and perceptions survey

The Florida State University Survey Research Laboratory is conducting a survey on advanced onsite systems. Its goals are to standardize monitoring protocol, quantify the reduction of pollution, gain insight from service providers about their management experiences, and define best management practices.

The survey targets homeowners, installers, maintenance entities, engineers, manufacturers, and county health departments. Survey questions differ per group. Visit [www.fsu.edu](http://www.fsu.edu) or call Eberhard Roeder or Elke Ursin at 850/245-4070.

## Communication rules

The winter newsletter of the Michigan Septic Tank Association has an article on the importance of establishing and maintaining relationships with elected officials so they understand the effect their votes have on small businesses and the state's economy. The article suggests calling the legislators' offices and making appointments to get acquainted and share concerns. State lawmakers often hold district meetings on Mondays or Fridays for constituent convenience.

Constituents should arrive prepared to explain why they support or oppose a bill, using examples from personal experience. They should be punctual, patient, succinct, and brief — meetings usually last 15 to 20 minutes. The article emphasizes the importance of listening to legislators' views and understanding their position.

Constituents should leave a business card and summary of their points so legislators can refer back to them. The article recommends sending thank you notes to the legislators thanking staffers who assisted.

## CALENDAR OF EVENTS

### March 9-10

Texas Onsite Wastewater Treatment Research Council Conference and Trade Show, Mesquite Con-

vention Center, Mesquite. Call 512/239-1452 or visit [www.towtrc.state.tx.us](http://www.towtrc.state.tx.us).

### March 22-23

Tennessee Onsite Wastewater Association Conference and Continuing Education Workshop, Embassy Suites and Conference Center, Murfreesboro. Visit [www.tmonsite.org](http://www.tmonsite.org).

### March 22-25

NOWRA Technical Conference and Exposition, St. Louis, Mo. Call 800/966-2942 or visit [www.nowra.org](http://www.nowra.org).

### March 29-30

Granite State Designers and Installers Association Spring Septic System Conference and Expo, Radisson Hotel, Manchester, N.H. Call Matt Gatzke at 603/228-1231 or visit [www.gsdia.org](http://www.gsdia.org).

### April 9-10

Oregon Onsite Wastewater Association Conference and Equipment Rodeo, Red Lion Hotel Jantzen Beach, Portland. Call 541/389-6692 or visit [www.o2wa.org](http://www.o2wa.org).

### April 11-14

Ontario Onsite Wastewater Association Conference and Exhibition, London Convention Centre/Hilton Hotel, London. Call Denis Orendt at 905/372-2722 or visit [www.oowa.org](http://www.oowa.org).

### April 12-15

BioCycle West Coast Conference, Town and Country Resort, San Diego, Calif. Call 610/967-4135 or visit [www.biocycle.net](http://www.biocycle.net).

## TRAINING & EDUCATION

### Maine

The Joint Environment Training Coordinating Committee has these courses:

- April 8 – Advanced Wastewater Topics, Skowhegan
- April 16 – Ethical and Technical Issues for the Site Evaluator, Belfast
- April 27 – Advanced Wastewater Topics, Littleton

Call 207/253-8020 or visit [www.jetcc.org](http://www.jetcc.org).

### Minnesota

The University of Minnesota Extension has these classes:

- April 6-8 – Basic Design of Onsite Systems, White Bear Lake
- April 13 – Design Continuing Education, St. Cloud
- April 14 – Inspector Continuing Education, St. Cloud
- April 15 – Troubleshooting, Owatonna
- April 20 – OSHA Competent Person/Pipelayer Certification, St. Cloud
- April 26-28 – Introduction to Onsite Systems, Mankato
- April 29-30 – Installing Onsite Systems, Mankato
- May 3-4 – Maintaining Onsite Systems, Mankato
- May 4-7 – Service Provider, Mankato
- May 18-21 – Advanced Design and Inspection of Onsite Systems, Part 2, Mankato
- May 24-26 – Basic Design of Onsite Systems, White Bear Lake
- May 27-28 – Soils, Austin  
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:

- April 13-14 – Troubleshooting and Hydraulics, Hillsboro
- April 27-28 – Troubleshooting and Hydraulics, Moberly
- May 11-12 – Drip Irrigation, Pumps, Panels, and Electrical, Chillicothe
- May 25-26 – High-Strength Waste and Aerated Treatment Units, Liberty
- June 15-16 – Operation and Maintenance, Jefferson City  
Call 417/739-4100 or visit [www.mosmallflows.org](http://www.mosmallflows.org).

### New England

The New England Onsite Waste-

water Training Center at the University of Rhode Island in Kingston has these workshops:

- April 13 – Design of Conventional Onsite Wastewater Treatment Systems
- April 20 – All About Series: Septic Tanks
- April 23 – Bottomless Sand Filter Design and Installation
- April 28-29 – Conventional Onsite Wastewater System Inspection Overview
- May 5 – Functional Inspections
- May 11 – Innovative and Alternative Technology Overview
- May 20 – All About Series: Sand Media
- May 27 – Innovative and Alternative Technology Field Overview, URI Peckham Farm  
Call 401/874-5950 or visit [www.uri.edu/ce/wq](http://www.uri.edu/ce/wq). For soil courses, call Mark Stolt at 401/874-2915 or e-mail [mstolt@uri.edu](mailto:mstolt@uri.edu).

### New Hampshire

The Granite State Designers and Installers Association is offering its Septic Evaluators Certification training on April 20 in Bow and May 1 in Rochester. Call 603/228-1231 or visit [www.gsdia.org](http://www.gsdia.org).

### 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:

- April 7 – Maintaining Onsite Systems
- April 15 – Pumper
- April 21-22 – Wiring Control Panels
- May 5 – Electrical Control Panels
- May 6 – Installing Mounds and Sand Filters
- May 13 – Design Siting, Centralia
- May 19 – Evaluating and Repairing Onsite Systems, Bremerton

Call WOSSA at 253/770-6594 or visit [www.wossa.org](http://www.wossa.org).

## Wisconsin

Wieser Concrete Products, Inc., will hold a series of seminars in Wisconsin for professionals in onsite wastewater treatment installation and maintenance. The seminars are designed to meet continuing education requirements for installation contractors, sanitarians, system designers, and others in the field. Each full-day seminar begins at 8 a.m. The seminars will be held:

- March 9 – Fond du Lac
- March 11 – Rhinelander
- March 16 – Milwaukee
- March 18 – Maiden Rock
- March 23 – Portage
- March 25 – Shell Lake

For more information, call 800/325-8456.

The Wisconsin Onsite Wastewater Recycling Association is holding a Private Onsite Wastewater Treatment System Evaluator Course May 3-4 in Waukesha. Call 608/256-7757 or visit [www.wowra.com](http://www.wowra.com). ■



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# INDUSTRY news

March 2010

## Bord na Mona Names Peat Business Development Director

Bord na Mona Environmental Products U.S. Inc. has named Raymond Peat director of business development for the company's North American residential and commercial wastewater and water reuse treatment systems.

## Premier Tech Environnement Becomes Premier Tech Aqua

Premier Tech Environnement, a business unit of Premier Tech, has changed its name to Premier Tech Aqua.

## Infiltrator Systems Acquires E-Z Set

Infiltrator Systems has acquired E-Z Set Co., manufacturer of septic tank risers and lids. E-Z Set will be rebranded as EZset by Infiltrator.

## Sarris Joins Osprey Biotechnics Board

John Sarris, a partner with Piper, Hawkins & Co. CPAs, has joined the Board of Directors of Osprey Biotechnics Inc., producer of bacteria for plant health, spill cleanup, drains and septic systems. Sarris has a Bachelor of Science degree and Master of Accounting degree from the University of Florida. ■



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**INSIDE THIS ISSUE**  
Just for Women  
A first-time seminar at the 2010 Pumper & Cleaner Expo will help women in the industry handle their roles effectively. Read on...

**EDITOR'S BLOG**  
Celebrating groundwater quality  
WOSSA helps promote National Groundwater Awareness Week March 7-13. Read on...

**CLASSIFIED ADS**  
North Carolina, Septic and Installation Business for Sale. Showing good growth over the past 3...  
Northern California Reno, Nevada Area Portable Restroom Service Business for Sale. Dealer is motivated and inventory...  
Philadelphia/Abington Pennsylvania Area Septic Business for Sale. Specializing in collection systems, video inspection, jetting, municipal...  
Well-Established and Profitable Texas Septic, Sewer & Installation Business for Sale. Growing in excess of...  
Soil Shaker 2000. Universal shd. vscr. attachment for marketplace restoration. Ray Factory direct \$5,999. [www.soilshaker.com](http://www.soilshaker.com)...  
42 Liter 1,000 gal. air release septic tank forms. \$7,000 ea. (1) 2001 FLTR freightliner...  
See More

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## BLOWERS

**VFC200P-5T, FUJI** Pumps, Regenerative Blowers, Ring Compressors. All models, accessories. Authorized distributor. Authorized parts and repair center. Call 888-227-9822. www.carymfg.com. (IBM)

## BUSINESSES

**Houston Texas Area Septic & Drain Business For Sale.** Grossing nearly \$300,000 annually and showing growth. Established commercial clients and customer list. Includes all equipment to operate, a turn-key business. Huge potential, owner is motivated and moving on - **asking \$140,000.** E-mail jeffb@colepublishing.com or call 800-257-7222 and ask for Jeff Bruss for more details. **A B2 Business Brokerage Listing.** (IBM)

## BUSINESSES

**WELL-ESTABLISHED AND PROFITABLE TEXAS SEPTIC, SEWER & INSTALLATION BUSINESS FOR SALE.** Grossing in excess of \$1,000,000 annually, customer list of nearly 2,000 accounts and 430 contracted customers. Includes nice late model equipment, most are 2007, 2008 model years. Real estate with rental income can be purchased separately if interested. Asking \$799,000. E-mail jeffb@colepublishing.com or call 800-257-7222 and ask for Jeff Bruss for more details. **A B2 Business Brokerage Listing.** (IBM)

**Looking to buy a business** in the liquid waste, portable sanitation, or sewer & drain industries? Call B2 Business Brokers powered by *Onsite Installer* at 800-257-7222 and we can add you to our VIP buyer list. No obligation, no fees, no pressure. (IBM)

**Massachusetts Sewer & Drain Franchise For Sale.** Confidential listing, Non Disclosure Agreement required. Turn-key business, good revenue — **asking \$165,000.** E-mail jeffb@colepublishing.com or call 800-257-7222 and ask for Jeff Bruss for more details. **A B2 Business Brokerage Listing.** (IBM)

## BUSINESSES

(2) Septic tank delivery trucks; 1-ready mix truck; 7-Celico septic tank forms (1000-1500 gallon); misc. drop box, riser forms, lift tank forms. Trucks and loaders in good condition. (In service in 2007) All forms in good or better condition. (Used in 2007) Package price \$70,000. 218-829-9678 or 800-829-5755. (IBM)

**NORTH CAROLINA SEPTIC AND INSTALLATION BUSINESS FOR SALE.** Showing good growth over the past 3 years. Includes all equipment to operate, extensive customer list, and owner is willing to train if necessary. Asking \$110,000. E-mail jeffb@colepublishing.com or call 800-257-7222 and ask for Jeff Bruss for more details. **A B2 Business Brokerage Listing.** (IBM)

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## BUSINESSES

**PHILADELPHIA/ALLENTOWN PENNSYLVANIA AREA SEWER BUSINESS FOR SALE.** Specializing in collection systems, video inspection, jetting, municipal work. Includes CUES TV & grout truck, Sewer Equipment Corporation jetter truck, Vactor 2100, RIDGID camera, confined space equipment and more! Good revenue history. Great opportunity to expand or start your own business. Current owner wants to retire. **Offered at \$330,000.** E-mail jeffb@colepublishing.com or call 800-257-7222 and ask for Jeff Bruss for more details. **A B2 Business Brokerage Listing.** (IBM)

**NORTHERN CALIFORNIA/RENO, NEVADA AREA PORTABLE RESTROOM SERVICE BUSINESS FOR SALE.** Owner is motivated and inventory alone is worth the asking price. Includes 100+ restrooms, sinks, ADA units, holding tanks, 2 service trucks and a delivery trailer. Annual revenue in excess of \$100K each of the past 4 years. List of existing customers and contracts included. Owner is willing to train if needed. Asking \$75,000 - **REDUCED TO \$55,000.** E-mail jeffb@colepublishing.com or call 800-257-7222 and ask for Jeff Bruss for more details. **A B2 Business Brokerage Listing.** (IBM)

## BUSINESSES

**Looking to sell your industrial cleaning, hydroexcavation or waterblasting business?** We have buyers. Must have gross revenue in excess of \$1,000,000 annually. Nationwide interest. E-mail jeffb@colepublishing.com or call 800-257-7222 and ask for Jeff Bruss for more details. **A B2 Business Brokerage Listing.** (IBM)

**LOOKING TO SELL YOUR PORTABLE RESTROOM BUSINESS?** We have buyers looking in the following areas; Florida, California, Virginia, Iowa, Kentucky, New York, Pennsylvania and more! Must have gross revenue in excess of \$250,000 in most cases. E-mail jeffb@colepublishing.com or call 800-257-7222 and ask for Jeff Bruss for more details. **A B2 Business Brokerage Listing.** (IBM)

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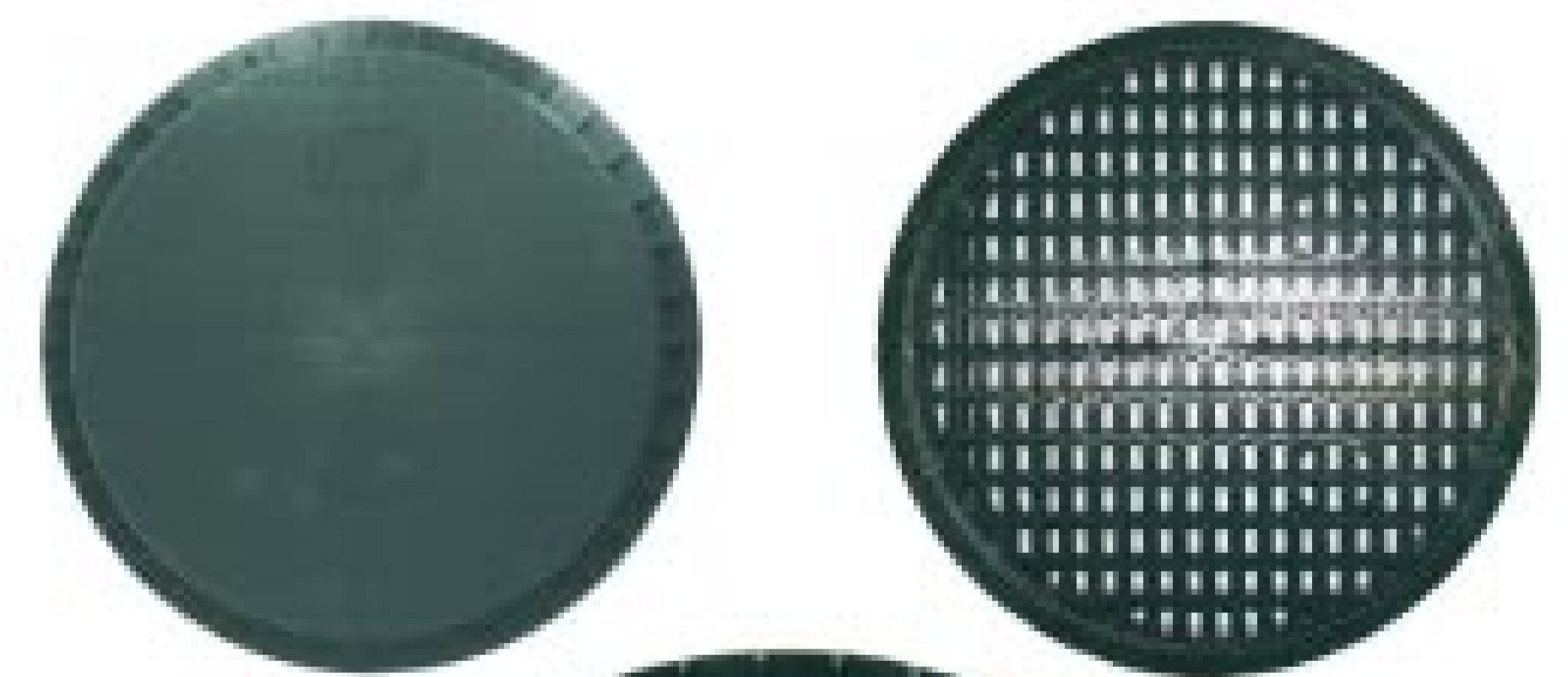
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