

September

2014

# ON SITE installer™

PROMOTING WASTEWATER TREATMENT QUALITY AND PROFESSIONAL EXCELLENCE [installer.com](http://installer.com)

A graywater reuse project in Georgia  
Page 18

Urban Miami system fits in tight space  
Page 24

Regulations reboot on way in Colorado  
Page 34



# THE SEPTIC DETECTIVE

When homeowners in Pennsylvania require a point-of-sale inspection or need to solve a vexing onsite system performance issue, they call Frank Parker

**PAGE 10**

# Liberty Series BIG

## EFFLUENT

Liberty introduces the **new line** of large effluent pumps.

Available in 1 hp, 1.5 hp, and 2 hp.

- Heavy cast iron construction.
- Quick-disconnect power cord for easy field service. (25' length standard.)
- Dual shaft seals.
- Each pump supplied with dual-sized discharge in 1-1/2" and 2".
- Available in single phase and 3 phase power.
- Maximum total heads to 132 feet.
- Maximum flows to 130 GPM.
- 3 year warranty



**Dual-Sized Discharge**  
1-1/2" or 2"

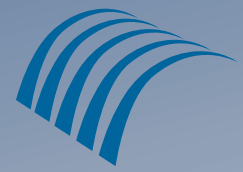
**Liberty Pumps®**

800-543-2550  
www.libertypumps.com

Copyright © Liberty Pumps, Inc. 2014 All rights reserved.

**Inc.**  
**5000**

One of Americas fastest growing, privately owned companies.



Protecting the Environment with  
**Innovative Wastewater Treatment Solutions**

**INFILTRATOR**<sup>®</sup>  
systems inc.



# Time is Valuable

Save time with the quickest installation in the onsite industry

Infiltrator's innovative solutions offer significant advantages over traditional materials including:

- Easier, Faster, and More Cost Effective Installation
- Reduced Drainfield Footprint
- Greater Design Flexibility
- "Green" Products Made From Recycled Plastic



 **AQUAWORX**  
by INFILTRATOR

 **INFILTRATOR**  
tanks

 **Quick4**<sup>PLUS</sup>  
CHAMBER SYSTEMS

 **EZflow**  
by INFILTRATOR

 **Quick4**  
CHAMBER SYSTEMS

 **TW-RISERS**  
by INFILTRATOR

**800-221-4436 • [www.infiltratorsystems.com](http://www.infiltratorsystems.com)**

# contents

September 2014



ONSITE  
**installer**

Published monthly by

COLEpublishing

1720 Maple Lake Dam Rd. • PO Box 220  
Three Lakes, WI 54562



Call toll free 800-257-7222;  
outside of U.S. or Canada call 715-546-3346  
7:30 a.m.-5 p.m. Central time, Mon.-Fri.

Website: [www.onsiteinstaller.com](http://www.onsiteinstaller.com)

Email: [info@onsiteinstaller.com](mailto:info@onsiteinstaller.com) • Fax: 715-546-3786

## SUBSCRIPTIONS

A one year (12 issue) subscription to *Onsite Installer*™ in the United States or Canada is free to qualified subscribers. A qualified subscriber is any individual or company in the United States or Canada that partakes in the installation, design, maintenance, manufacture, treatment, consulting or sale of onsite wastewater treatment systems or supplies. Non-qualified subscriptions are available at a cost of \$60 per year in the United States and \$120 per year outside of the United States. To subscribe please visit [onsiteinstaller.com](http://onsiteinstaller.com) or send company name, mailing address, phone number and check or money order (U.S. funds payable to COLE Publishing Inc.) to the address above. MasterCard, VISA and Discover are also accepted. Supply credit card information with your subscription order.

Our subscriber list is occasionally made available to carefully selected companies whose products or services may be of interest to you. Your privacy is important to us. If you prefer not to be a part of these lists, please contact Nicole at [nicolel@colepublishing.com](mailto:nicolel@colepublishing.com).

## CLASSIFIED ADVERTISING

Minimum rate of \$25 for 20 words; \$1 per each additional word. All classified advertising must be paid in advance. DEADLINE: Classified ads must be received by the first of the month for insertion in the next month's edition. PHONE-IN ADS ARE NOT ACCEPTED. Fax to 715-546-3786 only if charging to MasterCard, VISA, Discover or AmEx. Include all credit card information and your phone number (with area code). Mail with check payable to COLE Publishing Inc. to the address above. CLASSIFIED ADVERTISING APPEARS NATIONWIDE AND ON THE INTERNET. Not responsible for errors beyond first insertion.

## DISPLAY ADVERTISING

Contact Winnie May at 800-994-7990. Publisher reserves the right to reject advertising which in its opinion is misleading, unfair or incompatible with the character of the publication.



Winnie May

## EDITORIAL CORRESPONDENCE

Send to Editor, *Onsite Installer*, P.O. Box 220, Three Lakes, WI, 54562 or email [editor@onsiteinstaller.com](mailto:editor@onsiteinstaller.com).

## REPRINTS AND BACK ISSUES

Visit [www.onsiteinstaller.com](http://www.onsiteinstaller.com) for options and pricing. To order reprints, call Jeff Lane at 800-257-7222 (715-546-3346) or email [jeffl@colepublishing.com](mailto:jeffl@colepublishing.com). To order back issues, call Nicole at 800-257-7222 (715-546-3346) or email [nicolel@colepublishing.com](mailto:nicolel@colepublishing.com).

## CIRCULATION

Circulation averages 21,954 copies per month. This figure includes both U.S. and International distribution.

© Copyright 2014 COLE Publishing Inc.

No part may be reproduced without permission of the publisher.



**WATER & WASTEWATER  
EQUIPMENT, TREATMENT &  
TRANSPORT SHOW**

[www.wwett.com](http://www.wwett.com)

EDUCATION DAY: Feb. 23, 2015 EXHIBITS OPEN: Feb. 24 - 26, 2015  
Indiana Convention Center, Indianapolis, Indiana

## COVER STORY

### 10 The Septic Detective By David Steinkraus

**ON THE COVER:** Frank Parker, of Parker Wastewater Consulting, Paoli, Pa., chose to focus his onsite career on system inspections, particularly for real estate transactions and to diagnose difficult performance issues. On the cover, he pauses during a point-of-sale inspection in his five-county territory in eastern Pennsylvania. (Photo by Kyle Grantham)

### 6 Editor's Notebook: A Gray Area

Onsite professionals wonder about the potential impact on treatment systems as residential graywater reuse gains wider acceptance.

By Jim Kneiszel

### 8 @onsiteinstaller.com

Be sure to check out our exclusive online content.

### 16 WWETT Spotlight: Anua's Compact Mónafil utilizes natural peat and clamshells to control odor

By Craig Mandli

### 18 Special Report: From the Washing Machine to the Flower Garden

Graywater reuse projects in drought-stricken Georgia could help conserve a precious resource and identify a new installation service for septic system contractors.

By David Steinkraus

### 22 Basic Training: The Installer's Creed: Be Prepared

Understanding design and maintenance principles will help ensure the highest-functioning and longest-lasting onsite system goes in the ground.

By Jim Anderson and David Gustafson

### 24 System Profile: A Tight Fit

Jason's Septic wedges dual dosed drainfields and a pair of traffic-rated concrete tanks onto a narrow strip of urban Miami real estate, putting two retail shops back in business.

By David Steinkraus

### 28 Shop Talk: Rising Standards For Belt Wear

With more resilient materials and grippier designs, your truck and machinery drive belts are lasting longer and performing better. But they still require routine inspection and replacement.

By Ed Wodalski

### 32 Rules and Regs: Alaskan Septic Service Providers Expect Stricter Disposal Limitations

By Doug Day and Sharon Verbeten

### 33 Product News

### 33 Industry News

### 34 State of the State: Regulations Reboot in Colorado

Updated onsite guidelines are a welcome addition for the Rocky Mountain state's growing wastewater trade association.

By Doug Day

### 36 Product Focus: Distribution Equipment and Systems

By Craig Mandli

### 40 Case Studies: Distribution Equipment and Systems

By Craig Mandli

### 42 Associations List

## Coming Next Month: October 2014

### ISSUE FOCUS: Systems Repair/Drainfield Rejuvenation

- **Contractor profile:** Education and maintenance fuel California company's growth
- **Basic Training:** Dig the best evaluation pits

## Get Social with *Onsite Installer*



[www.facebook.com/OnsiteInstaller](http://www.facebook.com/OnsiteInstaller)

[www.twitter.com/OnsiteInstaller](http://www.twitter.com/OnsiteInstaller)

[www.plus.google.com](http://www.plus.google.com)

[www.youtube.com/OnsiteInstaller](http://www.youtube.com/OnsiteInstaller)

[www.linkedin.com/company/onsite-installer-magazine](http://www.linkedin.com/company/onsite-installer-magazine)



# Presby Environmental

The Next Generation of Wastewater Treatment

## Advanced Enviro-Septic® (AES)

- ✓ Passive Non-Mechanical Process
- ✓ Proven and Reliable Track Record
- ✓ Treatment and Dispersal
- ✓ Affordable



SFD & CTD Models  
Certified to NSF/ANSI  
Standard 42, Class 1



BQ Certified:  
NQ 3690-910



European Conformity



*“An innovative, cost-effective and environmentally-friendly wastewater treatment system.”*

~The Guardian Newspaper, 2014

Find out why so many Designers and Installers rely on AES

[www.PresbyEnvironmental.com](http://www.PresbyEnvironmental.com) • 800-473-5298

# advertiserindex

SEPTEMBER 2014

COMPANY	PAGE
AERO-TECH	29
ALTA	
Alita Industries, Inc.	29
Ashland Pump	25
BIO MICROBICS	
Bio-Microbics, Inc.	9
Seal-R	
BrenLin Company, Inc.	33
Clarus Environmental	15
CREST Precast, Inc.	
Crest Precast, Inc.	15
Dalmaray	
Dalmaray Concrete Products Inc.	43
eljen	
Eljen Corporation	17
Fuji Clean USA, LLC	32, 33
Geoflow, Inc.	23
Hedstrom PLASTICS	
Hedstrom Plastics	27

COMPANY	PAGE
INFILTRATOR systems Inc.	
Infiltrator Systems, Inc.	3
Jet	
Jet Inc.	43
Liberty Pumps	2
MACBlowers	43
NETAFIM	
Netafim USA	8
POLYLOK	
Polylok	44
Presby Environmental, Inc.	
Presby Environmental, Inc.	5
Roto Solutions	
RotoSolutions, Inc.	43
Salcor Inc. UV DISINFECTION	
Salcor, Inc.	13

COMPANY	PAGE
SEE WATER	
See Water Inc.	7
Septic Services Inc.	
Septic Services, Inc.	35
Septic Sewage Pumps	43
Septronics, Inc.	
Septronics, Inc.	17
SIM/TECH FILTER	
Sim/Tech Filter Inc.	21
Simple Solutions	
Simple Solutions Distributing	43
SIE Rhombus	
SJE-Rhombus®	27
SPI SEPTIC PRODUCTS INC	
SPI - Septic Products, Inc.	33
TOT TOOLS	
T&T Tools, Inc.	8

COMPANY	PAGE
THE DIRTY BIRD	
Septic Vent Concealer	
The Dirty Bird	43
TUF-TITE	
Tuf-Tite Inc.	31
Weber Industries	19
WIESER CONCRETE	
Wieser Concrete Products, Inc.	27

- ✓ FREE Subscription
- ✓ New & Used Equipment
- ✓ Online Exclusives
- ✓ Discussion Forum
- ✓ Article Reprints

All Online at -  
[www.onsiteinstaller.com](http://www.onsiteinstaller.com)

**Feedback**

*Onsite Installer*<sup>™</sup> welcomes your comments, ideas and suggestions on how we can serve you better. Call 800/257-7222; fax 715/546-3786; or email [editor@onsiteinstaller.com](mailto:editor@onsiteinstaller.com).

# A Gray Area

Onsite professionals wonder about the potential impact on treatment systems as residential graywater reuse gains wider acceptance

By Jim Kneiszel



**W**e know there's a water crisis in drought-stricken or generally arid climates, especially in the U.S. Southwest, with stress on water supplies and rising costs or outright bans on using water to irrigate landscaping.

Out of economic and environmental concern, many people are promoting graywater reuse – diverting lightly dirtied water away from sewers and septic systems to find a second use for watering plants or flushing toilets, for example. Graywater reuse is a hot topic these days, as evidenced by the special report inside this issue of *Onsite Installer* (“From the Washing Machine to the Flower Garden,” by David Steinkraus).

The story outlines the efforts of Georgia Habitat for Humanity and Mercer University to build new onsite systems for low-income homeowners that incorporate experimental graywater reuse systems. Philip McCreanor, an associate professor of engineering and director of the Mercer engineering honors program, outlines the commendable efforts of his students to install and monitor these systems.

**“Anything to get the conversation going, that would be great, without impugning the efforts for graywater at all. I think graywater is extremely important, especially in the Southwest. We’ve got to figure this out. It’s terribly important.”**

Bryan Chiordi

**A BOON FOR BUSINESS?**

Graywater reuse not only offers potential environmental and cost benefits to users, it also has the potential to add a new dimension to the services offered by onsite installers. If this practice takes hold and the operation of these systems is perfected, onsite installers could be seen as the go-to professionals to design the dispersal systems and get them in the ground. Imagine the growth opportunity for your company if suddenly many of your customers demand two systems instead of one. The upside could be enormous for contractors located in water-starved regions.

And widespread graywater reuse is not necessarily a long way off. Consider Tucson, Ariz., where the local government mandates that every new home (sewered or using an onsite system) is permitted with a diversion valve for a

graywater system. Homeowners aren't required to add the systems, but the diverting valve should start to steer many in that direction.

The water conservation movement is all well and good, but a handful of people in the onsite industry are starting to ask an interesting question: What impact will removing a large percentage of graywater have on the long-term operation of onsite systems? One of those people is Bryan Chiordi, a Phoenix-area onsite products distributor, president of the Arizona Onsite Wastewater Recycling Association and vice chairman of the Arizona Department of Environmental Quality advisory committee.

**OTHER SIDE OF THE STORY**

Seeing a growing interest in graywater reuse a few years ago, Chiordi wasn't hearing a parallel discussion within the industry about the impact this would have on septic systems. He talked to many of the leading educators in the onsite industry and was told there is no definitive research data to answer the question.

Chiordi says it's counterintuitive to think removing a significant graywater stream from onsite systems will not alter treatment in some way. “There has got to be some impact, and the impact at 40 percent reduction is going to be a lot different than at 70, 80 or 90 percent,” Chiordi says. “Homeowners are just seeing one side of the coin: ‘Let’s do this; it’s safe; it’s not going to hurt anything.’ That may not be the whole story.”

Chiordi is not a scientist or a professor. He's just a concerned person in the industry who's asking questions and running down as much information as he can to help people maintain costly wastewater systems as well as use less water.

Of the well-meaning people promoting graywater reuse, Chiordi says, “I'm surprised they're going forward so aggressively without even knowing [the impact on systems]. The guys who will pay the price are the homeowners in Tucson if they don't get the longevity in their drainfields.”

Chiordi has heard theories that downplay concern about onsite system performance when graywater is diverted. Some believe there will be little harm to systems because the mass loading of waste will be about the same, and that diverting water will simply slow the flow. But the experts Chiordi has talked to say no studies have proven this to be true or false. One of those experts is Robert L. Siegrist, professor emeritus at the Colorado School of Mines.

## QUESTIONS REMAIN

Siegrist has started researching the issue but draws no firm conclusions about what this waste segregation means to onsite system performance.

“Based on the work to date, in general, diversion of mixed graywater will result in increased concentrations but equal or lower per capita mass loadings of key pollutants,” Siegrist writes. “Depending on the scenario being considered, graywater diversion could adversely impact the function and performance on a common onsite wastewater treatment system handling just blackwater.”

Siegrist is starting to run through various scenarios of types of graywater being diverted from residential onsite systems, both existing systems and new systems designed to treat only blackwater. He finds that while mass loadings would be lower in existing systems with graywater removed, concentrations of BOD, TSS, total N and total P would rise 1.6 to 2.2 times. And he notes that levels of pollutants remaining in graywater streams are significant enough to require effective treatment before discharge or reuse.

“With the diversion of graywater, the concentrations of consumer product chemicals could be lower in the blackwater, while pharmaceuticals and biogenic compounds could be elevated,” he concludes. “Depending on the source of the wastewater being treated, this could be considered a potentially positive or negative influence on system performance.”

## HOMEOWNER EDUCATION

The lack of solid information is a cautionary tale for Dawn Long, of American Septic Service, Sierra Vista, Ariz. Long, who meticulously logs her observations about onsite system performance during inspections, has concerns that graywater reuse isn't as cut-and-dried an issue as proponents would like to think. As she watches officials in nearby Tucson encourage graywater systems, she worries that homeowners aren't up to the task of maintaining the systems.

A few things worry Long. For instance, if laundry water is considered graywater, what if someone is washing dirty diapers? She would consider the resulting stream blackwater. She has seen graywater systems where water is improperly ponding in the yard. She's seen holding tanks that are not emptied in a timely manner, resulting in putrid water.

Long also suspects many homeowners use a graywater system to ease the load on a poorly performing onsite system rather than because of a concern for the environment.

“It's going to take an educated homeowner to use it properly,” she says. “I'm not a cop. I see lots of graywater not being used correctly, but I'm not going to turn anybody in.”

**>>** To read a variety of information about graywater reuse compiled by Bryan Chiordi and Kevin Green, of Green Technologies Solutions, go to [www.greentechnologiessolutions.com/index.php/resources-link](http://www.greentechnologiessolutions.com/index.php/resources-link) and look at the GTS Graywater Discussion section. Along with studies and a presentation given by Chiordi, you will find a Graywater-Blackwater Modeling Tool, developed with Green's support, that can be used to see how graywater reuse may impact onsite systems in different scenarios.

Chiordi makes it clear he doesn't want to stop the momentum of graywater reuse across the country. He sees it as a positive movement in areas with dwindling water supplies. His concern rests with making sure what is seen as a positive for the environment is in no way a negative for decentralized wastewater treatment.

## START A DISCUSSION

“Arizona is proud of its record of moving forward with graywater reuse and rightfully so. We do a lot of good work here in that arena,” he says. Still, he says there are questions that onsite professionals should be asking, and he promotes an open discussion ... and hopefully we can do our part at *Onsite Installer*.

“Anything to get the conversation going, that would be great, without impugning the efforts for graywater at all,” Chiordi says. “I think graywater is extremely important, especially in the Southwest. We've got to figure this out. It's terribly important.”

Let's start a conversation about this issue. You can share your thoughts by sending me an email at [editor@onsiteinstaller.com](mailto:editor@onsiteinstaller.com). Or you can correspond with Chiordi at [info@greentechnologiessolutions.com](mailto:info@greentechnologiessolutions.com). □

Check out **NEW Exclusive Online Content & More!**  
[www.onsiteinstaller.com](http://www.onsiteinstaller.com)

**SEE WATER**  
Inc.

Protecting the  
Environment  
since 1995

## Your Trusted Source For Pump Control Panels



- Simplex and Duplex control systems
- On-site accessories
- Demand or Timed Dosing models
- Made in the USA

 [www.seewaterinc.com](http://www.seewaterinc.com) | Phone: 888-733-9283

# THE EASIEST AND MOST ECONOMICAL - PERIOD.

## BIOLINE® DRIP DISPERSAL BY NETAFIM

Stop disposing, start dispersing with Bioline for a cleaner and greener tomorrow, and today



**NETAFIM™**

[www.netafimusa.com/wastewater](http://www.netafimusa.com/wastewater)

# @onsiteinstaller.com

Visit the site daily for new, exclusive content. Read our blogs, find resources and get the most out of *Onsite Installer* magazine.



GET SMART

## Do You Do Septic Week?

Are you participating in the U.S. EPA's 2nd Annual SepticSmart Week (Sept. 22-26)? Great! Download this press release (with bonus septic care tips), fill in your company name, post it on your website and send it to the local newspaper to notify your customers. Why not? It's free!  
[onsiteinstaller.com/featured](http://onsiteinstaller.com/featured)

## Overheard Online

“Here’s a novel approach: Leave yourself with just a desk, a chair, a computer and a phone.”

— 5 Office Decluttering Tips  
[onsiteinstaller.com/featured](http://onsiteinstaller.com/featured)

## A FOOT IN THE DOOR

### Become a One-Stop Shop

Sick of handing over pumping work — and profits — to someone else? Check out three reasons why expanding your menu of services to include septic pumping is worth more than a paycheck.  
[onsiteinstaller.com/featured](http://onsiteinstaller.com/featured)



## THE RIGHT DIRT MOVER

### Tips for Excavator Shoppers

Here's your guide to excavator shopping. Hint: Make a list of needs — and wants — before you start the search. Plus, whether you're looking for a heavy-duty trench digger or a compact unit, we simplify your hunt with this selection of must-see earthmovers.  
[onsiteinstaller.com/featured](http://onsiteinstaller.com/featured)



## emails and alerts



Visit OnsiteInstaller.com and sign up for newsletters and alerts. You'll get exclusive content delivered right to your inbox, and you'll stay in the loop on topics important to you!

CONNECT WITH US

want more?



Find us on Facebook at [facebook.com/OnsiteInstaller](http://facebook.com/OnsiteInstaller) or Twitter at [twitter.com/OnsiteInstaller](http://twitter.com/OnsiteInstaller)

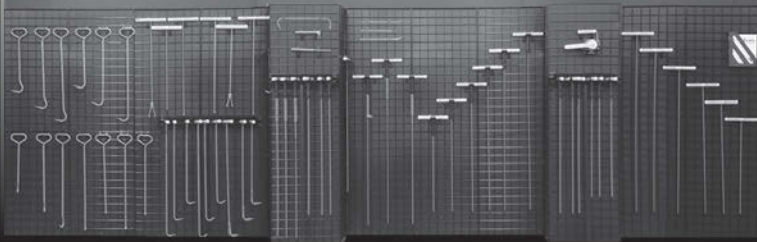


**T&T Tools, Inc.**  
**800.521.6893**

Probes ▼ Hooks

**T&T Tools, Inc.**

Probes ▼ Hooks



### Hooks...

- \* Heat treated for long life
- \* Manhole Cover Hooks
- \* Septic Tank Lid Hooks
- \* Many styles available
- \* "T" handles for two hands or compact "D" handles

### Probes...

- \* Insulated, Standard and Specialty
- \* Metal shafts: 3/8 round or hex
- \* Replaceable hardened tips
- \* Optional "slide" available to make your probe a mini-slide hammer

**Call for a FREE Catalog**

Email: [sales@tandttools.com](mailto:sales@tandttools.com)

Fax: 800.521.3260



# Water doesn't grow on trees.

It's a precious resource. How we solve a water problem is key. Water is life for people and businesses around the world. Only efficient, low cost, easy-to-use wastewater treatment systems make this possible. That's Bio-Microbics' mission. With over 45,000 installations in the USA and in more than 60 countries, it's what we do every day.

Download the Bio-Microbics App to your mobile device!



Google Play Store  
(ANDROID DEVICES)



Apple App Store  
(APPLE DEVICES)

**Simple, Low Cost, Robust  
Water, Wastewater and Stormwater Treatment Systems**

[www.biomicrobics.com](http://www.biomicrobics.com) | 800.753.FAST (3278) | [sales@biomicrobics.com](mailto:sales@biomicrobics.com)

© 2014 Bio-Microbics Inc.

**BIO MICROBICS**  
BETTER WATER. BETTER WORLD.®



# THE SEPTIC DETECTIVE

When homeowners in Pennsylvania require a point-of-sale inspection or need to solve a vexing onsite system performance issue, they call Frank Parker

By David Steinkraus

**F**ranks Parker once wore all the hats of a contractor serving the onsite wastewater industry. But when it came time to pursue the part of the business that got him up and excited every morning, Parker honed his focus to one important service: point-of-sale inspections.

He made the decision 14 years ago. “I didn’t really want to focus on installation, didn’t want to focus on pumping, and I was not interested in system maintenance. But what I did like were the Indiana Jones aspects of exploring every site I go to.”

So Parker took many years of experience working all aspects of the onsite industry and in businesses large and small – and decided to work alone. Today his business, Parker Wastewater Consulting Inc., investigates systems for customers in and around Philadelphia. When he’s not on the job with inspections, he’s involved in training installers through the Pennsylvania Septage Management Association, and he’s presented seminars at the Pumper & Cleaner Expo (now the Water & Wastewater Equipment, Treatment & Transport Show, or WWETT).

## GETTING AN ONSITE EDUCATION

In 1981, and with no experience or family background in the wastewater industry, Parker went to work for a family-owned onsite installer business. He performed a wide range of tasks – service work, operating equipment, designing systems, pricing, inspecting, sales and customer service. Doing everything gave him wonderful insights into the business and knowledge that nothing can replicate. Then life changed.

The family-owned company was sold to a large corporation in 1998.

### Parker Wastewater Consulting Inc., Paoli, Pa.



- OWNER:** Frank Parker
- FOUNDED:** 2000
- SERVICE AREA:** 5 eastern Pennsylvania counties
- SERVICES:** Septic system certification inspections for real estate transfers and refinancing, troubleshooting for malfunctioning septic systems, septic system locating
- ASSOCIATIONS:** Pennsylvania Septage Management Association
- WEBSITE:** [www.aboutparker.com](http://www.aboutparker.com)

**OPPOSITE PAGE:** During a point-of-sale inspection, Parker pauses to take notes about a concern he found while looking at the plumbing lines in the basement.

**RIGHT:** Parker frequently uses his MyTana inspection camera, as he shows here during an onsite system inspection, to check on the condition of drainfield lines. (Photos by Kyle Grantham)

Rather than continue with the larger company, he went in the opposite direction. From 1998 to 2000 he was a partner in a small startup with a lifelong friend. The company offered some municipal plant operation, inspections of onsite systems, consulting and

**"I didn't really want to focus on installation, didn't want to focus on pumping, and I was not interested in system maintenance. But what I did like were the Indiana Jones aspects of exploring every site I go to."**

**Frank Parker**



**watch them in action**

To learn more about  
Parker Wastewater Consulting,  
see a video at [www.onsiteinstaller.com](http://www.onsiteinstaller.com).

onsite system installation. Then in 2000, Parker transitioned into the smallest possible small business: a staff of one, himself, unless you count the dog that keeps him company in the office.

Like the fictional film archaeologist Indiana Jones, Parker sometimes finds himself looking into history. For example there was the Wharton Sinkler estate near Philadelphia. This is the family whose name is attached to the Wharton School of Business at the University of Pennsylvania, and when the university decided to sell part of the property, Parker was asked to inspect the wastewater systems in several buildings.

He found a system that used no mechanical pumps. Wastewater from the barn and some apartments was collected in a septic tank and from there flowed by gravity into a siphon chamber. The siphon moved water to a distribution box and 11 clay tile trenches that comprised the drainfield. The trenches varied in length from 50 to 120 feet, and vanes in the distribution box were arranged to direct more water into the longest trenches.

"Here was an engineer who was ahead of his time. That system was installed near the beginning of the last century, but the technologies it used exceed what we have today, and it's still working," Parker says.

Even though he has been in the industry for decades, Parker still can find systems like this that show him something new. Add the opportunity to talk to the occasional celebrity and meet people from all over the world, and he has a job that is endlessly interesting.

## **GOOD LOCATION FOR THIS NICHE**

That was part of the motivation and part of the reason for his success. Another part is the area where Parker lives. He is about 30 miles west of Philadelphia in an area that is heavily settled yet has not developed extensive municipal sewers. There are pockets of sewerred land, but there are also urbanized areas with homeowners who do not want a municipal service if they have the option of onsite systems. There are environmentally sensitive areas with shallow soils or nearby creeks. There are also a large number of wealthy landowners who raise horses.

"I've been in stables that are nicer than my house and have a dedicated septic system that rivals any household system," he says.

Parker works in Philadelphia several times a month. He will go 30 miles north to Pottstown once a month and south to the Maryland border once or twice a month. If he were pumping or doing installations, his service area would be limited by hauling distances, and he would hope one division of the company could find business for another.

Because his business consists of him and a light truck, driving an hour and a quarter for a job is not a big deal, and his larger territory allows for a larger base of potential clients. If one area is slow, others will compensate. The economic recession of a few years ago illustrates the value of this strategy.

"I would say that it generally slowed things a bit, but for me personally,



During an inspection, Parker runs a hose into the onsite system to test hydraulic loading.

is trying to generate work for himself, Parker says. Because Parker doesn't do that work, his reports carry more credibility.

Because of these factors and business practices, Parker does about 350 inspections annually, estimated conservatively. "If you take out this winter's snow – and I still worked through it, and it was not pleasant – usually I will do between 1.75 and 2.25 inspections per day on most days." Times can vary greatly. On one job this year he spent 45 minutes just unbolting covers and finding access points on a complex irrigation system.

**"I wouldn't go into this business with the presumption that you know enough to just do it. It doesn't matter how much experience you have. It matters to me whether you have a consistent method so when you're out there it's not just your gut."**

**Frank Parker**

Some competitors charge a low price and claim they do five or six inspections per day.

"I have to wonder how comprehensive an inspection like that can be. It's important to know what's happening in a house, what kinds of fixtures they have, for example whether they have whirlpools or ice machines, and what suspicious things there are. Maybe the water meter is still turning even though no one is using water, which indicates a leak," Parker says.

### **CUSTOMER EDUCATION**

When you take the time to look thoroughly, and the client sees that you took the time, it gives you more credibility than the guy who walks into a yard, sticks a probe in the ground and leaves. "I try to be somebody they can interact with rather than just some septic guy who just showed up and left," Parker says.

The best inspections happen when the seller or buyer are present. Parker likes to sit down first and provide basic education on how wastewater systems work and how their lives can be prolonged. Then he

I kept going reasonably steady," Parker says. Property sales decreased, but there were foreclosures and real estate transfers to compensate.

### **HE HAS RESPECT**

Another advantage he has is not being involved at all in fixing or replacing wastewater systems. Clients can be emotional about the subject, Parker says. They understand a roof problem or a faulty furnace, but they cannot handle news about a bad septic system. When a real estate agent approaches a seller with a report saying the wastewater system needs replacement or major work, the seller's initial reaction is that the contractor

does a complete walk-through in the building and outside. When he's done, it's easier for the client to understand his findings and recommendations because of the education given at the start of the inspection.

"People ask me about the wisdom of doing inspections everywhere. They understand it's important to look at a 20-year-old system, but I find just as many issues with newer systems as older systems. They're just different kinds of issues," he says. For example, there was the contractor who decided to put in his own drip irrigation system. Afterward he had constant infiltration in his septic tank, more during a rain, but couldn't figure out the source.

Parker believes in the importance of thorough communication with buyers and sellers during point-of-sale inspections. Here he consults with a real estate agent (left) and family member of the homebuyer.



Parker ran a camera inside the wastewater pipe, which came out of the house and passed under the dripfield on its way to the treatment tank. The camera showed that when the contractor put in the dripfield his vibrating chisel plow cut several neat slits in the wastewater pipe.

### INSPECTION STEP BY STEP

A good inspection begins before you even go to the property, Parker says. On the phone when a client calls initially, or with forms sent out before the inspection, you gather as much information as possible: how old

## Starting an inspection business

It doesn't matter whether you think onsite system inspections will be a primary service or a sideline, whether your business is large or small. The reality is you will be alone out in the world, and more alone than you think, says Frank Parker of Parker Wastewater Consulting, Inc., Paoli, Pa. For more than a dozen years he has specialized in system inspections, primarily for real estate transfers.

The only way to overcome being alone is to become involved with a network of professionals. No one will completely understand what you do or be able to offer help when you need it except for someone who does the same job, Parker says. Even with more than 30 years in the industry, Parker still calls other seasoned inspectors for advice. Students from the classes he has taught call him.

It's important to use all the experience accumulated by people in the industry, he says. It can prevent you from misdiagnosing a problem and having an unhappy client. "I wouldn't go into this business with the presumption that you know enough to just do it. It doesn't matter how much experience you have. It matters to me whether you have a consistent method so when you're out there it's not just your gut," he says.

The other key is training, he says. The Pennsylvania Septage Management Association runs regular classes to certify inspectors. This is not required by the state — yet — but people who want to do a good job take the classes, Parker says. He has taught many of these classes himself. Instructors are required to earn 90 percent or better on the certification exam.

It's important to network at these classes too, he says.

"I'm going to learn about as much from the other people in the class as they learn from me," he says.

**Ultraviolet Leader Since 1978**

# SALCOR UV DISINFECTION

Successful Water Recovery/Reuse



**3G UNIT**  
9,000 GPD  
Gravity Flow



**INACTIVATES  
"SUPER BUGS"**



Hurricanes,  
Floods,  
Storms

**SURVIVES Most  
Weather Disasters**



UL (US & Canada)  
LISTED



Made in  
the USA



Residential & Commercial  
3G Arrays to 100,000 GPD



Duke's Malibu Ocean Restaurant

**PRESERVES  
Sensitive  
Environments!**

**Ultimate Health and Environmental Protection**

- Bacteria/Virus Destruction
- Energy Efficient - Less Than 30 Watts!
- No Harmful Chemical By-products

**Most Third Party Tested & Approved**

- UL (US & Canada) Certified "Underground Flood-proof" NEMA 6P UV Unit, (30-Day Submergence)
- NSF 6-month Tests with 20 Individual Treatment Plant Systems
- Univ. of Rhode Island 5-yr Test
- 17 Years Field Experience

**Onsite Residential, Commercial & Municipal Uses**

- Gravity Flow up to 100,000 GPD with Multiple 9,000 GPD Units
- Quick, Easy Install In Ground or Pump Tank
- Reliable Operation (Continual Dual Performance Monitors)
- Easy Subassembly Removal to Clean/Replace "Long Life" Lamp
- Minimal Maintenance - Teflon® Film Resists Fouling
- Power Surge Protection
- Electrical Noise Suppression

**Proven Applications Include:**

Single & Cluster Homes ■ Small Sewage Treatment Plants ■ Schools ■ Nursing Homes  
Churches ■ Restaurants ■ Mobile Home Parks ■ Campgrounds ■ Houseboats ■ Etc.

**Our 2-Yr Warranted 3G Leads Onsite Wastewater UV Disinfection Sales!**

Salcor Inc. • 760.731.0745 • F: 760.731.2405 • jsruver@aol.com

**“People ask me about the wisdom of doing inspections everywhere. They understand it’s important to look at a 20-year-old system, but I find just as many issues with newer systems as older systems. They’re just different kinds of issues.”**

**Frank Parker**

is the home, how old is the system, has it been repaired, when was it last pumped, how many people live in the home, how many will be living there after the sale, and is there any permit or maintenance information available?

Upon arrival, Parker first takes a walk around the property. As he puts it, he looks at the forest before he becomes lost in the trees. Is the property wet or rocky? Is it well cared for? Are there any hints of settling around manhole covers?

Inside the house, he introduces himself to the owner, explains what he’s doing and looks around. If the owner says the home is occupied, Parker may look in the refrigerator. If he finds just one carton of spoiled milk, the home may not be inhabited. These questions give him an idea of where the wastewater flows originate. In the basement he checks whether there are inappropriate connections to the septic system, for example sump pumps or condensate lines from air conditioners.

He checks plumbing connections and the clothes washing machine. He looks for evidence of wastewater leaking into the basement. Then he heads outside, following the flow of wastewater as it leaves the house. He checks the tank liquid level and whether it maintains a normal level. If a pump doses the drainfield, he checks its operation. He takes thorough notes and uses a checklist to ensure he does not forget a step. This helps him diagram the system and note any problems.

His tools are simple, such as a tank and water meter to test flows, but he also carries a Gator Locator from Radiodetection Inspection Products and a new MyTana inspection camera purchased at the 2014 Pumper & Cleaner Environmental Expo International (now called the Water & Wastewater Equipment, Treatment & Transport Show, or WWETT). The camera broadcasts a radio signal, and by using a receiver above ground Parker can find exactly where the camera shows a problem. In addition, the camera sends a Wi-Fi signal to his smartphone so he can watch a live image as he pushes the camera through a pipe. And he can upload video to a client from the field via a dedicated YouTube channel and an email link.



Parker measures the depth of a septic tank during an inspection in Coatesville, Pa.

### **A BRIGHT FUTURE**

Parker sees evidence that his specialty niche will continue to grow. From what he’s learned at meetings of the National Association of Wastewater Technicians, and from what he’s heard of the Chesapeake Bay watershed plan, the number of regulations will increase, and they will become more uniform among states.

Before he entered the wastewater industry, Parker sold diamonds. He was doing so well that he was in line to have his own store. Then he looked at middle managers, where he would be in a couple of decades. “They were all 40, driving Corvettes and divorced, and I said, ‘This will be my life,’” he recalls. He found he didn’t want to concentrate his career in selling jewels, so instead he found another unlikely career jewel.

A friend from high school suggested he trade his shirt and tie for a pair of jeans and a vacuum truck. The physical work is wearing and you’ll never be rich, but the work isn’t dull, his friend said. Parker made the move, and kept moving, and it’s been a fascinating field of work. By focusing his experience and knowing his market, he fills a niche where competition is low and the future is bright. □

### **MORE INFO:**

**Radiodetection Corporation**  
877/247-3797  
[www.radiodetection.com](http://www.radiodetection.com)

**MyTana Mfg. Company, Inc.**  
800/328-8170  
[www.mytana.com](http://www.mytana.com)

# DIVIDE & CONQUER:

## Solutions for Wastewater Distribution



### Spider Valves®

- Pressurized splitting to a gravity soil absorption field from 2 to 10 lines
- Small lots requiring unequal lateral line lengths
- Mounts in a 24" diameter access riser



### Automatic Multizone Valves

- Alternate between multiple zones for residential and small commercial soil absorption fields
- Available for 2 to 6 zone operation
- Preassembled 6000 series units with unions and shut off valves available. Consult factory.



### Drip Line and Accessories

- Distribute treated effluent uniformly into restrictive soils
- Installation requires minimal site disturbance
- Flexible installation can be adapted to most sites including steep slopes, uneven terrain and rocky soils



**YOUR PEACE OF MIND IS OUR TOP PRIORITY.®**

1-800-928-7867 | [www.clarusenvironmental.com](http://www.clarusenvironmental.com)



## Featured In An Article?

*We provide reprint options*



Sizes: 24" x 30" & 36" x 45"

**POSTERS**  
Starting At  
**\$35**

**LASER REPRINTS**  
Starting At  
**\$10**

**ELECTRONIC REPRINTS**  
Starting At  
**\$25**



Order through our website

**[www.onsiteinstaller.com](http://www.onsiteinstaller.com)**

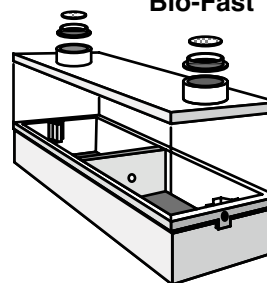
## Water Tight Structures 2 Compartment

### Commercial Sizes - Gallons

2,000 - 3,000 - 5,000 - 6,000 - 8,000  
10,000 - 12,000 - 15,000 - 18,000  
20,000 - 25,000 - 30,000 - 38,000 - 40,000

Water Tight Construction  
Tanks meet ASTM C1227 and C913

Septic Tanks - Sand Filters - Grease Interceptors  
Bio-Fast Tanks - Nibbler Tanks



Nationwide Service

**CREST** Precast, Inc.

PCI & NPCA Certified Plant

**1-800-658-9045**

[www.crestprecastconcrete.com](http://www.crestprecastconcrete.com)

[info@crestprecastconcrete.com](mailto:info@crestprecastconcrete.com)

# Anua's Compact Mónafil Utilizes Natural Peat and Clamshells to Control Odor

By Craig Mandli

A product composed of Irish peat and recycled clamshells, specifically designed to remove foul odors from onsite wastewater treatment systems, was highlighted at the 2014 Pumper & Cleaner Environmental Expo International.

Compact Mónafil, presented by Anua, is a zero-energy biofiltration system utilizing biological media for the removal of noxious odors. Odorous gases are passively ventilated through vent holes in the Compact Mónafil module lid. The airstream flows through the recycled seashells, which provide pH control, and then through the granular high-density peat media. Beneficial bacteria reside on the media, which provides optimal treatment through high porosity, water retention, high cation exchange capacity and a high buffering capacity. It's based on technology successfully used for years in odor control applications.

"Mónafil technology has actually been on the market for almost 20 years in large, industrial applications," says Colin Bishop, Anua's North American Environmental Director. "Our Compact Mónafil, based on the larger version, was launched as a new product last November."

## ONSITE APPLICATIONS

Odor control is a concern for owners and operators of onsite wastewater treatment systems, small wastewater treatment plants, manholes or sewage lift stations. Hydrogen sulfide and many VOCs create odors, are corrosive, cause air pollution and, if left untreated, can be detrimental to health. Mónafil provides odor treatment across a broad range of odor-producing compounds, long media life, no power requirements, prepackaged modules for easy installation, and built-in pH control and a condensate drainage system. According to Bishop, it can achieve greater than 99 percent removal of H<sub>2</sub>S and greater than 95 percent OU per cubic meter, depending on the application. The media can also be graded at the time of replacement, and can be recycled or reused.

It is suitable for a variety of applications, including convenience stores, restaurants, apartment complexes, hotels, RV parks and campgrounds, mobile home parks, schools, nursing homes, and other residential, commercial or high-strength waste projects. Bishop says development of air purification products goes hand-in-hand with Anua's core onsite wastewater treatment product line.

"We actually segment our business as clean water and clean air, although there is overlap," he says. "Compact Mónafil was developed with small commercial wastewater systems or lift stations in mind. Our customers in that sector asked for it. We value those relationships and want to be a resource for our customers."



**ABOVE:** Anua's Compact Mónafil utilizes recycled clamshells to provide pH control and granular high-density peat media with bacteria to neutralize odors. **RIGHT:** Charles Ray, center, Anua's Manager - Environmental North America, discusses the Compact Mónafil odor control system with Pumper & Cleaner Expo attendees. (Photos courtesy of Anua)



## WWETT PROVIDES TARGET AUDIENCE

Bishop says the 2014 Expo, attended by thousands of onsite installers, was the ideal platform to roll out the new product. "The response was all very positive," he says. "Obviously a product using Irish peat and recycled clamshells is sure to pique interest. The Expo is a great audience for an odor control product, and it was very well-received. We were able to generate a lot of solid leads."

Anua has exhibited at the Expo, now known as the Water & Wastewater Equipment, Treatment & Transport Show (WWETT), for more than a decade. The company typically tries to roll out at least one new industry innovation at every show.

"Two years ago we launched our Platinum SAF treatment unit, which was very well-received," says Bishop. "We are working on some partnerships, so we hope to be launching some new products next year. The show brings together many different segments of the clean water and clean air markets, and is a great national draw as well." 800/787-2356; [www.anua-us.com](http://www.anua-us.com). □



# Simple • High-Performance • Wastewater System

Eljen GSF...Your Affordable Treatment Solution  
For Today's Wastewater Challenges!

- Product Performance Compliant with NSF/ANSI Standard 40 Protocol.
- Dual filtration process provides the performance you require.
- Non-mechanical design means little to no maintenance.
- The most treatment area per foot in the industry.



**eljen**  
CORPORATION

Innovative Environmental Products and Solutions Since 1970

1-800-444-1359

[eljen.com](http://eljen.com)

## Extra! Extra! Want More Stories?

Get extra news,  
extra information,  
extra features with

### Online Exclusives

Exclusive online content  
for *Onsite Installer*

[www.onsiteinstaller.com/online\\_exclusives](http://www.onsiteinstaller.com/online_exclusives)

Junction Boxes, Alarms, Pedestals, & Pump Controls

## Septronics® Inc.

**Septronics** has just released a new terminal board that fits your 120V MJJ junction box or PMJ Pedestal junction box. \*Terminal Board #3044 has a **Hand-Off-Auto (HOA)** toggle switch so you can *run the pump manually, turn it off completely, or flip the toggle to Auto* and the float switch will automatically control the pump. Plug your pump into the receptacle, **plug in your double or single float pump switch, add power** and you are **ready to go**.

*Putting in and operating a pump control just got easier!*



\*Fulfills new Colorado regulations

[www.septronicsinc.com](http://www.septronicsinc.com)

Ph: 262.567.9030 • Email: [susan@septronicsinc.com](mailto:susan@septronicsinc.com)



Students finish the drip system at the second Mercer University graywater project. Davis Lacey, left, puts in an irrigation control box. Each zone has one so researchers can measure the pressure and drip rate for the experimental system. Working with Lacey is Laura Lopez Sosa. (Photos courtesy of Philip McCreanor)

# From the Washing Machine to the Flower Garden

Graywater reuse projects in drought-stricken Georgia could help conserve a precious resource and identify a new installation service for septic system contractors

By David Steinkraus

A few years ago, Georgia residents were suffering through one of the worst droughts in the state's history. The reaction from Mercer University students, Habitat for Humanity, and the state may change Georgia's water rules and create a new service for companies that build and maintain decentralized wastewater systems.

The response from Mercer, in Macon, Ga., was to look for effective systems to recycle graywater, the slightly dirtied water that has been used to wash dishes, clothes or faces in a home. Students were interested in the topic, says Philip McCreanor, an associate professor of engineering and director of the Mercer engineering honors program. At the same time, the local Habitat for Humanity chapter was open to the idea, and it had homes ready for construction during the academic year so students could design the systems and help with the installation.

In the Habitat houses, a collection of tanks, pumps and distribution pipes bring much-needed irrigation to lawns and landscapes. For McCreanor and the State of Georgia, this is an experiment to see what types of graywater recycling concepts work.

## GETTING STARTED

It helped that Habitat was doing new construction. McCreanor's

students could design a graywater system without the complications of fitting it into an existing house. The complication they did face was creating a system both permanent and impermanent. "We had to build something that was permanent enough to last forever, but on the flip side it had to be removable so if we decided the experiment was not going the way we want, we could take it out without serious changes to the structure," McCreanor says.

**"We had to build something that was permanent enough to last forever, but on the flip side it had to be removable so if we decided the experiment was not going the way we want, we could take it out without serious changes to the structure."**

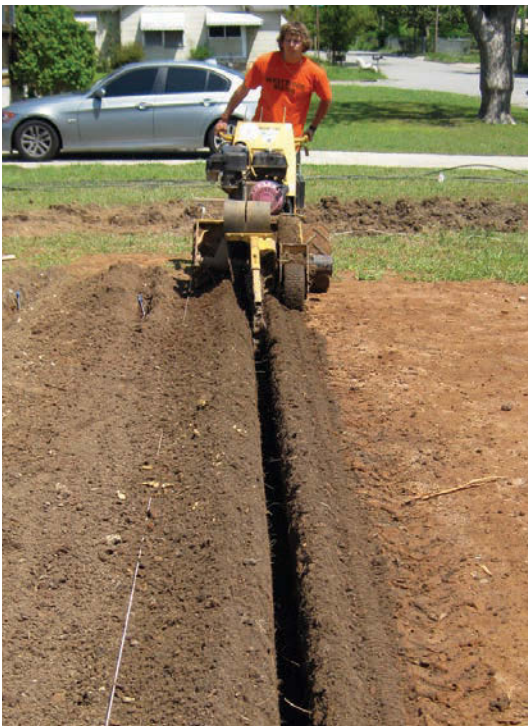
Philip McCreanor

One of the experimental systems was installed about four years ago. The second went in during the spring of 2013. All graywater coming out of the homes is routed into above-ground tanks. These are easy to change for



**ABOVE:** For the first Mercer University project, drip trenches were dug first and not filled until the connections and every other aspect worked. This system was the senior design project for Kristina Deer, center. Sarah Dorminy, left, helps lay tubing, while Micah Esmond works in the background.

**BELOW:** Student Lexington Belyeu guides the Vermeer trencher through heavy Georgia soil.



trying out other options, and if there were to be some failure of the system, water would flow by gravity into the city sewer.

There are two tanks, each 225 gallons. One serves as a settling tank and overflows into the second, which is a dosing tank. The first system, which went in about four years ago, incorporates a bristle filter. The second uses a Tuf-Tite EF-4 filter. Using different filters is part of the experiment. McCreanor suspects the characteristics of solids in graywater are different, and lint in particular will settle less readily than solids in blackwater.

One concern is to keep the graywater moving because if it sits too long it turns septic. It needs to



**WEBTROL**  
Quality Pumps

*Celebrating 50 Years  
of Pump Manufacturing*

**INTRODUCING THE**



**MVP**  
GRINDERS

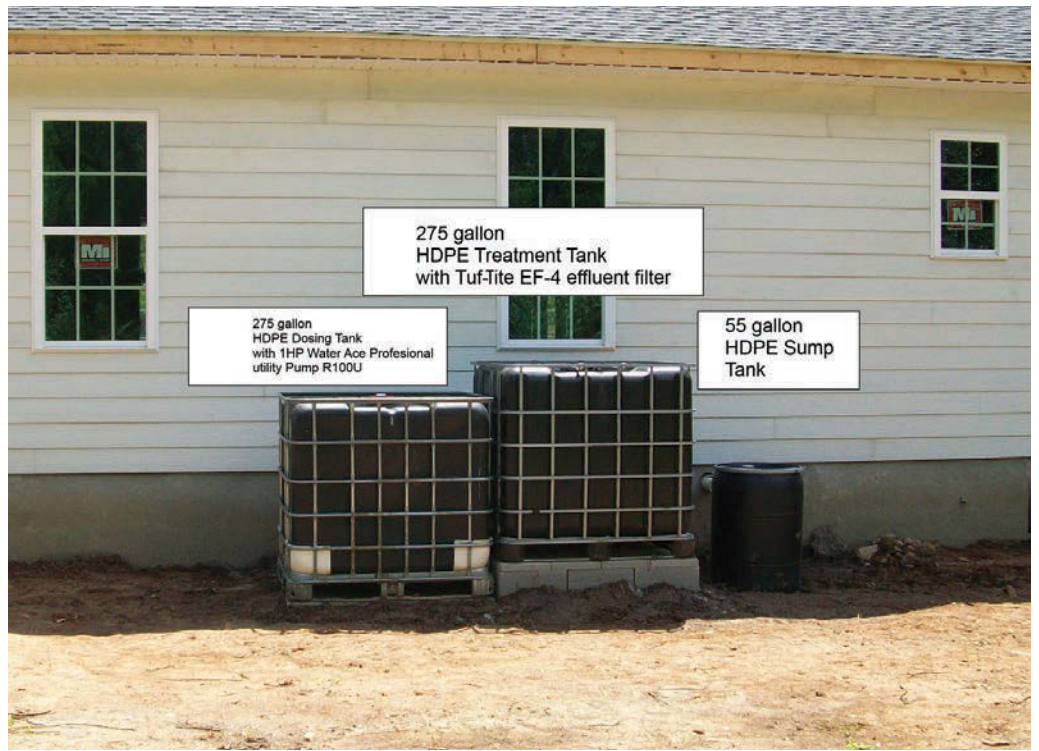
**Features & Specifications**

- Heads up to 400 feet
- Flows up to 40 GPM
- 1, 1.5 & 2 HP, 60 Hz models
- Also available in prepackaged basins

**CONTACT US FOR  
FACTORY DIRECT  
SALES**

www.WEBTROL.com 1-800-769-PUMP (7867) customerservice@webtrol.com

The second graywater system installed by the Mercer University project team includes a sump tank that collects water from the home and discharges to the treatment tank through a pipe that was installed after this photo was taken. The tanks were placed beyond the dripline from the roof, and a rock bed behind them prevents soil erosion.



sit more than a day but less than a week to promote settling but avoid the onset of anaerobic decomposition. The dosing tank is a demand system. A timed-dose system could be filled beyond capacity if residents did several loads of laundry before the dosing pump came on, McCreanor says.

From the dosing tank, water goes into standard drip tubing, 800 to 1,000 feet of Geoflow. The amount of tubing was calculated with standard numbers that assume usage of so much water per person per day from a house of a certain size. At this point it looks like the systems are oversized by 50 to 75 percent, McCreanor says. A five-bedroom, seven-occupant property has a low-flow washing machine that puts out only about 10 gallons of water per load instead of the approximately 50 that is typical.

The dripline is set up for a constant forward flush to scour solids from the tubing. This required only a slightly larger pump and saved money by eliminating the solenoid valves and controller required for a timed back-flush, McCreanor says.

At the outset, the design team did consider reusing the graywater inside the homes, he says, but they abandoned the idea because of the cost of putting graywater and potable water supply lines next to each other. If graywater were to be used for flushing toilets, a potable supply line would be required in case the graywater reserve was depleted. That means a level-control system and a back-flow preventer for starters. Recycling graywater for laundry would create an issue of clothes picking up scent from lint. Utilizing the graywater for landscape irrigation eliminated such concerns.

## CHANGING USAGE RULES

When the State of Georgia granted McCreanor permission to run experiments, it was looking for results to inform its rule making, says Chris Kumnick, program director for land use in the state Department of Public Health. Alterations suggested by McCreanor's work may be quickly incorporated into Georgia's Manual for On-site Sewage Management Systems. The Legislature left that responsibility with the department and its 15-member technical review committee composed of three state regulators and various outside professionals, such as a developer, an installer, an engineer, an environmental health specialist and a soil scientist.

There are already rules for graywater reuse, but the severe drought and concerns about the effects of climate variability are causing people to



At the first Mercer University project, students Brandon Cavendish, far left, and Sarah Dorminy, right, check the length of trenches for the graywater dripline. Kellin Bershinsky, with shovel, works on the dripfield, and Philip McCreanor operates a Vermeer trencher.



Philip McCreanor, associate professor at Mercer University installs one of the corner connections of a dripline at a Habitat for Humanity house in Macon, Ga.

rethink those, Kumnick says. The manual currently allows a single-compartment, 500-gallon tank minimum for graywater, and while subsurface drip irrigation is allowed, water used for that purpose must be aerobically treated.

“So Phil was looking at the rules and questioning them,” Kumnick says. “He wanted to

put a system in the ground and play with it. What happens when you modify the minimum tank size? What happens when you modify the treatment? So he’s trying different things to maybe reduce the cost and get the same performance.”

Some manufacturers have wanted experimental approval for products but have objected to the amount of information they must accumulate and the amount of time needed to do that, Kumnick says. But Georgia has geology that varies from mountainous to ocean beach, and an experimental system running in one region for a few months will not provide enough information to predict its effectiveness when used across the state and justify a change in the rules, he says. Another benefit of McCreanor’s project is its survey of the actual user activity, he says, for example how often they clean a washing machine filter.

McCreanor challenged the assumptions in the current rules, and Kumnick says that’s good because the state does not have the manpower or time to review everything. “We encourage people to bring up this or that sentence. If someone really isn’t challenging or pushing, we’re not looking into it.”

## ONSITE INDUSTRY POTENTIAL

For customers, the benefits of McCreanor’s work may come in the form of a more economical and intelligent way to manage water.

Under current rules, graywater systems are not cost-effective for single-family homes, says Matt Vinson, who owns Vinson Septic Solutions, and who installed the Aquaworx Intelligent Pump Controller panel that runs one of McCreanor’s graywater systems. For larger structures – multifamily homes, commercial buildings – reuse is economical and seems to be gaining in popularity, Vinson says.

Dart Kendall, who owns Advanced Septic in Acworth, Ga., and donated the Geoflow tubing for McCreanor’s project, sees great potential in graywater reuse systems. This is a technology installers should get behind, he says, because drip irrigation provides much better water use. Installers should also become involved with regulators now to make sure rules are well-written and to avoid the greater trouble of trying to revise them later.

Kendall envisions great possibilities for onsite installers to promote graywater systems to complement decentralized wastewater treatment systems and public sewers, essentially finding far broader markets for their services and help conserve reuse of a precious resource.

As McCreanor’s work in a sewered area demonstrates, Kendall says, “There’s a potential for septic tank guys to turn right around and go back into the areas we lost to sewers.” □

# GAG SIM/TECH FILTER

## The Last Line of Defense for Pressurized Distribution Systems



### NO VAULT PUMP FILTER

- » 41% open area (139 square inches of open area on the 6" x 18" screen model)
- » Fits most turbine pumps (also known as deep well pumps)
- » Adds only 1/4" of height to pump making it easy to retrofit to existing systems
- » Has 3" sludge shield at the bottom of the filter
- » Disassembles for thorough cleaning if needed
- » Easy to clean surface
- » Made of PVC plastic so will not corrode
- » Self adjusting seal
- » Very light in weight so it does not make pump insertion or removal difficult
- » Screen available from 18" to 42" long
- » Also available with 316L stainless steel screen



Can be used in a manifold to handle almost any flow-rate

US Patent# 5,885,452  
CAN Patent# 2,237,751

### THE STF-100 SERIES PRESSURE FILTER WILL:

- » Lower total suspended solids (TSS)
- » Protect with low head-loss (.5002 ft)
- » Extend the life of the distribution field
- » Filter to .062", .024", .007", or .004"
- » Pass up to 83.8 gallons per minute @ 1PSI
- » Allow for easy installation and service
- » Protect from improper system maintenance
- » Protect from system abuse
- » Satisfy your customers



The 7" filter in a 5" square concrete baffle.

### GRAVITY FLOW BRISTLE FILTERS FOR RESIDENTIAL OR COMMERCIAL SYSTEMS, SEPTIC TANKS, ONSITE SYSTEMS, OR EVEN YOUR POND!

Very effective at filtering tissue, hair, lint, and other solids common to waste water. And flexible enough to fit just about anywhere, most common applications are standard "tees" and square concrete baffles as shown below.



The 4" filter in a 4" Tee.

Sizes:  
4" yellow  
6" white  
7" red  
8" blue  
Patent# 6,811,692



### ORIFICE SHIELDS

- » The Original Orifice Protector
- » Sturdy design for all applications
- » Easy to position
- » Will not fill with gravel in any position
- » Large discharge area that does not clog
- » Large open area
- » No moving parts to stick
- » Will remain in place, even without glue

### FLOAT TREE ACCESSORIES

- » Easy adjustments
- » No tangled wires
- » No float hang-ups
- » No straps to break
- » No entering tank
- » Easy pump repairs
- » Very affordable

**Check Out Our Other Quality Solutions!**  
Risers, Security Nets, Clean-Out Sweeps, etc.

[gag-simtech.com](http://gag-simtech.com)  
888-999-3290



Jim Anderson, Ph.D., and David Gustafson, P.E., 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 Technicians. Readers are welcome to submit questions or article suggestions to Jim and David. Write to [ander045@umn.edu](mailto:ander045@umn.edu).

# The Installer's Creed: Be Prepared

Understanding design and maintenance principles will help ensure the highest-functioning and longest-lasting onsite system goes in the ground

By Jim Anderson and David Gustafson

This is the last in a series of stories highlighting design principles that will help properly maintained onsite systems last indefinitely.

Knowing the type of soil at a system installation site is an absolute must. We are always nervous when we hear statements like: "I do not need to know soils; I just need to be able to follow the plan from the designer." These comments usually come in situations where the designer and the site evaluator are different people.

Upon further questioning, we typically find the site evaluator gives the information to the designer and the designer has never visited the site. This can lead to a misinterpretation of the soil information, and consequently to a bad design decision. In fact, the majority of the design mistakes we see involve the initial interpretation of soil characteristics.

There are tools to help with soil decisions, but there is no substitute for being on the site and observing the soil and landscape characteristics. Useful site information can be obtained through the web soil survey. The National Resources Conservation Service website provides information on soil characteristics for a given area. This is good preliminary knowledge to have before any borings or pits are opened to investigate the soil characteristics. This can help identify features that may be encountered at the installation site.

## IDENTIFYING FEATURES

Features any site evaluator, installer and designer should be able to identify are soil structure, texture and color as it relates to saturated soil conditions, as well as the presence of dense or other limiting conditions. Installers are the last line of defense in the process; so if you see something that doesn't conform to the evaluation when excavating for sewage tanks, supply lines, etc., it's time to go back to the designer/site evaluator to see if this impacts the design.

There are three parts to knowing the delivery. The first is how the sewage moves from the house to the septic tank. Is there enough fall so this can be done by gravity or will a sewage ejector pump be needed to lift the sewage up from the basement or lower level? This can have an impact on the necessary tank capacity.

Second, where does the effluent go next? Is more treatment necessary, or is the effluent simply moved to the soil treatment part of the system? Is a pump necessary to move the effluent to any additional components? If effluent is moved by gravity, again, is there enough fall available while maintaining the required separation distances? Will effluent be pumped to a pressure distribution system or to a gravity-fed series of trenches? Answers

**The homeowners need to be a part of this discussion. Provide them with maintenance requirements specific to their system. Explain how and when it should be performed and outline the associated costs involved with caring for the system.**

to these questions will have a bearing on the size of the pump if one is needed.

Third, how is the effluent distributed to the soil for infiltration? If by pressure or gravity, there will be specific piping and placement requirements.

In all three of these areas, specific sizes, strengths and types of piping will be required. The design will specify how the pipes are handled and laid, as well as proper bedding materials for the project.

## CONSIDER LONGEVITY

If we expect our systems to last indefinitely with proper care, we need to factor that longevity into the design and installation from the start. The designer and installer need to know and understand the unique maintenance requirements of the technology used. Systems need to be designed with convenient maintenance in mind. System components must be accessible.

Examples are risers to the surface so tanks can be accessed and cleaned at regular intervals; clean-outs provided outside the house in the house sewer line; pumps easily accessible for removal and repair – installed with quick-disconnect fittings to allow removal without taking the floats out at the same time. For media filters and ATUs, both the designer and installer need to be aware of the maintenance requirements. In some cases regular testing of the effluent will be required.

Both professionals should know expected frequencies of maintenance for the different technologies. For example, pressure distribution laterals with 1/4-inch diameter perforations are cleaned every three years while ones with smaller perforations are cleaned every year.

# 1 Complete Package

**onsiteinstaller.com**

cleaner.com  
 pumper.com  
 mswmag.com  
 promonthly.com  
 gomcmag.com  
 tpomag.com  
 wwett.com  
 pumpertrader.com  
 septicpages.com  
 sewerpages.com

COLE Publishing | 1.800.257.7222 | 715.546.3346

Scan the code with your smartphone.



# GEOFLOW

SUBSURFACE DRIP

Leaders In  
 Wastewater  
 Drip Dispersal

with over  
 20 Years of Experience

[www.geoflow.com](http://www.geoflow.com)

800.828.3388

Finally, the homeowners need to be a part of this discussion. Provide them with maintenance requirements specific to their system. Explain how and when it should be performed and outline the associated costs involved with caring for the system. We have long been supporters of providing homeowners with an operation manual specific to their system.

There is so much more we could talk about relative to design and we will revisit design-specific issues in the future. □

**HAVE A STORY IDEA?**

Email us at [editor@onsiteinstaller.com](mailto:editor@onsiteinstaller.com)



# A Tight Fit

Jason's Septic wedges dual dosed drainfields and a pair of traffic-rated concrete tanks onto a narrow strip of urban Miami real estate, putting two retail shops back in business

By David Steinkraus

It's common for a property in metropolitan Miami to have a septic system, says Brittne Nesenman, who with her husband Jason co-owns Jason's Septic Inc., Miami. Because the municipal wastewater plant has limited capacity, about 70 percent of Miami-Dade County utilizes septic systems, including urban areas where you would expect to find municipal sewer. It's not uncommon for property owners to be on a waiting list for a couple of years before they are allowed to connect to the big pipe.

Jason's Septic was first asked to inspect and certify the existing onsite system in an older building owned by AS Ventures. The company had owned the structure for a while and planned to divide it into two retail spaces. Jason's Septic did the inspection, but the system didn't meet code. Its capacity was too small, and the drainfield had been covered with asphalt. The owner hired the Nesenmans to install a proper system.

## THE PROPERTY

The site is a corner lot at a major intersection and is tightly surrounded

## SYSTEM PROFILE

<b>Location:</b>	Miami, Fla.
<b>Facility served:</b>	AS Ventures
<b>Designer:</b>	Ernesto Santana, P.E.
<b>Type of system:</b>	2 septic tanks with pump system to drainfield with Infiltrator chambers
<b>Site conditions:</b>	Sand and oolitic limestone
<b>Hydraulic capacity:</b>	845 gpd





**OPPOSITE PAGE:** With existing soil excavated, the lines of Infiltrator chambers were laid down behind the AS Ventures building in Miami. You can see how restricted the site was.

**ABOVE:** A panoramic photo shows the entire confined job site at AS Ventures. There is a slight distortion of the scene. There is a distance of 36 feet from the building wall to the property fence. (Photos courtesy of Jason Nesenman)

by the property of another business. About a third of the site is covered by the building, and the rest is used for parking, except for a section of not much more than 20 by 120 feet where the new tanks and drainfield would just fit.

Because the capacity of the new system was beyond a legal threshold, the Nesenmans couldn't do the design work themselves. So they teamed with engineer Ernesto Santana.

**"You may have a lot of coral rock to dig through. A block south of that the land could be swampy, and you have to de-muck the whole area."**

**Brittnie Nesenman**

Then the meetings began. Because of the constrained space, it looked at first as if the system would have to be some sort of limited-loading arrangement that would be difficult to install. But in a series of meetings with county officials, the Nesenmans and Santana developed the concept of using a standard drainfield but splitting it in two sections with alternate dosing. After six months of discussions, the county agreed to the solution and issued a permit. Installation was set for February during southern Florida's dry season.

### THE SYSTEM

Although two businesses occupy the building, they are not large water users and they don't produce challenging effluent. One is a check-cashing business. The other sells hair and beauty products

## ▶ PROFESSIONAL ◀

What does it mean to be professional? It could mean being an expert in your industry, or having a high-quality line of products. Fortunately, you won't have to decide when you work with the Ashland Pump Company. With over 25 years of expertise and a full line of professional-grade products, Ashland Pump will fulfill all of your pump needs.



**Ashland**

P U M P

*Honest, Professional, Dependable*

1899 Cottage Street, Ashland, Ohio 44805  
Telephone: 855 281-6830 • Fax: 877 326-1994 • [ashlandpump.com](http://ashlandpump.com)

**RIGHT:** A look inside the dosing tank shows the four floats and one of the two Goulds pumps sending wastewater to the nearby drainfield.



**FAR RIGHT:** These two Sebring Precast Products tanks provide wastewater treatment. The tank in the background acts as a septic tank, while the one in the foreground is a dosing tank for the drainfield. Both are covered with traffic-rated concrete because this area is an access route for trucks servicing trash bins at the rear of the property.

and wigs, but it does sales only. No dyes or other chemicals go down the drains. Wastewater comes from restrooms for employees.

From the building, wastewater flows through a 4-inch pipe into a 1,900-gallon concrete tank. This functions as a standard septic tank. Water then flows by gravity through a 3-inch pipe into the second tank, a 1,050-gallon concrete model set in line with the first and used for dosing the drainfield. Both tanks came from Sebring Precast Products in Sebring, Fla. A pair of Goulds pumps, controlled by a Goulds CSI Duplex panel with alarm and four floats, feed water to the drainfield through a Zoeller 2-inch Tri-Check valve.

The two sections of drainfield are each 529 square feet and consist of six, 66-foot-long runs of Infiltrator chambers on top of 42 inches of sand. The long edges of the drainfield are set back about 8 feet from the rear property line and about 8 feet from the building wall.

Both tanks have traffic-rated concrete above them and access is through traffic-rated manholes.



**"It was like virgin ground when they put that original system in sometime during the 1950s. The drainfield consisted of about 10 square feet of terra cotta tubes, and it was working perfectly."**

**Brittanie Nesenman**

## INSTALLATION

The Miami area can provide challenges for installers, Brittanie says. "You may have a lot of coral rock to dig through. A block south of that the land could be swampy, and you have to de-muck the whole area." This site had sand on top of limestone formed in small beads.

Other features of the site posed a challenge. It was a relatively tight space. The septic tank wall was 8 feet 9 inches from the property line, and its opposite wall was 5 feet 10 inches from the wall of the AS Ventures building. The second tank was also 8 feet 9 inches from the property line, and a few feet to its rear was the wall of an existing building, and next to that, on the AS Ventures property, was a utility pole. In the back corner of the property, about 9 feet from the dosing tank, is an enclosure for a trash bin. Trucks serving the bin drive over the tanks to reach it.

Jason worked around the space problem with careful scheduling. First the old tanks came out, but he left the paving in place over the old drainfield. This provided a solid base of support for a small crane truck to ease in behind the building and set the new concrete tanks into place.

Then Jason cut up the asphalt over the old drainfield and had it hauled away. What they found underneath was a surprise. "It was like virgin ground

when they put that original system in sometime during the 1950s. The drainfield consisted of about 10 square feet of terra cotta tubes, and it was working perfectly," Brittanie says.

The existing soil was next to come out, and that was replaced with the 42 inches of sand for good drainage. When the system was complete and the drainfield covered, the building owner hired another company to plant grass.

It was the people of the surrounding area of Miami Gardens that were also a challenge. "If you Google Miami Gardens you'll find the crime rate is crazy high," Brittanie says. During the day workers were perfectly safe, but it could have been trouble if they stayed past sundown. As a result the crew didn't work past 5 p.m., and when they cleared the site they really cleared the site. All material went back to the shop with them including the backhoe.

Overall the project went very well, Brittanie says. As a result, two businesses in the heart of the city are up to code with a modern wastewater system that saves the property owner from getting on that municipal sewer waiting list. □

## MORE INFO:

**Goulds Water Technology**  
- a xylem brand  
866/325-4210  
www.goulds.com

**Infiltrator Systems, Inc.**  
800/221-4436  
www.infiltratorsystems.com  
(See ad page 3)

**Sebring Precast Products, Inc.**  
800/869-0503  
www.sebringprecast.com

**Zoeller Company**  
800/928-7867  
www.zoeller.com

# ONSITE CONTROLS

No matter the application, we've got you covered, from float switches to event monitoring control panels, and everything in between. Now backed by our industry-leading five-year limited warranty!



[www.sjrhombus.com](http://www.sjrhombus.com)



### IFS Panels with C-Level™ Sensor

C-Level™ sensor detects the liquid level in the tank and sends a signal to the IFS panel. Pump activation and alarm levels are adjusted on the panel touch pad, eliminating the need to go into the tank. One C-Level™ sensor simulates up to four (float) levels.



### Tank Alert® EZ Alarm System

This new alarm is all about making installations easier! It features an innovative enclosure which integrates the red LED beacon, external mounting tabs for quick installation and a removable cover which allows greater access for easier field wiring.



### Panel Mounting Post & Kits

Check out our new panel mounting post, riser mounting kit, simplex and duplex installation kits which provide easy installation of control panels! The post features a removable access door for easy wiring and accommodates panel enclosures up to 14x12x6".

**Hedstrom PLASTICS**  
www.hedstromplastics.com  
100 Hedstrom Drive, Ashland, OH 44805

## We've got the Septic Tank COVERED!

Strong green heavy wall polyethylene yet lightweight  
Fits standard 18" & 24" double wall corrugated pipe (not included)  
New safety net available upon request  
Gaskets and safety hardware included with all covers  
Can be filled with sand on site for added weight  
Foam filled lids upon request  
Can be customized with your name

Ask us about our **NEW Safety Net!**

Fits standard 18" and 24" double wall pipe. Pipe furnished by installer.

Stop infiltration with a tank adapter. 18" and 24"

**Call Today!**  
**888-434-5891**

## BUILD STRONG - BUILD SAFE

WITH PRECAST TANKS TO 40,000 GALLONS

- ◆ Septic, Grease Interceptors, Aeration, Holding Tanks
- ◆ Available in Sizes 750 to 40,000 Gallon
- ◆ Extra Heavy Duty Tanks — HS20 Loading
- ◆ Fast, Efficient Settings
- ◆ Vacuum-Tested, Water Tight Structures
- ◆ Tanks for Bio-Microbics and Nibblers, Sand Filters
- ◆ Custom Sizes Available to Fit Your Needs
- ◆ National Delivery and Setting

Visit us on the Web: [www.wieserconcrete.com](http://www.wieserconcrete.com)

**WIESER CONCRETE** Innovation, Quality and Service since 1965

**npca** CERTIFIED PLANT  
**1-800-325-8456**

# Rising Standards For Belt Wear

With more resilient materials and grippier designs, your truck and machinery drive belts are lasting longer and performing better. But they still require routine inspection and replacement

By Ed Wodalski

**W**hen is the last time you checked the drive belt in your trucks or machinery for signs of wear? And what should you look for?

If your vehicle is less than 20 years old, it likely is equipped with an EPDM (ethylene propylene diene monomer) synthetic rubber belt. Mark Lein, project development engineer at Goodyear Engineered Products, says EPDM belts were installed by original equipment manufacturers in the late 1990s and introduced to the replacement market in 2002.

Prior to that, most vehicles had neoprene belts. Neoprene had a life expectancy of approximately 50,000 to 60,000 miles. They also cracked and lost chunks of rubber as they wore.

## CRACKS ARE RARE

Old-timers might recall the “three cracks in 3 inches” rule-of-thumb for replacing such belts. If you have a neoprene belt on your equipment, be sure to check it regularly for signs of wear, as well as for grease and oil that can reduce service life.

The advantage EPDM belts have over neoprene is they rarely crack, even after 100,000 miles. As EPDM belts age, they gradually lose rubber – like tires on your truck. “With neoprene, you typically had cracks before that happened,” Lein says. “Now the belt actually is wearing away.”

Loss of belt rubber can cause noise and vibration, often signs of a more serious problem.

“If the belt’s worn, if it’s making noise, there’s something wrong with the drive,” Lein says. “Typically a worn belt is slipping. That either means the belt has run its course or you’ve got misalignment issues; you’ve got an idler bearing going out or a tensioner bearing going out or some other bearing going out on the drive.”

Lein says the main cause of belt failure is improper tension. “If anything needs to be taught to the individual installer and even the shops, it’s that proper manufacturer tension is recommended,” he says. “And when you ignore that, you have issues. Proper installation is critical on any belt application.”

*(continued)*



Today’s serpentine drive belts are made of EPDM synthetic rubber that wears much like a truck tire. (Photo by Ed Wodalski)

## ALITA® LINEAR AIR PUMP



- ✓ Full range of efficient and reliable aeration pumps for Aerobic Treatment Unit
  - ✓ Low energy cost and quiet operation
  - ✓ 3 Years Manufacturer Limited Warranty
  - ✓ Parts and repair available for variety of brands of linear air pumps
- ☎ Call 626-962-2116 for more information



UL certified in compliance to USA and Canada safety standards for outdoor air compressors



**ALITA INDUSTRIES, INC.**  
P.O. Box 660923, Arcadia, CA 91066-0923, USA  
phone: (626) 962-2116 fax: (626) 962-2177  
on-line: www.alita.com e-mail: sales@alita.com

# SOLD

Sell your equipment in  
*Onsite Installer* classifieds

Reach over 21,000 potential buyers each month when you list your equipment in the classified section. Plus, your listing is placed automatically online at the *Onsite Installer* website.

That's two ways to move your equipment out of the yard!

## Why wait?

Go to  
[OnsiteInstaller.com/classifieds/place\\_ad](http://OnsiteInstaller.com/classifieds/place_ad)



Scan the code with your smartphone.

# AERO-TECH

## Aerobic Treatment Units

Fiberglass Tank  
Designed For Superior Strength,  
Corrosion Resistance,  
and Lighter Weight



2' x 2' Hinged  
Tamper-Proof  
Access Hatch

Submersible, Low Noise  
Aerator w/ 5-yr. Warranty,  
Requires Minimal Maintenance



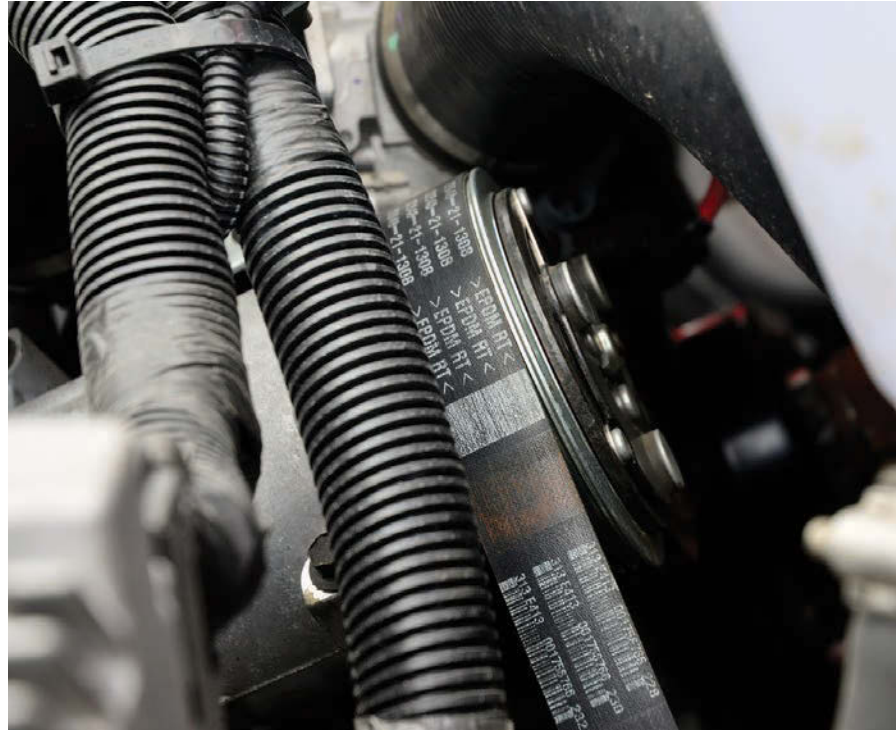
- ANSI Standard 40
- TSS - 6
  - CBOD<sub>5</sub> - 5
  - DO - 4

2900 Gary Drive - Plymouth, IN 46563 - Phone (574) 935-0908



**ABOVE:** The GatorGauge tool offers three ways to inspect for belt wear. (Photo courtesy Veyance Technologies)

**RIGHT:** Properly performing belts should be free of abrasion. (Photo by Ed Wodalski)



James McGarity, ABDS product manager at Gates Corp., recommends checking belts for wear whenever you do repairs, especially after 60,000 miles for on-road vehicles. “The actual O.E. manuals state to start checking at 30,000 miles,” he says. “But if you’re working and have it off, it’s best to check to make sure you have the correct amount of material so you’re getting traction on the grooves of the belt.”

### REGULAR CHECKUPS

A good time to evaluate belt wear is when your vehicle is in the shop having the water pump, alternator or other component repaired, especially if the vehicle is up in age. The average price for a Gates EPDM belt is \$63, while a new belt and labor can run \$80 or \$90.

**“Typically a worn belt is slipping. That either means the belt has run its course or you’ve got misalignment issues; you’ve got an idler bearing going out or a tensioner bearing going out or some other bearing going out on the drive.”**

**Mark Lein**

McGarity says as little as 5 percent of material wear can cause loss of tension, affecting the overall performance of components and lead to failure. Be sure to follow your operator’s manual for off-road equipment. John Deere recommends checking belt tension every 50 hours.

The easiest way to check for material loss is to use a gauge that fits between the ribs of the belt. Manufacturers Gates and Goodyear offer such hand-held devices that can be used with the belt on or off the engine.

The Gates Belt Wear Gauge has a “pin” or strip of plastic that sits above the ribs on a good belt. A finger hole at the end of the gauge enables the user to place the pin into a straight section of the belt and feel if it’s above or below

the rib. The gauge can also be used to check individual ribs. Changes in depth indicate misalignment or other problems.

Gates also offers a free PIC Gauge app that takes a picture of the grooves and evaluates the belt – green is good.

Goodyear’s GatorGauge by Veyance Technologies offers three ways to inspect belts for wear. The first method works much like the Gates gauge. At the lower right are four small pins that fit into the grooves of the belt. Light between the gauge and the valley of the belt indicates the belt is in good condition. No light means the belt is worn and replacement is recommended.

A 2-inch window in the GatorGauge is designed for measuring rib wear. If two or more cracks appear in the window, it might be time to replace the belt. Other signs of wear include two cracks side by side in the same rib, belt chunking and cracks along the width of the belt.

A third measure of belt wear uses the slotted thickness indicator at the top left of the GatorGauge. If the belt slides into the slot, it’s time for replacement.

### MISALIGNMENT A FACTOR?

Another way to tell if your belt needs replacing is visual inspection. Larry Gorski, a technician with Mid-State International Trucks of Wisconsin in Wausau, Wis., says he looks for pieces of missing rubber and abrasion. “If it gets off the pulley it will fray one of the edges,” he says.

Misalignment typically indicates internal components of the tensioner have failed and the assembly needs to be replaced.

Belt tensioning systems are most often used on vehicles with a single serpentine belt. Since 2004, manufacturers have been designing self-tensioning EPDM belts for select vehicles.

Stretch Fit (Gates) and Stretch Belts (Goodyear) maintain constant belt tension without a mechanical tensioner. Tensile cord inside the EPDM belt is designed to elongate and stretch. Once installed, the belt recovers its shape to maintain proper tension. Self-tensioning belts are slightly shorter than standard EPDM belts and cannot be interchanged. Self-tensioning belts also should not be reused. □

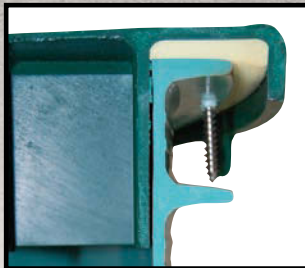
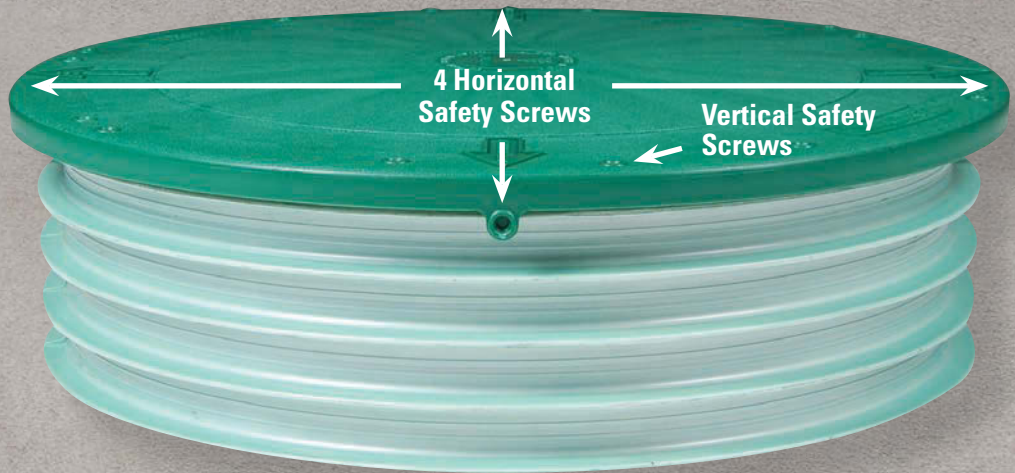
# 24" HEAVY DUTY MULTI-PURPOSE FLAT RISER LID

**FREE FREIGHT  
 on Full Cartons!**

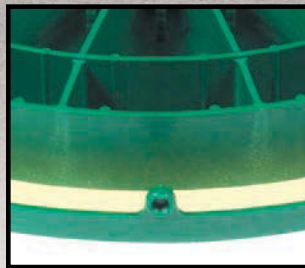
**Fits most commercially  
 available:**

- Risers
- IPEX PVC Ribbed Pipe
- Corrugated Pipe

**LID MAY BE USED WITH OR  
 WITHOUT CONCRETE CENTER**



Secured by 6 Vertical and 4 Horizontal Safety Screws. Screws Included.



Foamed-in Permanent Polyurethane Gasket.



Holds up to 70 lbs of Concrete for Added Safety.



Water-TITE™ Joint Vertical and Horizontal Safety Screws

## 4" Effluent Filter and 4" T-Baffle™

86 ft. of 1/16" filtration area.

Increases time between filter cleaning.



EF-4 Combo Includes Filter, Housing and

4" Sch. 40 & SDR-35

NSF®  
 800 GPD  
 ANS/NSF  
 Standard 46

NSF®  
 COMPONENT  
 ANS/NSF  
 Standard 46

EF-4 Combo 18

NSF®  
 COMPONENT  
 ANS/NSF  
 Standard 46

TB-4-18 Housing  
 12/carton

Gas/Solids Deflector

### 4" Effluent Filter EF-4

One-piece effluent filter fits in 4" Sanitary Tee.

- Injection molded PolyPro
- Simple to install - Easy to clean

### 4" Sanitary Inlet/Outlet T-Baffle™

Injection molded T-Baffle™.

- Injection molded T-Baffle
- Fits 4" Sch. 40 and SDR-35 pipe
- Simple to install
- May also be used as Inlet & Outlet Tee

## 6" Effluent Filter and 6" T-Baffle™

244 ft. of 1/16" filtration area.

Increases time between filter cleaning.



EF-6 Combo Includes Filter, Housing and Bushing

4" Sch. 40 & SDR-35

NSF®  
 1500 GPD  
 ANS/NSF  
 Standard 46

NSF®  
 COMPONENT  
 ANS/NSF  
 Standard 46

TB-6 Housing

Gas/Solids Deflector

### 6" Effluent Filter EF-6

One-piece effluent filter fits in 6" T-Baffle™.

- Injection molded PolyPro
- Simple to install
- Easy to clean

### 6" Sanitary T-Baffle™

Injection molded T-Baffle™.

- Injection molded
- Fits 4" Sch. 40 and SDR-35 pipe
- Simple to install
- May also be used as Outlet Tee with Solids Deflector

# Alaskan Septic Service Providers Expect Stricter Disposal Limitations

By Doug Day and Sharon Verbeten

**P**umpers in the Matanuska-Susitna Borough of Alaska don't have a local disposal site for septage. Every day, they have to ship 50,000 gallons of septage to the Anchorage Point Woronzof treatment plant. The plant already operates under an exemption from the Clean Water Act allowing it to discharge effluent with much less treatment required than at most wastewater plants. Officials expect the U.S. Environmental Protection Agency to pressure the city to limit how much waste it accepts from outside the area, which also includes around 1.5 million gallons of landfill leachate.

Of the 96,000 residents of what is called Mat-Su, about 80,000 use septic tanks and the population is growing. Two existing treatment plants in the borough can't accept septage because they are already operating with permit exemptions due to high levels of ammonia and nitrates. Mat-Su officials have been studying the matter for years and estimate a regional wastewater treatment plant will cost nearly \$18 million. Even if approved, the plant couldn't operate until 2019.

The study shows that pumpers and haulers travel 500,000 miles a year to dispose of septage in Anchorage — with one saying he makes up to five trips a day.

## FLORIDA

An effort to delay a ban on the land application of septage failed to clear the Florida Legislature in the past session. If something isn't done next year, the ban will become effective in 2016. According to the Florida Department of Health, about 40 percent of the state's septic tank waste is spread on 92 permitted sites.

The ban is expected to double the average \$250 cost of pumping a septic

tank. The Florida Onsite Wastewater Association, and others, had sought a one-year delay so the state could study disposal options and the environmental effects of land spreading, and wants to repeal the ban outright. Even though the legislation failed, the Florida Department of Environmental Protection says it will begin the requested study this fall.

The bill delaying the ban passed the Senate on a 37-1 vote on the last day of the session. But a companion bill in the House was never brought up for a vote. One legislator said many urban lawmakers don't understand the significance of the bill and how much rural counties depend on land spreading. Many wastewater treatment plants don't accept septage and some rural counties have no treatment plants.

## OHIO

A proposal in the Ohio General Assembly would allow property owners served by an onsite sewage treatment system to opt out of mandatory sewer system connections. The bipartisan measure was crafted to provide relief to property owners facing mandatory sewer system tie-ins.

House Bill 522 requires that property owners with onsite systems, and the local health department, be notified of planned sewer systems if the property may be required to connect. The property owner could opt out of the connection as long as the onsite system is maintained in accordance with state law. Owners of onsite systems not in compliance would have an opportunity to upgrade their system in order to avoid connecting to the sewer system.

State Rep. Sean O'Brien (D-Bazetta), one of the lead sponsors of the legislation, says people can be prosecuted for not connecting to a sewer system and feels that is unacceptable and unconstitutional. He says the bill was drafted with the assistance of the Trumbull County Board of Health, the Ohio Department of Health and the Ohio Environmental Protection Agency.

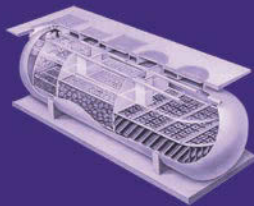
## GEORGIA

The Georgia Department of Health will now require certification and continuing education for portable restroom operators. Certification classes will be offered through the Georgia Onsite Wastewater Association; contractors certified by the Portable Sanitation Association International will meet the state requirements and only have to provide proof of their PSAI certification.

New regulations dealing with portable restroom units were also passed by the Department of Health after several years of research and two public hearings. □

### Are You...

...looking for a cost effective, low maintenance, tiny footprint, low energy draw, easy to install, no hassle, plug & play, robust treatment alternative?



If so, isn't it time you considered working with the World's #1 treatment system company's breakthrough "CE" and "GEN" technologies? Let's talk about how we can help each other. Territories available.

860-304-6110 or 207-406-2927  
[info@fujicleanusa.com](mailto:info@fujicleanusa.com)



## Hyundai compact radius excavator

The R60CR-9A compact radius excavator from Hyundai Construction Equipment Americas has a 3.7-foot tail swing radius for work in confined job sites. The excavator has an operating weight of 13,010 pounds, breakout force of 9,190 ft-lbs, maximum dig depth of 11 feet 9 inches and bucket capacity of 0.24 cubic yards. The 63 hp Tier 4 Final Yanmar engine is electronically controlled for optimum clean-air and low-noise operation. 877/509-2254; [www.hceamericas.com](http://www.hceamericas.com).



## SJE-Rhombus Oil Spotter control

The Oil Spotter auto control and alarm system from SJE-Rhombus is designed to monitor and control one single-phase pump in water/oil environments. The system has two terminal blocks – one for a 120 VAC pump, 120 VAC oil containment valve or 120 VAC water drain valve. The other terminal block is for wiring the Oil Spotter auto probe, high-water alarm float or auxiliary alarm connection. The panel includes an auto/hand pump switch and water/oil drain selection switch (functions in hand mode only). 888/342-5753; [www.sjrhombus.com](http://www.sjrhombus.com).



## Gateway Safety lens cleaner

Kleen View lens cleaning products from Gateway Safety have a fast-drying, silicone-free formula that includes an anti-fog, antistatic ingredient that extends the life of safety glasses. The cleaner is available as a spray packaged with nonabrasive tissues or as single-use towelettes. 800/822-5347; [www.gatewayafety.com](http://www.gatewayafety.com). □

Kleen View lens cleaning products from Gateway Safety have a fast-drying, silicone-free formula that includes an anti-fog, antistatic ingredient that extends the life of safety glasses. The cleaner is available as a spray packaged with nonabrasive tissues or as single-use towelettes. 800/822-5347; [www.gatewayafety.com](http://www.gatewayafety.com). □

Members of the Ditch Witch of Oklahoma & Arkansas team include (from left) Chris Jones, Dru Bridwell, Grant Golay, Tiffany Sewell-Howard, Gary Bridwell, Mark Whiteman, Mark Taylor and John Truett.



## Ditch Witch recognizes top electronics dealer

Ditch Witch recognized Ditch Witch of Oklahoma & Arkansas with its Top Electronics Dealer Xcellence Award. The award recognizes dealers for sales volume and customer service.

## Hyundai Construction names dealer, sales manager

Hyundai Construction Equipment Americas appointed Orion Equipment of Seattle, to its dealer network and named David Lynes regional sales manager for the Great Lakes Region.

## NexTraQ named American Business Awards finalist

NexTraQ, a GPS fleet and asset tracking company, was named a finalist for the 2014 American Business Awards in the Most Innovative Tech Company of the Year category. □



**SPI**  
SEPTIC PRODUCTS INC

*The Most Complete Line of*  
**SYSTEM ALARMS**  
**FLOAT SWITCHES**  
**ON-SITE ACCESSORIES**  
**CONTROL PANELS**

Call Today  
419-282-5933



*sales@SepticProducts.com SepticProducts.com*



## Seal it Tight! Seal it Easy! Seal it Fast!

*Are you tired of using risers that are too tall or too short for the job you are completing?*

Plastic riser pipe will give an exact height each time. Try our system and you will never have to carry concrete pipe and lids again. Save time by not having to assemble multiple sections.

- Easy 10 minute installation!
- Prevent ground water infiltration and save money at the same time!
- Secure fit for all systems!
- Made & sold by septic installers!

Seal-R™  
Sizes:  
12", 15", 18",  
24", 30",  
36", 42"

↑ RISER: Dual-wall plastic culvert pipe.

↑ Inner safety lid.

**BrenLin Company, Inc**  
*Manufacturers of Seal-R™ Products*  
**888-606-1998 • [www.seal-r.com](http://www.seal-r.com)**

## Are You...

...considered one of the best onsite companies in your area?




If so, isn't it time you considered working with the World's #1 treatment system company's breakthrough "CE" and "CEN" technologies? **Let's talk about how we can help each other.** Territories available.

**FujiClean USA™**  
*Toward Clean Water...*

**860-304-6110 or 207-406-2927**  
[info@fujicleanusa.com](mailto:info@fujicleanusa.com)

# Regulations Reboot in Colorado

Updated onsite guidelines are a welcome addition for the Rocky Mountain state's growing wastewater trade association

By Doug Day

The Colorado Professionals in Onsite Wastewater (CPOW) organization is now 10 years old, tracing its origins to when a small group of people decided the state's industry needed a new direction and new regulations. Chuck Cousino was involved in that effort as president of CPOW last year and is now responsible for managing the process; he became Colorado's onsite wastewater treatment system (OWTS) coordinator for the Water Quality Control Division in November 2013.



Contact Chuck Cousino at 303/692-2366 or [chuck.cousino@state.co.us](mailto:chuck.cousino@state.co.us).

In 2009, the state initiated the process to rewrite the ISDS regulations, which eventually involved more than 250 people, roughly 20 meetings and six or seven drafts. OWTS Regulation 43 went into effect in July 2013 and local public health agencies had one year to implement their regulations that have to be at least as stringent.

## What was CPOW's role?

**Cousino:** Much of what happened can be credited to the group that founded CPOW. They and the local directors of environmental health were the most active in the stakeholder process.

One of the results was a defined need for training. CPOW officially formed an education committee last year, but we already had two [National Association of Wastewater Technicians]-certified trainers and have offered NAWT classes at least annually for inspectors, installers and O&M providers for years.

## What is the history behind the regulations?

**Cousino:** Emergency guidelines were implemented as regulations in 1974 with a few revisions in later years in reaction to issues that came up. A group of regulators and practitioners formed the Individual Sewage Disposal System [ISDS] Steering Committee in 2002 to update the regulations. Many of them went on to found CPOW in 2004.

One of their goals was a full-time position to run the state's onsite program. The position was created in 2008 and I took over when my predecessor retired.

We are modifying the NAWT design class that was presented for the first time last year at the Pumper & Cleaner Environmental Expo International. There are items that still have to be added because of the unique geological conditions we have in the Rocky Mountains.

CPOW has added a soils class that takes much of its content from the University of Minnesota Onsite Sewage Treatment Program soils class, and we're adding the Colorado components. Two of the biggest additions to the new regulation were the inclusion of long-term acceptance rates and placing a focus on soil structure; we were relying strictly on percolation tests. Soils training has become a real focus.

**"Tanks have to be recertified, watertight risers to grade are required, and a focus has been placed on system maintenance. There are significant advancements and systems are going to last longer."**

**Chuck Cousino**

## What were the biggest gaps between the old and new regulations?

**Cousino:** The biggest thing was changing the focus from disposal to treatment and moving toward a performance-based standard instead of a prescriptive code. We aren't there yet, but it's a good start. The new regulations have brought us more in line with industry standards in areas like soils, O&M, training and oversight. There is a minimum interval for maintenance evaluation by a certified inspector that varies based on the type of system. The regulations are more science-based and allow more use of current technologies to overcome site restrictions.

## Did you get everything you wanted?

**Cousino:** The regulations were developed before my arrival. My understanding is that many areas of discussion couldn't get buy-in from all the stakeholders so there are about 15 items that are opt-in/opt-out for the counties. One of the opt-ins is to allow for reductions in system size or isolation with the use of higher-level treatment systems. If they do, they must have oversight programs to ensure proper maintenance is conducted.

Another opt-in is a transfer of title inspection. If a county chooses to implement this, they must provide oversight and the inspector has to be

## Getting past the deal breakers

Just as the new onsite wastewater regulations were about to be finalized in Colorado, a small group of stakeholders started to question a few specific items. "Suddenly some people were realizing that it really was going to happen," says Colorado's onsite wastewater treatment system coordinator Chuck Cousino, who is also past-president of Colorado Professionals in Onsite Wastewater. "Some felt that we always made small modifications to the regulations in the past and wondered why we couldn't do that now."

In response, the stakeholders were called together for a meeting to identify all the main "deal breakers" that needed attention. "They made a list of those things they absolutely could not live with, sat down and hammered it out."

Many of the contentious matters ended up as items counties could adopt if they wanted. Cousino says that helped get the regulations passed, and he plans to spend the next few years assisting both practitioners and regulators and providing direction as to where improvements can be made the next time the regulations are updated.

certified by NAWT or an equivalent national program. A couple of counties are more stringent and require the same certification for those doing maintenance on higher-level treatment systems.

One of the biggest reasons for the options was that some counties have bigger programs and staff, 30 or 40 people. There is a lot of growth along the Colorado Front Range and their programs tend to be more progressive.

Some of the smaller counties may not even have an environmental health program. They may rely on a land-use person or building inspector for OWTS inspections and have only three or four permits a year. Their reluctance to jump into more programs is understandable.

### Are the new regulations working?

**Cousino:** Yes. Some counties kept their old regulations and worked in the new ones. Others started with the new regs and kept some of the nuance of their old rules. For the smaller counties, we developed a four-page template to adopt the regulations by reference and still allowed for local items to be included. There is also a checklist for the opt-in/opt-out items, included as an appendix where they can define what items they want to include. We received a lot of positive feedback to the template. There are still a few counties we haven't heard from, which we expected, but we'll work through that.

### Is the opt-in/opt-out option a strength or weakness?

**Cousino:** It's a good step that allowed the core items to be implemented. The site evaluation requirement is very extensive. Tanks have to be recertified, watertight risers to grade are required, and a focus has been placed on system maintenance. There are significant advancements and systems are going to last longer.

The options allow the smaller counties to work within the framework of their abilities, both manpower and financial. Education will make a difference and we plan to revisit the regulations in a few years.

### Any advice for other states that want to do such an update to their regulations?

**Cousino:** Patience. 'Baby steps' was the term used by my predecessor. Start early with the stakeholders, define where you want to go and how to get there. You may not reach the end right away, it might be the next time or the time after that; just keep things moving in the right direction by getting buy-in from your stakeholders and get their feedback. Education is key. □

Over 30 years experience

# SEPTIC SERVICES, INC.

SEPTIC SYSTEM PUMPS, PARTS AND SUPPLIES STORE

**TO ORDER**    **SHOP ONLINE**  
**CALL TOLL FREE: (800) 536-5564** [www.septicserv.com/store](http://www.septicserv.com/store)  
 (636) 583-5564

Introducing *Spring 2014* Model Shown: **RA4 1.0YF**

## RETROAIR™

Available in 4 models to match your application

The Retro-Air provides a complete absorption field rejuvenation system that will improve flow and return a failed existing system back to optimal flow and performance. Use in systems prone to backup in the tank.

- ✓ Improve Flow
- ✓ Eliminate Clogged Absorption Field Due to Biomat
- ✓ Install in Single or Multiple Tanks

Starting at **\$564.00**

2-YEAR WARRANTY

## MAXAIR500™

### MAXAIR500 SUBMERSIBLE SEPTIC AERATOR

- Motor is fully enclosed, continuous duty
- Stainless steel motor enclosure & legs
- 15-foot power cord

**\$425.00**  
2-YEAR WARRANTY

Replacement for Multi-Flo Aerator

*All original equipment manufacturer's names, drawings, and part numbers are used for identification purposes only, and we are in no way implying that any of our products are original equipment parts. Not associated with Multi-Flo or Consolidated Treatment Systems.*

### BULLET™ HIGH HEAD FILTERED EFFLUENT PUMPS

18-Month Warranty

All stainless steel construction built for years of dependable service

- 1/2 HP, 10 amp motor
- Prewired
- 15-foot power cord

Models:  
**BP12 (12 gpm) ... \$280.00**  
**BP20 (20 gpm) ... \$272.00**

### FLAGG-AIR™ 340HT AERATORS

Flagg-Air  
New High-Torque Performance

We've increased motor torque and adjusted shaft length to provide greater aeration.

**UPGRADE!** 

**FEATURES:**

- Motor is fully enclosed
- Prewired
- 7-amp mini-breaker
- Powder coated steel brackets w/ rubber vibration restrictors
- Stainless steel shaft w/ bronze counter shaft
- High impact plastic suds diffuser & aspirator tip

Does not carry the NSF seal. Check local and state regulations for approval in your area.

**\$350.00**  
2-YEAR WARRANTY

## AERATORS

Superior choice for new installation or upgrading existing 60/80/100 models.

**2-Year Warranty**

### Whirlwind Linear Air Pumps

Models:  
**STA60N ... \$220.00**  
**STA80N ... \$250.00**  
**STA100 ... \$340.00**

\*"N" models include hose bib for low pressure alarm connection.

### Whirlwind STA80AL Linear Air Pump

Integrated audible alarm & warning light with toggle testing switch. **2-Year Warranty**

**STA80AL ... \$320.00**

### ALARMS • TIMERS CONTROLS

**24-HOUR TIMERS**  
15-min increments settings

Model: **P101FA-2 \$105.00**

- Warning light & reset switch
- Mini-breaker

Model: **P101-2 \$95.00**

### REGENERATIVE BLOWERS

18-Month Warranty

**Whirlwind R-5760 ... \$400.00**  
(57 CFM)

# Distribution Equipment and Systems

By Craig Mandli

Multiple effluent distribution methods are available to onsite system installers to create an efficient treatment system, regardless of location challenges. Here are drip tubing, piping, distribution boxes, pumps and media systems that can be employed when designing onsite systems.

## DRIP TUBING

### Dripline irrigation system

The Wasteflow dripline irrigation system from Geoflow is placed directly into the soil, at the plant's root zone, where effluent is released slowly and uniformly to be digested and absorbed safely. It can be used on difficult sites, including shallow soil profiles, steep slopes, limited setbacks or in areas with poor soils. Rootguard molded into each emitter protects against root intrusion, while the Geoshield component protects against biological buildup. 800/828-3388; [www.geoflow.com](http://www.geoflow.com).



### Low-volume dripline

Bioline low-volume dripline from Netafim is polyethylene pipe with pressure-compensating, continuous self-cleaning drippers installed at preset intervals. It delivers effluent precisely into the soil over a broad pressure range, using drippers impregnated with an antibacterial that prevents microbial slime buildup for the lifetime of the product. It doesn't require special handling or storage, and no chemicals are required to protect it against root intrusion. It is available in three flow rates and several dripper spacings for precise application in any soil type. It is designed for use in any system and is ideal for environmentally sensitive areas, tight soils, slopes, oddly shaped areas and for customers wanting to use effluent for beneficial reuse. 888/638-2346; [www.netafimusa.com](http://www.netafimusa.com).



### Drip system

Drip systems from Quanics include tubing, fittings, automatic and manual management systems, drip control panels and complete pumping systems for dosing the fields. Each package contains all the required components for a complete system installation. 877/782-6427; [www.quanics.net](http://www.quanics.net).



## PIPING

### Flexible HDPE pipe

PolyFlex HDPE pipe from Advanced Drainage Systems is made using pressure-rated high-density polyethylene resin providing flexibility, durability and chemical resistance. It



can be quickly and easily installed in any terrain or tight space, and is resistant to vibration, surface loads, pressure surges, rot and corrosion. It comes in utility (CTS) and potable (IPS) water service tubing grades that meet NSF 14/61. Available in 3/4- to 2-inch diameters in coil lengths from 100 to 500 feet, each series has incremental footage markers printed every 2 feet, and has color-coded labels by pressure rating for easy identification. Connections can be made using copper compression, fusion welds or internal barbed fittings. 800/733-7473; [www.ads-pipe.com](http://www.ads-pipe.com).

## DISTRIBUTION BOXES/SYSTEMS

### Wastewater distribution splitter

The Tru-Flow Splitter from Clarus Environmental enables even distribution of wastewater across the drainfield in gravity-fed soil absorption systems. It can be assumed level once installed and covered with soil. Even when the unit is tilted, effluent distributes equally among the varying number of outlets. The easily installed unit improves the drainfield's efficiency. In deeper installations, a riser can be installed to make the unit accessible for a regular maintenance program. 800/928-7867; [www.clarusenvironmental.com](http://www.clarusenvironmental.com).



### Pressure sewer system

The InviziQ Pressure Sewer System utilizes grinding and pumping to efficiently and responsibly move sewage to treatment facilities, no matter the terrain, slope, environmental sensitivity of the area or complex topography of the region. It has a dry well design that delivers clean access to the system motor and other working parts, increasing safety for contractors. Network monitoring and control is built into every system and gives users a host of diagnostic resources for system management. 281/854-0300; [www.inviziq.com](http://www.inviziq.com).



### Noncorrosive distribution box

Permanent, noncorrosive distribution boxes from Tuf-Tite come with a speed leveler in each outlet. They are available in four-, six-, seven- and nine-hole sizes. Risers are available on the four- and seven-hole options. Boxes come with a one-piece watertight seal that accepts 1.5-, 2-, 3- and



4-inch SDR35 or Schedule 40 pipe, including corrugated for ease of installation. 800/382-7009; [www.tuf-tite.com](http://www.tuf-tite.com).

## PUMPS

### Effluent pump

The EP50 1/2 hp effluent pump from Ashland Pump is all cast iron, with a cast iron impeller and PSC motor for lower amp draw and increased energy efficiency. It is available in both 115- and 230-volt configurations, with a 20-foot cord. The 115-volt version has an SJE piggy-back wide-angle switch. 855/281-6830; [www.ashlandpump.com](http://www.ashlandpump.com).



### Grinder pump

The 2 hp grinder pump from Champion Pump provides up to 133 feet TDH and flows up to 42 gpm. It has a double-seal configuration with a seal-failure alarm option. The starting components are optional, eliminating the need for control panels. Also available in a three-phase system, its quick-disconnect cord is available up to 50 feet, allowing it to be replaced without disturbing the wiring in the panel and conduit. It is offered as a packaged system with guide rails built to specification. 800/659-4491; [www.championpump.com](http://www.championpump.com).



### Grinder pump station

The E/One Extreme grinder pump station from Environment One Corporation provides 185 feet TDH, corrosion protection and expanded communications. It needs no preventive maintenance and is available in prepackaged wet-well/dry-well systems. The station collects wastewater, grinds solids and moves the effluent through 1 1/4- to 4-inch pipe to treatment. 518/579-3068; [www.eone.com](http://www.eone.com).



### Duplex grinder package system

Rugged job-ready duplex grinder systems from Franklin Electric can handle demanding residential and light commercial sewage removal applications. Designed for easy installation, they have a heavy-duty fiberglass basin, commercial-grade stainless steel rail system or rigid discharge piping assembly, MGPD duplex control panel, and two GP-M Series 2 hp manual grinder pumps. 800/701-7894; [www.franklin-electric.com](http://www.franklin-electric.com).



### Shredding pump

LSG-Series Omnivore grinder pumps from Liberty Pumps have V-Slice hardened stainless steel cutters that shred jeans, shop rags, sanitary napkins and other difficult solids into fine slurry with less jamming. They have a one-piece cast iron body, quick-disconnect power cord, stainless steel impeller and dual shaft seals. Complete pre-designed grinder systems are available in a variety of basin sizes. 800/543-2550; [www.libertypumps.com](http://www.libertypumps.com).



### Effluent pump package

Biotube ProPak pump packages from Orenco Systems filter and pump effluent from single- or dual-compartment septic tanks to either gravity or pressurized discharge points without the need for a pump tank. The filter cartridge filters up to two-thirds of solids, so only liquid from the clear zone is pumped, reducing biological loading and component clogging. Components can be quickly installed and easily maintained. Filter cartridges are easy to remove and clean without pulling the pump vault. High-head effluent pumps are field-serviceable and repairable, and engineered to withstand start-stops and run-dry. Pump controls are specific to each package, and multiple models are available. 800/348-9843; [www.orenco.com](http://www.orenco.com).



### Septic tank effluent pump

The STEP (Septic Tank Effluent Pump) System from Polylok draws effluent from the middle layer (clear zone) of the septic tank, filters the remaining unwanted solids, then pumps the effluent to either a dispersal field or a wastewater treatment system. It installs quickly in a 19- to 23-inch-diameter opening in a new or existing concrete or fiberglass tank. The easy-access dual-compartment design allows the filter cartridge to be removed without pulling the pump or the entire vault. The complete engineered system includes a polyethylene basin, effluent filter, 1/2 hp high-head turbine effluent pump with 10, 20 (standard) and 30 gpm versions available, internal 1 1/4-inch piping and valves, float switches and a control panel. 800/701-3946; [www.polylok.com](http://www.polylok.com).



### Drainfield rejuvenation system

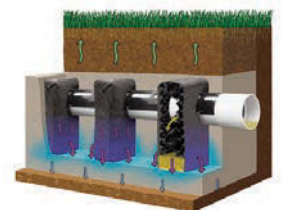
The Retro-Air Rejuvenator System from Septic Services uses the aerobic process to restore failed anaerobic installations or to prevent failures in newly constructed septic systems by delivering a constant flow of air to the diffuser. As the biomat in the absorption field continually builds up, it clogs the pores in the soil, causing effluent water to rise to the ground surface. If allowed to continue, sewage can back up into the home. The system delivers dissolved oxygen and aerobic bacteria in the absorption field. Over time, aerobic bacteria consume the biomat, allowing the soil to absorb effluent once again. It is designed for 500- to 2,000-gallon tanks, and can be installed in single- or multiple-compartment tanks. It includes aerator pod, air line-diffuser assembly, outlet baffle filter and installation manual. 800/536-5564; [www.retro-air.com](http://www.retro-air.com).



## DRAINFIELD MEDIA

### Wastewater dispersal system

The Mantis M5 Series wastewater dispersal and disposal system from Eljen Corporation applies clarified effluent to the native soil through a filtering process. Each three-dimensional module consists of a cusped core surrounded by Bio-Mat geotextile fabric. It clarifies septic tank effluent with a two-stage filtration process that protects the native soil's long-term acceptance rate. Its



infiltrative surface optimization technology significantly increases the product's performance footprint, while mini-trenches provide storage capacity and oxygen transfer zones to boost performance. It comes in lightweight 2- and 3-foot install options. 800/444-1359; [www.eljen.com](http://www.eljen.com).

### Leaching system

The GST Leaching System from Geomatrix Systems uses a removable form to accurately shape and construct leaching fingers along the sides of a central distribution channel. It's constructed with 3/4-inch washed stone and is surrounded with ASTM C-33 sand. The narrow profile of the leaching fingers and central distribution channel, combined with the uniform profile of the sand treatment media, enhances oxygen transfer efficiencies, resulting in thorough treatment of wastewater pollutants and a long-lasting leachfield. It can be configured with standard gravity, pressure and/or time-dosed distribution. 888/764-5247; [www.geomatrixsystems.com](http://www.geomatrixsystems.com).



### Passive septic system vent

Septic system vents from Pagoda Vent Company passively ventilate onsite system components. They work in conjunction with the roof vent as air intakes, creating a draft through the system that clears gases and pressure within the system. They preserve concrete component integrity by diminishing microbial-induced



corrosion. The vents aesthetically blend into the landscape, are lightweight and will not fade or rust. An optional odor control filter cartridge is concealed in the unit. 888/864-1468; [www.pagodavent.com](http://www.pagodavent.com).

### Pressure filter

The STF-100A2 pressure filter from Sim/Tech Filter helps maintain proper and efficient year-round operation of mounds, sand filters and other pressurized distribution systems. The low head loss (0.21 psi) filter mounts on the discharge side of an effluent pump, acting as a last line of defense to prevent plugged holes and reduce effluent TSS. This location also extends the time between servicing. The vortex action created by the pump scrubs the screen and the backflow through the filter after the pump shuts off and washes debris out. A single 2-inch filter can handle flow rates up to 83.8 gpm. The 2-inch filters in the manifold can be designed to handle almost any flow rate or load. Larger 3- and 4-inch filters are also available. Standard screen filters to 1/16 inch and optional socks allow for additional filtration to 0.024, 0.007 or 0.004 inch. 888/999-3290; [www.simtechfilter.com](http://www.simtechfilter.com). □





**Join over 8,100 of your colleagues who already get great content delivered right to their inbox with the *Installer e-newsletter*.**

[www.onsiteinstaller.com/newsletter](http://www.onsiteinstaller.com/newsletter)

3 DAYS OF HANDS-ON BUSINESS  
BUILDING & NETWORKING



# Pumper & Cleaner **PROFIT** *Series*

ORLANDO, FLORIDA • GAYLORD PALMS  
MARCH 25-27, 2015

EARLY REGISTRATION:  
ONLY \$395 PRIOR TO NOV 25, 2014  
ADDITIONAL REGISTRANTS FROM SAME COMPANY SAVE \$100

WWW.PUMPERPROFIT.COM • 866-933-2653



North America's Largest Show  
for Onsite Wastewater Treatment  
Systems & Equipment

More than 12 acres of indoor exhibits!

- Septic System Components
- Septic Tanks
- Excavators
- Alarms & Controls
- Vacuum Trucks

And much more!

ONLY  
\$35  
by  
NOV. 14



Water & Wastewater Equipment,  
Treatment & Transport Show

[wwett.com](http://wwett.com)

February 23-26, 2015

Indiana Convention Center • Indianapolis, IN

# Distribution Equipment and Systems

By Craig Mandli

## Low-pressure system installed on limited-absorption property

**Problem:** A Lake Wylie, S.C., vacation home with a 1,000-gallon septic tank sat atop a former gravel pit where the ground had limited absorption for lateral discharge, with solids buildup that required frequent clean-outs. Adding a conventional grinder pump reduced the volume of solids but also concentrated hydrogen sulfide gas in the wastewater. The acidic gas ruined the original pump in four years. Although replaced under warranty, a replacement pump ran until out of warranty and cost the homeowner a substantial amount for a replacement, which soon began emitting bearing noise.

**Solution:** A Flygt Low Pressure Sewage System (LPSS) was recommended. The pre-engineered system can serve individual homes or small residential developments. It consists of a fiberglass-reinforced polyester (FRP) wet well with either a durable progressive cavity or centrifugal grinder pump. The impeller's hardened cutting rings reduce solids to less than 1/3- by 5/8-inch in the slurry. The package comes with a level indicator, panel display, alarm and waterproof control box isolated from possible sump flooding.

**Result:** The LPSS installed easily and offered a lasting solution to the homeowner's problem. 704/409-9700; [www.xyleminc.com](http://www.xyleminc.com).



## Drainfield replaces old dry well on sloping lakefront site

**Problem:** A Madeline Island, Wis., homeowner needed to replace an old lakeside dry well and was challenged to find a drainfield system that could be delivered by ferry, would meet surface water regulations, and could be installed on the steep, sloping, heavily landscaped site.

**Solution:** After delivery challenges and costs eliminated a traditional stone and pipe drainfield, engineers recommended an EZflow drainfield from Infiltrator Systems. Its geosynthetic aggregate bundles eliminate fines associated with crushed stone, and the modular and lightweight bundles were delivered to the island by local ferry. System installer Adrien Cady says this resulted in substantial savings when compared to the costs of getting gravel to the site. The 450 gpd system serves a two-bedroom house plus an addition with another bedroom and bath. Cady kept the existing 1,000-gallon concrete septic tank and added an outlet filter to further treat the effluent before drainfield discharge. A 500-gallon pump tank moves wastewater from the addition to the septic tank, and a distribution box evenly splits the flow from the septic tank to two 65-foot runs of EZflow bundles. Drainfield trenches are located 3 feet apart, one 6 inches lower than the other to accommodate the sloping site. A pipe transports effluent from the uphill septic tank and filter down to the drainfield located 4 feet above the lake.



**Result:** "The lightweight units were easy and quick to install," says Cady. "The whole installation was complete in a day using a single backhoe." 800/221-4436; [www.infiltratorsystems.com](http://www.infiltratorsystems.com).

**ONSITE**  
**installer**  
**Socially Accepted**



[www.facebook.com/OnsiteInstaller](http://www.facebook.com/OnsiteInstaller)

[www.twitter.com/OnsiteInstaller](http://www.twitter.com/OnsiteInstaller)

[www.plus.google.com](http://www.plus.google.com)

[www.youtube.com/OnsiteInstaller](http://www.youtube.com/OnsiteInstaller)

[www.linkedin.com/company/onsite-installer-magazine](http://www.linkedin.com/company/onsite-installer-magazine)



## Low-profile drainfield product accommodates depth restrictions

**Problem:** A commercial system in Kathleen, Ga., required a 500-linear-foot gravity-fed drainfield. It's an area where suitable soils needed to fulfill permit conditions generally involve depth restriction issues. These restrictions usually result in additional fill or alternative disposal methods.

**Solution:** Mike Clarke of Story, Clarke & Associates in Warner Robins, Ga., selected MPS-1336 from Plastic Tubing Industries for the low-profile design. With a profile height of 8.5 inches, an invert of 4 inches and a footprint reduction, the system provided an economical solution. In June 2014 Bob Adkins of Bob's Backhoe Services in Macon, Ga., was contracted to install the system.

**Result:** The system overcame all of the site's depth restrictions. Utilizing the level field application required by Georgia state code, the entire system is interconnected within suitable soil parameters. In addition, no extra backfill was required, as the system's profile height allowed for ample coverage for the drainfield per state requirements. 800/780-5121; [www.pti-pipe.com](http://www.pti-pipe.com).



## Aesthetic solution needed for septic pipe cover in garden area

**Problem:** A Massachusetts homeowner spent thousands of dollars on a new porch and landscaping, only to have a 3-foot-tall vent pipe next to his porch in the middle of his garden. Traditional vent filters only addressed the odor problem, not the aesthetics.

**Solution:** Kevin Orlando from All Season Septic in Stoughton, Mass., was scheduled to pump the system, and the homeowner informed him of the problem. Orlando suggested The Dirty Bird septic pipe cover. The product addresses odor problems with an included charcoal filter, comes in three colors, and fit into the landscape as a common yard ornament, a pedestal/birdbath.

**Result:** The homeowner was grateful for the simple solution. Now he has a focal point instead of an eyesore. Guests don't even know he has a vent in his yard, and Orlando can service the charcoal filter when he pumps the system. 866/968-9668; [www.thedirtybird.com](http://www.thedirtybird.com). □



Have you seen the **ONSITE installer E-Zine?**

Go to [onsiteinstaller.com](http://onsiteinstaller.com) to view the e-zine.

**ONSITE installer classifieds**  
Place your ad online at: [www.onsiteinstaller.com](http://www.onsiteinstaller.com)

### AERATORS

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

Blue Diamond Aerators, 60-120 liters, in stock, low cost. Free next-day shipping. 866-631-5124 (IM)

### BUSINESSES

PARADISE FOR SALE! Bee's Honey Pots, Inc., portable toilet company established in 1983 in the beautiful Florida Keys is for sale. Based on Big Pine Key, Bee's is the oldest established and largest portable toilet company in the Keys. Sole owner and operator for the past 30+ years wants to go fishing! Interested? Call 305-872-2287. (P09)

Widow selling market-leading industrial vac company. Over \$500,000 EBITDA. Excellent equipment, limited competition, experienced staff. Real estate available. Inquire [info@cbiteam.com](mailto:info@cbiteam.com) (P09)

### DRAINFIELD RESTORATION

**Soil Shaker 2000.** Universal skid steer attachment for drainfield restoration. Buy factory direct. \$6,250. Check us out on YouTube or call 320-293-6644. (PBM)

Terralift Model 2000: Excellent condition. \$25,000 or best offer. Pictures available upon request. 315-843-5600 or email [aalco@tds.net](mailto:aalco@tds.net) (PBM)

### HAND TOOLS

**CrustBusters** - Portable, lightweight machine guaranteed to mix up septic tanks and grease traps! Save time and money! [www.crustbusters.com](http://www.crustbusters.com), 1-888-878-2296. (IM)

### PUMPS

Hydromatic, Zoeller, Liberty, ABS, Myers, grinder and effluent pumps. Lift station packages and high water alarms are also available. Septic Services, Inc. [www.septicserv.com](http://www.septicserv.com), 1-800-536-5564 (IM)

# Serving the Industry

Visit your state and provincial trade associations

## Alabama

Alabama Onsite Wastewater Association;  
www.aowainfo.org;  
334/396-3434

## Arizona

Arizona Onsite Wastewater Recycling Association;  
www.azowra.org;  
928/443-0333

## Arkansas

Arkansas Onsite Wastewater Association;  
www.arkowa.com

## California

California Onsite Wastewater Association;  
www.cowa.org;  
530/513-6658

## Colorado

Colorado Professionals in Onsite Wastewater;  
www.cpow.net;  
720/626-8989

## Connecticut

Connecticut Onsite Wastewater Recycling Association;  
www.cowra-online.org;  
860/267-1057

## Delaware

Delaware On-Site Wastewater Recycling Association;  
www.dowra.org

## Florida

Florida Onsite Wastewater Association;  
www.fowaonsite.com;  
321/363-1590

## Georgia

Georgia Onsite Wastewater Association;  
www.onsitewastewater.org;  
678/646-0379

Georgia F.O.G. Alliance;  
www.georgiafog.com

## Idaho

Onsite Wastewater Association of Idaho;  
www.owaidaho.org;  
208/664-2133

## Illinois

Onsite Wastewater Professionals of Illinois;  
www.owpi.net

## Indiana

Indiana Onsite Waste Water Professionals Association;  
www.iowpa.org;  
317/889-2382

## Iowa

Iowa Onsite Waste Water Association;  
www.iowwa.com;  
515/225-1051

## Kansas

Kansas Small Flows Association;  
www.ksfa.org;  
913/594-1472

## Kentucky

Kentucky Onsite Wastewater Association;  
www.kentuckyonsite.org;  
855/818-5692

## Maine

Maine Association Of Site Evaluators;  
www.maine.com

Maine Association of Professional Soil Scientists;  
www.mapss.org

## Maryland

Maryland Onsite Wastewater Professionals Association;  
www.mowpa.org;  
443/570-2029

## Michigan

Michigan Onsite Wastewater Recycling Association;  
www.mowra.org

Michigan Septic Tank Association;  
www.msta.biz;  
989/808-8648

## Minnesota

Minnesota Onsite Wastewater Association;  
www.mowa-mn.com;  
888/810-4178

## Missouri

Missouri Smallflows Organization;  
www.mosmallflows.org;  
417/739-4100

## Nebraska

Nebraska On-site Waste Water Association;  
www.nowwa.org;  
402/476-0162

## New Hampshire

New Hampshire Association of Septage Haulers;  
www.nhash.com;  
603/831-8670

Granite State Designers and Installers Association;  
www.gsdia.org;  
603/228-1231

## New Mexico

Professional Onsite Wastewater Reuse Association of New Mexico;  
www.powranm.org;  
505/989-7676

## North Carolina

North Carolina Septic Tank Association;  
www.ncsta.net;  
336/416-3564

North Carolina Portable Toilet Group;  
www.ncportabletoiletgroup.org;  
252/249-1097

North Carolina Pumper Group;  
www.ncpumpergroup.org;  
252/249-1097

## Ohio

Ohio Onsite Wastewater Association;  
www.ohioonsite.org;  
866/843-4429

## Oregon

Oregon Onsite Wastewater Association;  
www.o2wa.org;  
541/389-6692

**Pennsylvania**

Pennsylvania Association of Sewage Enforcement Officers;  
www.pa-seo.org;  
717/761-8648

Pennsylvania Onsite Wastewater Recycling Association;  
www.powra.org

Pennsylvania Septage Management Association;  
www.psmma.net;  
717/763-7762

**Tennessee**

Tennessee Onsite Wastewater Association;  
www.tnonsite.org

**Texas**

Texas On-Site Wastewater Association;  
www.txowa.org;  
888/398-7188

**Virginia**

Virginia Onsite Wastewater Recycling Association;  
www.vowra.org;  
540/377-9830

**Washington**

Washington On-Site Sewage Association;  
www.wossa.org;  
253/770-6594

**Wisconsin**

Wisconsin Onsite Water Recycling Association;  
www.wowra.com;  
608/441-1436

Wisconsin Liquid Waste Carriers Association;  
www.wlwca.com;  
608/441-1436

**NATIONAL**

Water Environment Federation;  
www.wef.org;  
800/666-0206

National Onsite Wastewater Recycling Association;  
www.nowra.org;  
800/966-2942

National Association of Wastewater Technicians;  
www.nawt.org;  
800/236-6298

**CANADA**

**Alberta**

Alberta Onsite Wastewater Management Association;  
www.aowma.com;  
877/489-7471

**British Columbia**

WCOWMA Onsite Wastewater Management of B.C.;  
www.wcowma-bc.com;  
877/489-7471

**Manitoba**

Manitoba Onsite Wastewater Management Association;  
www.mowma.org;  
877/489-7471

Onsite Wastewater Systems Installers of Manitoba, Inc.;  
www.owsim.com;  
204/771-0455

**New Brunswick**

New Brunswick Association of Onsite Wastewater Professionals;  
www.nbaowp.ca;  
506/455-5477

**Nova Scotia**

Waste Water Nova Scotia;  
www.wwns.ca;  
902/246-2131

**Ontario**

Ontario Onsite Wastewater Association;  
www.oowa.org;  
855/905-6692

Ontario Association of Sewage Industry Services;  
www.oasisontario.on.ca;  
877/202-0082

**Saskatchewan**

Saskatchewan Onsite Wastewater Management Association;  
www.sowma.ca;  
877/489-7471

**Canadian Regional**

Western Canada Onsite Wastewater Management Association;  
www.wcowma.com;  
877/489-7471

**Breakthrough Blower Technology!**

Lower operating temperature extends life of wearable parts. Best-in-class power efficiency. Highest quality product and warranty at highly competitive wholesale pricing.



844-468-1344 (toll free)  
www.macblowers.com



**Jet**<sup>®</sup>  
Wastewater Treatment Solutions  
Founded on Innovation.  
Anchored by Service.<sup>®</sup>  
1.800.321.6960  
www.jetincorp.com  
email@jetincorp.com

Wolverine Brand Septic Vent Filters  
We Stop the Stink!

Patent # US 8,273,162

- More Carbon than other filters
- Patented Cross Flow Design Wicks Away Moisture

IndustrialOdorControl.com  
866-NO-STINK (667-8465)  
973-846-7817

Simple Solutions DISTRIBUTING LLC

The Most Durable & Economical  
**Septic Lid**

- Durable & Lightweight Polymer
- WILL NOT Crack Like Concrete!
- Easier to Handle & Transport
- 12", 18" & 24" Available
- Easy Installation
- Optional Sand Filled

Now offering 18" & 24" Custom Lids  
Cost Effective 6 Pack Shipping  
Rate Solutions

800.868.0973



**GOOD SHOW FLORIDA.**



We came to the FOWA show in Florida with the most rugged and reliable pumps on the market. SSP delivers the best industry pricing as well. Contact us and start saving today.



SepticSewagePumps.com  
1.800.292.9087

Invented and Made in the USA  
**THE DIRTY BIRD**<sup>™</sup>  
Septic Vent Concealer

Converts your ugly septic vent into an attractive pedestal/bird bath and controls odor too!

Installs in Easy Steps!

866.968.9668 781.806.0797  
Reps & Distributors Wanted www.thedirtybird.com

**DALMARAY**  
Concrete Products, Inc.

888-222-4541  
Janesville, WI

Putting Quality In The Ground Since 1957!

- Septic Tanks, Holding Tanks, Aeration Tanks and Grease Traps
- Tank Sizes from 46 Gallon to 10000 Gallon
- AASTHO H520 Rated Tanks
- Full Line of Accessories
- Superior Quality
- Full Service National Delivery Fleet
- Vacuum Tested, Engineered Designs

**NOWRA**  
National Onsite Wastewater Recycling Association

**npca**  
MEMBER

www.dalmarayconcreteproducts.com

# POLYLOK

Innovations in Precast, Drainage & Wastewater Products



Zabel®  
A Division of Polylok Inc.



PL-68 PL-122 PL-525/625 GF-10 12x20 4x22 4x18 Filter Alarms & Switches



## Effluent Filters / Filter Alarms & Switches



- Easy installation
- No gluing necessary
- Centers filter or tee under riser



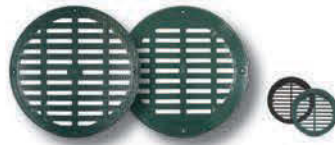
6" Tall Risers 12" Tall Risers

## Extend & Lok (3", 4" & 6")

## Tank Risers (12", 20" & 24")



Covers: 12", 15", 18", 20", 24" & 30"



Grates: 3", 4", 6", 12", 15", 18", 20" & 24"

## Covers & Grates (for Polylok Risers / D-Boxes & Corrugated Pipe)



- One Hydro Shield fits 3 pipe sizes: 1", 1-1/4" & 1-1/2" or 1", 1-1/2" & 2"
- Easy to install, just clip in.
- 360 degree equal distribution

## Hydro Shield



- Fits securely onto either 3/4" - 1" pipe or 1-1/2" - 2" pipe
- Constructed of engineered resin
- Slotted design prevents plugging
- Can be installed facing up or down
- 360 degree equal flow distribution with impeller

## Orifice Diffuser



## Poly-Air

6", 4", 3", 2" & 1-1/2"

6" supplied with 5 lbs. of Activated Carbon!



Activated Carbon Vented Covers  
18", 20" & 24"

## Activated Carbon Roof Vents & Vented Covers

# WE HAVE IT ALL!

## New Products

For: Polylok Risers / PVC Ribbed / HDPE Corrugated / Concrete



## 12", 20" & 24" Safety Screens

## Universal Kid Catcher

Help save a child or pet's life with our safety devices!



## 20" & 24" Lid-Lok Safety Device



## 20" & 24" Riser Pan



## Distribution Boxes



## Cover Insulation



## Pumps & Air Pumps



## STEP Systems



## High Pressure Filter



## U.V. Disinfection Unit

1-800-701-3946 / [www.polylok.com](http://www.polylok.com)

Your One Stop Shop for Superior Onsite Wastewater Products.