

April

2011

ON SITE

# installer™

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

The latest in ATUs  
Page 19

Work of the Onsite  
Consortium  
Page 24

A look at tank design  
Page 16



## Starting Young

Jason Walter earns respect for progressive systems and advice

Page 10

# contents

April 2011



## COVER STORY

### 10 Starting Young

By Gil Longwell

**ON THE COVER:** Jason Walter was pumping septic tanks in his father's business at age 17, and he started his own installation business two years later. He deals with a wide range of soil conditions, from coastal sands to upland rock ledges. (Photography by Bruno Ratensperger)

### 6 Breaking Ground: Delivering Options

Here's a tool for helping small communities that don't need big-pipe sewer systems evaluate and compare affordable treatment alternatives.

By Ted J. Rulseh, Editor

### 8 Letters to the Editor

### 16 Basic Training: Septic Tank Designs

Tanks must be designed, configured and installed in ways that allow adequate detention time for effective anaerobic treatment.

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

### 18 Rules and Regs: Maryland Launches Grants for System Upgrades

By Scottie Dayton and Doug Day

### 19 Product Focus: Aerobic Treatment Units

By Scottie Dayton

### 20 Tools & Technology

The 2011 Pumper & Cleaner Expo offered installers a look at the latest tools and technology.

By Ed Wodalski

### 24 A Quiet Force for Progress

The Consortium of Institutes for Decentralized Wastewater Treatment supplies the onsite industry with an abundance of educational resources.

By Ted J. Rulseh

### 27 Industry News

### 28 Case Studies: Aerobic Treatment Unites

By Scottie Dayton

### 32 System Profile: Zero Discharge

A bio-engineered system harnesses the natural process of evapotranspiration to treat wastewater in a closed system at a Parks Canada lock in Ontario.

By Scottie Dayton

### 36 Association News

News; Calendar of Events; Training & Education

# ONSITE installer

Published monthly by

COLE publishing

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)

E-mail: [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 Canada/Mexico. Subscriptions to all other foreign countries cost \$80 per year. To qualify, visit [www.onsiteinstaller.com/order/subscription](http://www.onsiteinstaller.com/order/subscription) or call 800-257-7222.

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 [nicole@colepublishing.com](mailto:nicole@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 one of our sales staff below 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.



Kim McGee



Jim Flory



Winnie May



Kayla Wilkowski



Jim Koshuta

#### EDITORIAL CORRESPONDENCE:

Send to Editor, *Onsite Installer*, P.O. Box 220, Three Lakes, WI, 54562 or e-mail 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 e-mail [jeffl@colepublishing.com](mailto:jeffl@colepublishing.com). To order back issues, call Nicole at 800-257-7222 (715-546-3346) or e-mail [nicolel@colepublishing.com](mailto:nicolel@colepublishing.com).

#### CIRCULATION:

Circulation averages 21,421 copies per month. This figure includes both U.S. and International distribution.

© Copyright 2011 COLE Publishing Inc.

No part may be reproduced without permission of the publisher.



**PUMPER & CLEANER  
ENVIRONMENTAL EXPO  
INTERNATIONAL**

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

Education Day: Feb. 27, 2012 Exhibits Open: Feb. 28 - March 1, 2012  
Indiana Convention Center, Indianapolis, Indiana

## Coming Next Month: May 2011

### Annual Buyer's Guide

- Profile: R.C. Worst & Company Inc., Coeur d'Alene, Idaho
- System Profile: Combined treatment/dispersal piping works on a small creekside lot
- Breaking Ground: An Onsite Wastewater Summit presents the big picture
- Basic Training: Proper steps for septic tank installation

Ideal for:

- Multi-family residential properties
- Cluster systems, community systems
- Subdivisions, resorts, golf course developments
- Mobile and manufactured home communities
- Parks, RV parks, rest areas
- Truck stops, restaurants, casinos
- Schools, office buildings

*I've always liked the proactive approach that OSI takes. I have two criteria regarding any product specifications: the product does the job and the company provides technical support. OSI excels in both, which makes me look good and my clients happy.*

— David Monihan, Jr., PE, RLS,  
Sedona, Arizona

**AdvanTex** Treatment Systems

# AX100

## For Onsite Treatment of Commercial and Multi-Family Wastewater

Treats wastewater from commercial applications consistently and reliably, even under peak flows, making it ideal for disinfection and re-use. AX100 systems can be configured to meet the most stringent regulatory requirements. This compact, modular package has a small footprint and is easily installed. Better yet, AX100 systems are supported through a comprehensive program that includes plan review; trained Dealers, Installers, and Operators; and lifetime support.



*Real-time telemetry ensures  
24/7 monitoring/control*



**Orenco Systems**  
Incorporated

*Changing the Way the  
World Does Wastewater®*

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

Call Orenco Systems®, Inc. at **1-800-348-9843** for more information.

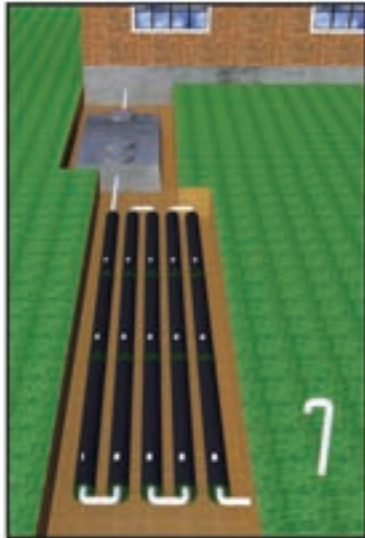


# Presby Environmental Proudly Announces...

The Next Generation of Wastewater Treatment Technology

## Advanced Enviro-Septic® (AES)

Onsite Wastewater Treatment System



- ✓ Removes up to 99% of wastewater contaminants
- ✓ Treats and disperses in the same footprint
- ✓ Passive/non-mechanical
- ✓ Cost-effective
































To find out what AES can do for you, visit...

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

# ADVERTISER index

April 2011

COMPANY	PAGE	COMPANY	PAGE	COMPANY	PAGE	COMPANY	PAGE
Advanced Wastewater Systems ...	13	 Alderon Industries, Inc. ....	6	 Alita Industries, Inc. ....	30	 B2 Business Brokers .....	35
 Bio-Microbics, Inc. ....	8	 BrenLin Company, Inc. ....	19	 BS Design Corp. ....	39	 Clarus Environmental .....	17
 Eljen Corporation .....	18	 Presby Environmental, Inc. ....	4	 RotoSolutions, Inc. ....	15	 Salcor, Inc. ....	11
 Fergus Power Pump, Inc. ....	27	 Infiltrol Systems, Inc. ....	7	 Jet, Inc. ....	15	 Netafim USA .....	13
 Sanitation Insurance Services .....	31	 Orengo Systems, Inc. ....	3	 Polylok, Inc. ....	40	 SJE-Rhombus .....	19
 Septic Services, Inc. ....	27	 Septronics, Inc. ....	11	 Snyder Industries .....	5	 SPI - Septic Products, Inc. ....	22
 Wieser Concrete Products, Inc. ....	30	 T & T Tools, Inc. ....	34	 The Pagoda Vent Company .....	39	 The Shaddix Company, Inc. ....	39
 Xerxes Corp. ....	13	 Tuf-Tite, Inc. ....	9				

Enjoy this issue!  
Established in 2004, *Onsite Installer™* fosters higher professionalism and profitability for those who design and install septic systems and other onsite wastewater treatment systems.

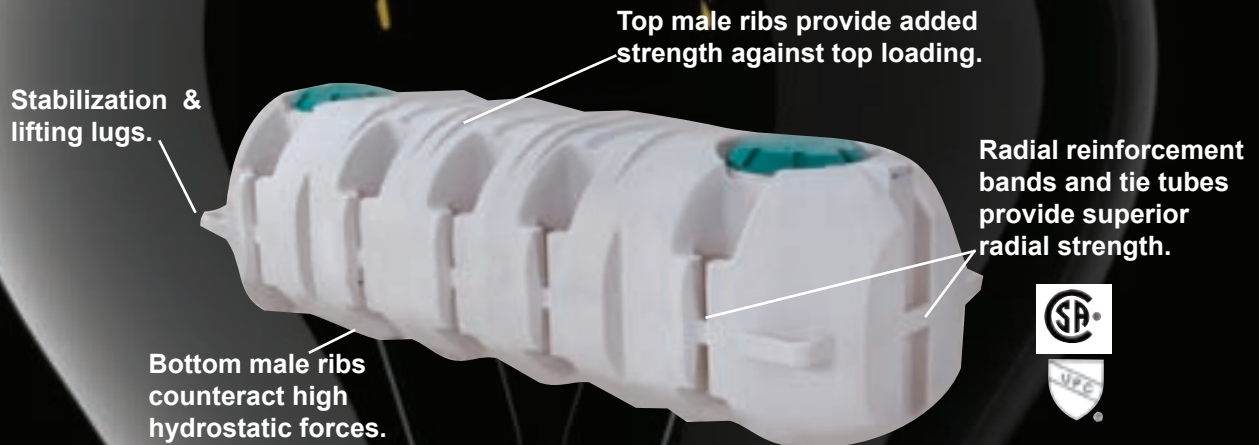
- ✓ **FREE Subscription**
- ✓ **New & Used Equipment**
- ✓ **Discussion Forum**
- ✓ **Article Reprints**

All at  
**onsiteinstaller.com**

Another great idea from **Snyder Industries...**

# “The Dominator™”

**Snyder's** Newest Low Profile Design is One Tough Septic Tank



- **ONE-PIECE CONSTRUCTION.** No seams that might leak or structurally fail after installation.
- Dominator is available in the following sizes: 750, 1000, 1250, & 1500 Gallon.
- Available as single or double compartment tanks.
- Unique monolithic structural design provides superior top load strength.
- Proprietary manway isolation design keeps manholes from distorting during backfill and pump outs.
- No special water filling procedure is required during backfill.
- Can be used in both septic and pump tank applications.
- Dominator is the only low profile tank available with the tees and gaskets pre-installed in the tank.
- Also available in 1200 and 1700 gallon water cisterns.

**Sii SNYDER**  
INDUSTRIES, INC.

Phone: 402-467-5221  
Fax: 402-465-1220  
Email: sales@snydernet.com

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

Also Available:



300 & 500  
Gallon Spheres



500 Low Profile

**Feedback**

*Onsite Installer™ welcomes your comments, ideas and suggestions on how we can serve you better. Call 800/257-7222; fax 715/546-3786; or e-mail editor@onsiteinstaller.com.*



# Delivering Options

**Here's a tool for helping small communities that don't need big-pipe sewer systems evaluate and compare affordable treatment alternatives**

By Ted J. Rulseh, Editor

Imagine that you're an onsite professional trying to help the mayor or town chairman of a very small rural community — a church or two, a post office, a few stores, a municipal hall, a few dozen homes.

It's time for the community to get away from septic tanks, but a gravity sewer system and an activated sludge treatment plant are strictly out of the question — too costly. What options can you offer?

You could find help in one of the latest work products from the Consortium of Institutes for Decentralized Wastewater Treatment. It's a set of Decentralized Systems Performance and Costs Fact Sheets, created under a grant from the Water Environment Research Foundation (WERF).

It's one of the many training and educational products created by the consortium, which is profiled in an article in this issue of *Onsite Installer*. The fact sheets could be valuable in the toolbox

of an engineer, designer, or other onsite professional in the business of helping communities meet their treatment needs.

### A step forward

"The materials are focused on very small communities that are still on septic systems and really need to upgrade to some form of more centralized treatment, but probably don't need a full-blown wastewater treatment plant," says John Buchanan, who chairs the consortium's executive board.

down to it, here is an estimate of what it's going to cost.

"The fact sheets aren't written for engineers. They're written for that small-town mayor, who probably has a full-time job in the next town and maybe is only mayor on Tuesday night once a month."

### Getting the answers

Wastewater treatment can be a big challenge for communities in that no-man's land between individual septic systems and municipal sewerage. It's hard for community

install their system components, and the materials and installation costs to build the collection network, based on the flow rate and number of homes served.

The treatment series includes information on liquid/solid separation, suspended and fixed-growth aerobic treatment, constructed wetlands, nutrient reduction, disinfection and residuals management. The dispersal series includes gravity, low-pressure, drip and spray distribution, plus evapotranspiration, surface water discharge, and water reuse.

Presented with selected items from this fact sheet series to suit its specific situation, a community could get a good start toward choosing an appropriate and affordable treatment approach that will serve its needs well.

### Pay a visit

It seems worth almost any onsite professional's time to get familiar with these community system options. Who knows when an opportunity might come up to help someone who needs expertise, or to undertake or support a small community's wastewater treatment system project?

You can find all the fact sheet materials on the WERF website at [www.werf.org/decentralizedcost](http://www.werf.org/decentralizedcost). Go have a look. You're just about certain to learn something, and along the way you might get inspired about a business opportunity you never actively considered before. ■

## Wastewater treatment can be a big challenge for communities in that no-man's land between individual septic systems and municipal sewerage.

"The documents use very plain language, saying for example that to handle water up to so many gallons per day, you'll need a treatment system that occupies so many square feet, and when it comes

leaders to act when they have no homegrown expertise and no idea what options are available, let alone how much they cost.

There are four series of fact sheets covering collection, treatment, effluent dispersal and cost. The collection series, for example, covers gravity, pressure, effluent and vacuum sewer systems. As defined here, an effluent sewer is one that carries wastewater that has undergone liquid/solid separation — primary treatment.

Each fact sheet discusses the particular system's compatibility with the community's vision, land area requirements, construction and installation procedures, maintenance requirements and costs. Charts are provided that show ranges of costs for homeowners to

**ALDERON Industries**  
Leading Edge Control Products

Floats & Sensors, Alarms, Power Posts, Controls, Custom Controls

Phone: 218-483-3034 / [www.alderonind.com](http://www.alderonind.com)



REDEFINING

# STRENGTH

A revolutionary advancement in septic tank design

## The NEW Infiltrator IM-1060 Septic Tank

- Strong, injection molded polypropylene construction
- Engineered two piece gasketed tank with a proven watertight seal
- Structurally reinforced access ports eliminate distortion during installation and pump-outs
- Reinforced structural ribbing and fiberglass bulkheads offer additional strength
- Can be pumped dry during pump-outs
- Integral heavy-duty green lids that interconnect with Infiltrator's TW™ Riser system
- Simple installation - no special backfill or water filling required
- Suitable for use as a septic tank, pump tank, or rainwater (non-potable) tank



[www.infiltratorsystems.com](http://www.infiltratorsystems.com) • 800.221.4436

## Get Nitrogen Removal ...**FAST**®



As the only system to receive the **Title 5 Innovative/Alternative (I/A) "General Use" Approval** for Nitrogen Removal (MassDEP), the MicroFAST® provides affordable options versus centralized sewers or conventional septic systems.

Nitrification and denitrification projects are much easier with FAST®. The NSF® Std. 40 and NSF® Std. 245 certified MicroFAST® wastewater treatment systems are much less complicated to install and operate.

At a time when significantly increased amount of nutrients threaten the ecosystem of lakes and waterways, **FAST**® is the **Better** solution.



Check out our Prevention-Remediation Program  
**S.O.S.-Save Our Septic™**

**BIO-MICROBICS**  
wastewater treatment systems  
Better Water. Better World.™

Visit **[www.biomicrobics.com](http://www.biomicrobics.com)** or call  
1-800-753-3278 for more information

© 2011 Bio-Microbics, Inc. • phone: 913-422-0707 • fax: 913-422-0808

## Fan of Fritts

You could not have picked a better company to use on your cover than Residential Sewage Treatment (*Onsite Installer*, March 2011). Tom Fritts is an industry mover and shaker! The man is everywhere and puts his whole heart into everything.

Besides being vice president of Residential Sewage, vice president of NOWRA, and serving on both the Missouri and Kansas Smallflows Boards, Tom does educational programs for Missouri Smallflows for installers, regulators, system evaluators and others. He speaks at the Pumper & Cleaner Expo, the NOWRA Conference, the Missouri and Kansas conferences, and anywhere else he is asked.

He is active when there is legislation that affects onsite, working with the state Department of Health and local regulators and testifying at legislative hearings. As president of Missouri Smallflows, it is my privilege to have Tom on our board, to be able to tap into his knowledge, and to call him a friend.

I haven't met his wife Kathy as yet, but if she is anything like Tom (and from your article it appears that she is), they are truly a dynamic duo.

**Janet Murray, REHS**  
Environmental Health Supervisor  
Randolph County (Mo.) Health Department

## Flies a Good Thing?

I just read the article about septic flies and larvae in Arizona (*Association News, Onsite Installer*, February 2011). I have been in business for 15 years. Of the thousands of tanks we have pumped over the years, our experience has been that if we open a tank and find flies, these are the tanks that have good bacteria levels, which promote what we consider to be a healthy septic tank.

So many times we open a tank and find it to be black and non-active or what we consider to be dead. I have even gone as far as collecting some effluent from these tanks with flies and larvae present to introduce to my own tank to seed it, with good results.

I believe the source for this information has the wrong idea about the flies and should embrace this as a natural activity in a normal or healthy operating septic tank. I also believe the flies are introduced through the vent stack.

The practitioner in question should sell this as a natural activity and be thankful for the increased sales due to dead flies plugging those filters, maybe even offering to install larger filters to compensate for the increased plugging. Or maybe it was really time to clean those filters.

**Jon Houseknecht**  
Sunset Septic & Excavating  
Rolling Prairie, Ind.

**If your business includes services** like septic tank pumping and maintenance, consider a subscription to **Pumper®** — the publication exclusively for septic business professionals for more than three decades.

**SUBSCRIBE TODAY at [pumper.com](http://pumper.com) or 800-257-7222**



# 24" HEAVY DUTY MULTI-PURPOSE FLAT RISER LID

**FREE FREIGHT  
 on Full Cartons!**

Fits most commercially  
 available:

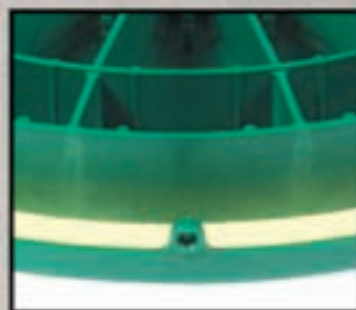
- Risers
- IPEX PVC Ribbed Pipe
- Corrugated Pipe



**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.



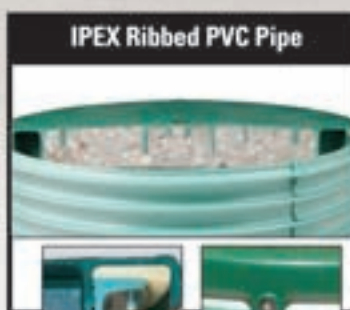
Water-TITE Joint  
 Vertical and  
 Horizontal Safety  
 Screws



Water-TITE Joint  
 Horizontal  
 Safety Screws



Water-TITE Joint  
 Horizontal  
 Safety Screws



Water-TITE Joint  
 Horizontal  
 Safety Screws



Water-TITE Joint  
 Horizontal  
 Safety Screws

Jason Walter uses a LaserMark self-leveling rotary laser to test the depth of an installation. (Photography by Bruno Ratensperger)

# Starting Young

Jason Walter gets an early and fast start as a progressive installer and a source of onsite advice for his customers

By Gil Longwell

**Bill Walter & Sons  
Septic Installation, LLC,  
Clinton, Conn.**

**OWNER:** Jason Walter

**YEARS IN BUSINESS:** 5

**MARKET AREA:** 25-mile radius in two counties

**BUSINESS MIX:** 80 percent repairs, 20 percent service

**SPECIALTY:** Finding solutions for diverse site conditions

**AFFILIATIONS:** Connecticut Onsite Wastewater Recycling Association; NOWRA

**WEBSITE:** [www.walterseptic.com](http://www.walterseptic.com)



Two weeks after graduating from high school, while his friends were enjoying the beach, Jason Walter had started learning onsite systems as he prepared to build an installation business on the Long Island Sound in coastal Connecticut.

At age 17, Walter started out in the field pumping treatment tanks for his father's business. Two years later he launched his own business, Bill Walter & Sons Septic Installation.

"I chose the name not because dad has a role in the business, but because his pumping business is so well known in the community," Walter says. "Working with dad, I learned about taking care of systems. What to do, how to do it, the purposes of the components, how they work, and the relationships between soil, air, effluent, vessels, filters, bacteria and more. Dad was a heck of a teacher."

Walter received his subsurface system installer's license from the state of Connecticut when he was 19. During his time with his dad, he realized several important facts. "The typical installer in this area will retire in the next 10 years or so," he says. "There is not a rush of new installers preparing to fill this void. The work is hard, and it's dirty, but it pays well. I also learned I have a lot to learn."

### Grasping opportunity

From all he learned about the onsite industry, Walter reached a one-word conclusion: Opportunity. Working in two counties within a 25-mile radius from his home base in Clinton, about 25 miles east of New Haven, he finds a wide range of soil conditions, from coastal sands to upland rock ledges with shallow soil cover. This diversity brings challenges and forces Walter

to become versatile in site considerations and technologies.

Part of the learning process was understanding his own needs for equipment. He flew to Michigan to pick up his first machine when he was 19. "I did my homework to determine which device would best meet my initial needs and enable me to work smarter and more efficiently," he says. Five years after buying that machine, his equipment resource pool has grown to include:

- A 2001 Komatsu PC78 compact excavator.
- A 2008 Cat 303.5 mini-excavator.
- A 2004 Cat 277B tracked skid-steer.
- A 2006 Kubota B21 mini-backhoe.
- A 1996 Ford L8000 six-wheel dump truck.

Before every purchase, Walter tried to answer one critical ques-

(continued)

# SALCOR UV DISINFECTION



Model  
3 G

## The Finishing Touch

- Designed for Onsite Systems
- Gravity Flow to 6 GPM
- Installed in Ground or Pump Tank
- Minimum (Annual) Maintenance
- NEMA 6P (Passed 30 Day Submergence Test by UL)
- Two Year UV Lamp Life
- NSF and Other Third Party Tests Confirm Superior Bacteria and Virus Kill
- UL and cUL Certified, Standard 979
- Multiple Units Economically Treat up to 100,000 Gal/Day

**Salcor Inc.**

Made in the USA

P. O. Box 1090, Fallbrook, CA 92088

**(760) 731-0745**

Fax: (760) 731-2405

## Septronics, Inc.

Pedestals, Alarms, & Pump Controls



JJ1HOA  
Pedestal Exterior Alarm/Pump Control

Hook up Pump Alarm on one side.  
Hook up your Pump on the other side.

Control your pump w/ a Hand/Off/Auto Switch

- Test the pump - Toggle to Hand On.
- Cut the power - Toggle to Off.
- Float operates the pump - Toggle to Auto.

**ORDER ANYTIME - ONLINE**

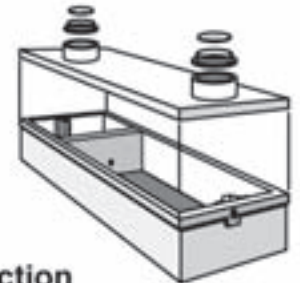
(Item# 2022 - Read All About It!)

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

Ph: 262.567.9030 • Toll Free: 888.565.8908

## Precast Concrete Tanks

Septic Tanks  
Nibbler Tanks  
Bio-Fast Tanks  
Pump Chambers  
Storm Water Vaults  
Grease Interceptors  
Recirculation Tanks



Water Tight Construction  
Tanks meet ASTM C1227 and C913

2,000 - 3,000 - 5,000 - 6,000 - 8,000  
10,000 - 12,000 - 15,000 - 18,000 - 25,000

**CREST**  
**Precast Concrete**

1-800-658-9045

EMAIL: [info@crestprecastconcrete.com](mailto:info@crestprecastconcrete.com)  
WEB: [www.crestprecastconcrete.com](http://www.crestprecastconcrete.com)

**NPCA Certified Plant**  
**Nation Wide Delivery**



Jason Walter (center) with parents Bill and Carol Walter.

tion: Would the new piece allow him to earn more money?

Keeping his equipment clean shows off his attention to detail. Less easy to spot is his attention to preventive maintenance. "It is the

**"The typical installer in this area will retire in the next 10 years or so. There is not a rush of new installers preparing to fill this void. The work is hard, and it's dirty, but it pays well. I also learned I have a lot to learn."**

Jason Walter

maintenance that lets me stay on a job until it is done," he says. Walter believes detailing the equipment sends customers two messages: "I care about my equipment, and I care about the job I will do for you."

Efficiency drives his equipment and technology purchases. There is a big learning curve in this industry, and Walter knows he must learn quickly. He also knows that learning will make him more productive, although the time spent in training will not by itself generate income.

Walter doesn't let his equipment define him. He is a skillful and seasoned equipment operator, but his first focus is on his role as an installer.

### Customer connection

That includes being highly responsive to customers. "I am customer-connected," he says. "I answer my own phone, I always return calls promptly, and while I am learning every day, at the same time I am my customers' onsite system resource.

"I'm not old school. I am not married to 'box and rocks' systems. When a conventional system will work, I'm there; when it is inadequate, I'm looking for the best alternatives to present to my customer." He plans to be around for a long time and does not want to disappoint any customer with a system that won't make it through the long run.

## Burdens of Youth

At age 24, Jason Walter is always the youngest in a gathering of installers. He is also the youngest member of the board of directors of the Connecticut Onsite Wastewater Recycling Association. As a result, he meets resistance almost every day.

Customers see youth and worry about his depth of knowledge, experience and skill. The reactions are understandable, but Walter can't overlook them: He counters them wherever they show up. His self-confidence rests on his core belief that he is a knowledgeable, competent installer. He finds he can use his knowledge to build bridges with older peers, customers and the community. Working in the town where he grew up, he is recognized on the street, in church, and elsewhere. In all those places, people

seek out his opinion on onsite matters.

The nearby town of Old Saybrook is relying on upgraded onsite systems on individual lots to resolve long-term system failures. "Mine is too small a business to be able to bid on 100 systems as a block, yet I can help the project in other ways," Walter says.

People seek him out on job sites to get an understanding of what the town is doing and why. "I know they will never be my customers, but I want to help them understand onsite systems, what they can do, their importance, and the need to care for them," he says.

As more people turn to Walter for information, the stigma of youth is being replaced with the aura of a knowledgeable professional — one system or one person at a time.

Walter has identified a family of customers who display a common trait. He calls them Mr. or Mrs. Couldyou Just — customers who have been pleased with his pricing and work, but want a little something more. As a job approaches conclusion, they may open a conversation with, "While you're here, could you just ..." It doesn't matter what the extra work entails — he has learned the importance of

responding, "Yes, however ..."

Add-on work can be less expensive than remobilizing for a small task, but the work has value, and as such he believes he is entitled to payment. In response, he has created a minimum four-hour charge for "could you just" work, plus the cost of any materials. "When I explain the costs, most folks understand and pay willingly," he says. "Some go the DIY route."



Always meticulous in his installations, Jason Walter puts the primer on sections of Schedule 40 pipe before gluing them together.

(continued)

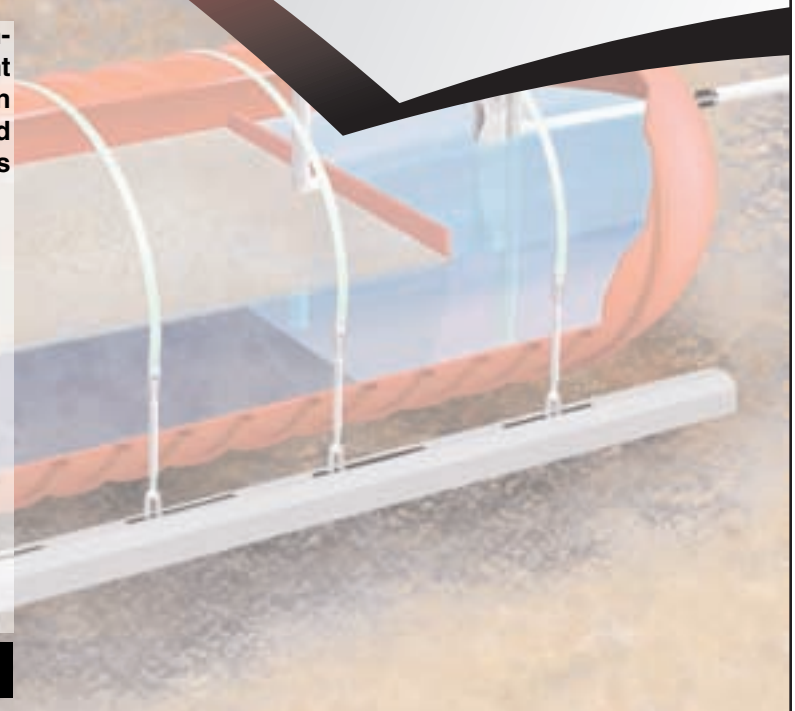
# Serious about Watertight Tanks?

When it comes to wastewater tanks, watertight design is gaining a lot of attention. The benefits of installing a watertight tank are numerous, and, with changing regulations; it's often mandatory. So, if you see value in using watertight tanks and ease of installation is important, consider Xerxes fiberglass tanks for your next project.

## Benefits of Watertight Tanks include:

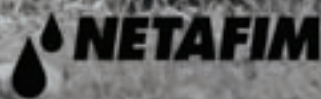
- **One-piece construction** - no field installation of components requiring seams/seals to complete the tank.
- **Factory manufactured** - no need to form and fabricate a tank in place with unpredictable weather conditions, field crews and completion dates.
- **Proven track record** - Xerxes tanks have been used for nearly three decades for storage of petroleum products where watertight is the only design standard that is acceptable.
- **Strong design** - standard tanks are designed for burial depth to 7 feet, water table to grade **AND** an H-20 load rating.

[www.xerxes.com](http://www.xerxes.com) • (952) 887-1890 phone



## BIOLINE<sup>®</sup> THE EASIEST, MOST ECONOMICAL DRIP DISPERSAL SYSTEM - PERIOD.

Stop disposing,  
start dispersing  
with Bioline<sup>®</sup> for a  
cleaner and greener  
tomorrow.



[WWW.NETAFIMUSA.COM/WASTEWATER](http://WWW.NETAFIMUSA.COM/WASTEWATER)

## Saber Septic

Repairs and remediates your failed septic drainfield or we give you your money back – 100% guaranteed



### Benefits

- ✓ Repairs failed septic systems without drainfield replacement
- ✓ Keeps sewage from backing up in the house when it rains
- ✓ Eliminates drainfield ponding, odors and nuisance
- ✓ Extends the life of your septic system and drainfield
- ✓ Can be used on single compartment and two-compartment tanks



Kevin Chaffee, President • [kevin@saberseptic.com](mailto:kevin@saberseptic.com)

**812.528.8784**

Pat Hanlon, Vice President • [pat@saberseptic.com](mailto:pat@saberseptic.com)

**812.926.4282**

Advanced Wastewater Systems, LLC

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

### No-surprise pricing

Walter sells a quality job for a fair price. The price he quotes includes everything he can anticipate needing to complete the job to his own and his customers' satisfaction. "My price is a complete price; there are no add-ons for grass seed, or fertilizer, or anything," he says. "People are price-driven. I tell customers, 'If you hire someone who will work for peanuts, you get someone who will monkey around with your job.'"

Walter notes that some area installers will quote an onsite system at a given price, then add on mobilization costs and other charges later. Customers then feel they have been abused. During the proposal stage, Walter explains not only the project, but his pricing methods, so customers can make informed comparisons if they are shopping around.

**"I am customer-connected. I answer my own phone, I always return calls promptly, and while I am learning every day, at the same time I am my customers' onsite system resource."**

Jason Walter

Basic Yellow Pages ads are his only formal self-promotion. Walter knows satisfied customers become his company spokespersons. "If a customer knows I did a quality job for a fair price and cannot see any change in the appearance of the site when I am done, they will sing my praises," he says.

### Careful growth

With just his mom as a support person and office manager, Walter's personnel costs are minimal, but he sees that changing. There are opportunities in system management, but so far he has not installed many advanced treatment units. More are going in steadily around the area, and he could service them whether they are his own installations or not.

"I'll know when I am ready to hire an employee when I have suffi-



With a zero-tail-swing excavator, Jason Walter can get any job done, large or small.

cient work to keep two machines or one service technician busy," he says. He previously had an employee, and from that experience he learned that his next hire must be someone with experience in the onsite industry and a commercial driver's license. Training will be a priority for anyone he hires, as it is for himself. "We can never stop learning; too much is happening in this industry," he says.

Walter's dad remains in the pumping business, and when one of Jason's customers needs a tank pumped, dad gets the call.

### Banking on diversity

As he waits for the maintenance market to develop, Walter focuses on installations and repairs, which sometimes involve complete replacements. His area is diverse, and the sites demand creative thinking.

US Route 1, the Maine-to-Florida highway, follows the physiographic line of demarcation between coastal sands and upland soils, and conditions change markedly along

the divide. Walter likes the Mantis GSF system from Eljen Corporation because under Connecticut regulations, it can be installed with a smaller footprint than a conventional system. It is also a passive system that yields a more highly treated effluent.

These systems fit on both sides of the highway because they can effectively address diverse natural conditions, including seasonal high water tables and clayey soils that perc slowly. "In the environment of small lots and restricted access routes, the smaller footprint helps the installer and the property owner," Walter says. "I bought a mini-excavator just for these sites."

For about 90 percent of his repair work Walter is allowed under state regulations to prepare his own designs, and he does so. "When dealing with complex site conditions, I always bring an engineer into the process," he says. "For systems serving a daily flow over 2,000 gpd, an engineer must be involved." Regardless of the site's limitations,

Jason Walter moves a Mantis GSF leaching unit from Eljen Corporation into place.



Walter works hard to find the right solution for all parties concerned.

### The right feel

As a rule, Walter seeks out problems other installers have walked away from, but sometimes things just don't make sense. "After reviewing the site's conditions, a proposed design, and the designer's selection of a particular technology or system type, if I'm not convinced the system will have a long, successful life, I'll walk away from the job," he says. "If it doesn't feel right, I won't do it."

For customers who have seen him apply his knowledge and diligence in the field, selecting Walter to do their job just feels right. ■

### MORE INFO:

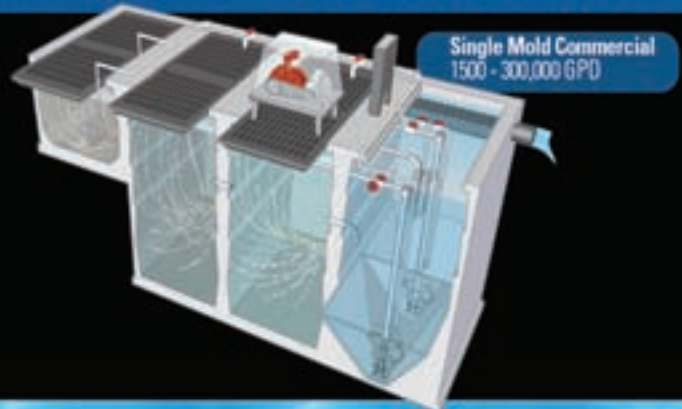
**Eljen Corporation**  
800/444-1359  
www.eljen.com  
(See ad page 18)



# SIMPLY Better™

Pioneers in Advanced Wastewater Treatment since 1955.™

Better For Precasting • Better For Installation • Better For Service



1-800-321-6960

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

[email@jetincorp.com](mailto:email@jetincorp.com)

## Introducing The Most Durable & Economical Septic Lid On The Market Buy Direct from the Source – No Middleman!

- Durable & Lightweight Polymer
- WILL NOT Crack Like Concrete!
- Easier to Handle & Transport
- 12", 18" & 24" Available
- Easy Installation
- Optional Sand Fill
- Have It Customized (Name, Number or Logo)
- Green or Black
- Foam Filled (Optional)
- Hardware Included
- 18" or 24" Adapters Available

Cost Effective  
**6 Pack**  
Shipping

Now Offering  
**18" & 24"**  
Custom  
Lids



**800.868.0973**

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

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

# Septic Tank Designs

Tanks must be designed, configured and installed in ways that allow adequate detention time for effective anaerobic treatment

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

This continues our series on selection, location and installation of septic tanks. When we think of septic tanks, we include tanks of similar geometry and design that are used in front of other pre-treatment units, so this includes trash tanks and processing tanks.

Last month we provided definitions and descriptions of these kinds of sewage tanks. Now, let's look at septic tanks in more detail.

Septic tanks allow the separation of solids from wastewater as heavier solids settle and the fats, greases and lighter solids float. In a properly functioning septic tank, the solids content of the wastewater is reduced by 60 to 80 percent. The settled solids are called sludge, the floating solids are called scum, and in between is a relatively clear liquid layer called the clear zone. This

liquid is not highly treated, but it is greatly clarified, and the treatment process has begun.

## The right detention time

The second important function of a septic tank is to store the accumulated solids. So, one of the first considerations in design is to have a tank large enough to hold the solids until the tank is pumped. The goal is to have at least two days of detention time in the tank.

Detention time is determined by the tank volume divided by the daily sewage flow. So detention time for a 1,000-gallon tank with a daily sewage flow of 450 gpd is 1,000 gallons divided by 450 gpd, or 2.2 days — more than the desired two days.

Realize that as solids accumulate in the tank, the effective detention time is reduced. So, adhering strictly to the desired detention time as the tank fills would mean increasing the tank volume. For design purposes this is not typically done, but it can be desirable to have somewhat more tank capacity, and if the homeowner is willing to pay a little more for the insurance of more storage capacity, it is better to install a larger-capacity tank.

## Levels of treatment

The treatment seen in a well-functioning septic tank should be such that effluent is in the range of 140 to 220 mg/l biochemical oxygen demand (BOD), 45 to 70 mg/l



Sometimes it is necessary to use more than one tank in series to provide adequate capacity.

total suspended solids (TSS), and 10 to 30 mg/l fats, oil and grease (FOG).

If the effluent exceeds 175 mg/l BOD, 60 mg/l TSS or 25 mg/l FOG, the tank needs to be pumped. Or, if the reason the effluent is not treated to these levels is that the strength of the influent wastewater is too high, then additional pre-treatment measures need to be taken, such as increasing tank capacity or adding an aerobic treatment unit (ATU) or media filter.

The anaerobic (without oxygen) digestion processes in septic tanks are affected by temperature (treatment is better when the tank is warmer) and by the addition of substances that adversely affect microorganisms in the tank. For example, chemicals, drain clean-



Many local codes require dual-compartment tanks.

ers, antibiotics, and water softener backwash all can hinder treatment effectiveness.



A truck delivers a septic tank. Part of the design involves making sure the delivery vehicle can access the site.



### Dealing with disposals

Two other major items that affect proper sizing of septic tanks are the use of a garbage disposal and the use of a grinder pump or solids-handling pump in the basement or at a lower level than the tank. In both cases, tank capacity must increase. The usual recommendation is to increase capacity by at least 50 percent, or 1.5 times

**When working with homeowners who want to have a garbage disposal, it is a good idea to educate them about their responsibility for proper care of the system. You can place the discussion in the context of how their habits will affect the costs of installation and operation.**

what the design capacity would be without these features.

Use of a garbage disposal adds solids — often materials that are difficult to break down in the tank. That requires more frequent pumping. Water is also added when the disposal runs.

More capacity is needed with a grinder or solids pump because of the turbulence created by the pumping of water into the tank. Additional requirements for systems with the disposals or sump pumps include using a two-compartment tank or multiple tanks to provide the necessary capacity. Effluent screens with alarms are now usually required to further ensure that solids are not lost out of the tanks to the final soil dispersal area.

When working with homeowners who want to have a garbage disposal, it is a good idea to educate them about their responsibility for proper care of the system. You can place the discussion in the context of how their habits will affect the costs of installation and operation.

For single-compartment septic tanks, the depth, the length-to-width ratio, and the location of the baffles contribute to the time for solids to settle and be stored. There are usually depth restrictions —

typically no more than 84 inches, and 36 inches is preferred.

An ideal length-to-width ratio is 3:1, though most tanks are not built that way. The normal ratio is in the 2:1 range. The outlet pipe should be at least two inches below the inlet pipe elevation, and there must be free air space above the liquid level to allow proper venting. This is also true between compartments in a two-compartment tank.

### More tanks or compartments?

For a two-compartment tank, the volume of the first compartment must be equal to or larger than the second. Each compartment should contain at least 25 percent of the total liquid capacity and have an inside horizontal dimension of at least 24 inches as measured in the direction of the flow.

Typically, a 1,500-gallon two-compartment tank would have 1,000 gallons of capacity in the first compartment and 500 in the second. If the second compartment will be used as a pump tank, it is important for a baffle to be installed between compartments to prevent pumping directly from the first compartment.

If multiple tanks are used, they provide more surface area in contact with the soil, and that can help cool effluent discharged from a dishwasher. Another reason to use multiple tanks is that large multi-compartment tanks may be in limited supply.

From an installation standpoint, delivery and placement of smaller tanks in series is easier, and the overall excavation required is generally less. One important item to consider, though, is the need to maintain the 2-inch drop in successive tanks.

To minimize potential for sewer pipe blockage from the house to the tank, it is important to locate the tank close to the house. A typical setback requirement is 10 feet. Other setback requirements from wells, property lines and easements need to meet local requirements.

Now that we have reviewed some of the major design and location considerations we can move on to installation procedures. ■

quality . service  
innovation . integrity

## BRINGING IT ALL TOGETHER

The **Fusion Series** combines anaerobic, aerobic, recirculation, fixed film and backwash processes to provide a superior wastewater treatment system. Units are easily adapted to work with existing systems. Fusion is a collaboration with Fuji Clean.

Your Peace of Mind  
is Our Top Priority™



 **CLARUS**™

**ENVIRONMENTAL**

Zoeller Family of Water Solutions™

1-877-244-3940

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

“Rules and Regs” is a monthly feature in Onsite Installer. We welcome information about state or local regulations of potential broad interest to onsite contractors. Send ideas to editor@onsiteinstaller.com.

# Maryland Launches Grants for System Upgrades

By Doug Day and Scottie Dayton

The Maryland Board of Public Works has announced a program to upgrade onsite sewage disposal systems. The \$4.17 million in grants will go to counties to upgrade septic systems to remove nitrogen and keep it from getting into the Chesapeake Bay.

The program is part of \$28 million in clean water grants announced in December in the continued multi-state program to clean up the bay. Nearly \$3 million in grants were announced by the board in November and another \$40 million in October, including more than \$94,000 to upgrade failing septic systems in Howard County.

The state’s Chesapeake Bay plan,

announced in December, carries a total price tag of about \$10 billion through 2017. The bay’s watershed includes six states and the District of Columbia.

## Maine

The Division of Environmental Health has issued guidelines for replacing existing, licensed overboard discharges from septic systems on offshore islands (discharge of treated wastewater to surface waters).

The guidance says the Subsurface Wastewater Unit recognizes such cases as unique due to “properties and conditions which make installation of a conventional sub-

surface wastewater disposal system problematic. Chief among them are shallow to non-existent soils, limited site access, limited potable water supplies, and inconsistent electric power.”

There are about 1,300 such systems still licensed in Maine, about half the number in existence in 1987. Many have been replaced as new technologies improve methods for treating domestic wastewater. The guidelines cover such issues as sizing, fill, composting of solids when tank pumping is not possible, and other unique aspects. It encourages the use of non-discharging toilets and professional judgment when recommending septic systems that do not meet minimum criteria.

## Florida

The state filed a lawsuit against the U.S. EPA over what it calls the agency’s intrusion into Florida’s previously approved clean water program. The lawsuit alleges that the EPA’s action is inconsistent with the intent of Congress when it based the Clean Water Act on the idea of cooperative federalism — the states responsible for water quality and the EPA offering oversight.

Florida’s action is a result of EPA settling a lawsuit filed by the Florida Wildlife Federation in 2008. The settlement forced the EPA to set pollution standards for inland surface waters and coastal waters. Onsite system owners would be affected by rules to achieve nitrogen reduction and compliance monitoring.

## Texas

A Sunset Advisory Commission staff report recommended that the state abolish the On-Site Wastewater Treatment Research Council and replace it with a stakeholder group. The commission reviews the policies and programs of more than

150 government agencies and makes recommendations that reduce inefficiencies and improve operations.

Most of the council’s \$330,000 annual budget funds research grants. In its 20-year history, the council has returned \$1.5 million in new system registration fees to the state’s general fund. Although the state benefited from the research, the commission criticized the council for having no formal process to evaluate its effectiveness. The report’s authors acknowledged that the Texas Commission on Environmental Quality recently changed some rules as a result of council-funded research, but the application of other research remained unclear.

## Ohio

The Trumbull County Health Department cited a court-ordered consent decree to criminally charge and imprison people who failed to upgrade their onsite systems. The decree requires the county to enforce state EPA compliance.

Spokesman Mike Settles for the Ohio EPA said that it is up to local health departments to determine how to enforce state regulations, and that the consent decree does not stipulate any penalties against the county if it fails to comply. The EPA prefers to resolve violations through negotiated orders or civil actions and to avoid the tactics employed in Trumbull County.

From 1992 to 2002, the county granted onsite permits, or signed off on systems installed without permits, even though they did not meet EPA standards. In many cases, raw sewage dumped into state waterways. In 2007, the local health board estimated that 90 percent of onsite systems (about 30,000) in the county failed to meet the regulations that went into effect that year. ■

*We’ll Squeeze You Into Some Pretty Tight Places!*

## Eljen GSF Geotextile Sand Filter

- 3rd party testing verified BOD and TSS <10 mg/l and up to a 3-log reduction in Fecal Coliform
- Provides treatment and disposal in the same absorption area
- Best choice for sensitive lakeside and restricted building sites
- Made from recycled materials

**TIME-PROVEN FOR OVER 25 YEARS**

**eljen**  
CORPORATION

Innovative Products and Solutions Since 1970

1-800-444-1359

**eljen.com**



# ATUs

By *Scottie Dayton*

## High-strength wastewater aerobic digester

The **Nibbler SBP** (square back-flush pod) high-strength waste treatment system from **Aqua Test** handles loads greater than 300 mg/l BOD5 and FOG concentrations above 25 mg/l. The pre-engineered modules arrive ready for installation.

The treatment train has a septic tank, the aerobic digester tank, surge tank, and a grease trap when applicable. The arrangement allows for a reduced drainfield footprint. The system produces effluent with 150 mg/l or less BOD5 and 25 mg/l or less FOG. **800/221-3159; www.aquatestinc.com.** ■



If your business includes services like septic tank pumping and maintenance, consider a subscription to **Pumper®** — the publication exclusively for septic business professionals. For more than three decades, **Pumper** has been the definitive guide to the latest products, technologies and methods for the industry.

**SUBSCRIBE TODAY at [pumper.com](http://pumper.com) or 800-257-7222**



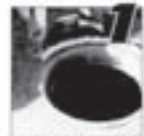
**NEW**  
Seal-R Ring  
Sizes:  
**12", 15"  
& 36"**

RESER: Dual-well plastic culvert pipe.

Inner safety lid.

**Seal it Tight!  
Seal it Easy!  
Seal it Fast!**

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



Apply foam sealant to tank.



Place ring over opening and apply foam.



Place plastic maintenance pipe on top.



Install lid.

**For more information, call us today!**

**BrenLin Company, Inc**  
Manufacturers of Seal-R™ Products  
Herman, MN  
**888-606-1998**  
Fax: 320-677-3001 • E-mail: [brenlin@frontiernet.net](mailto:brenlin@frontiernet.net)  
**www.seal-r.com**

# NEW IFS C-LEVEL™ SENSOR

## Innovative FLOATLESS Technology

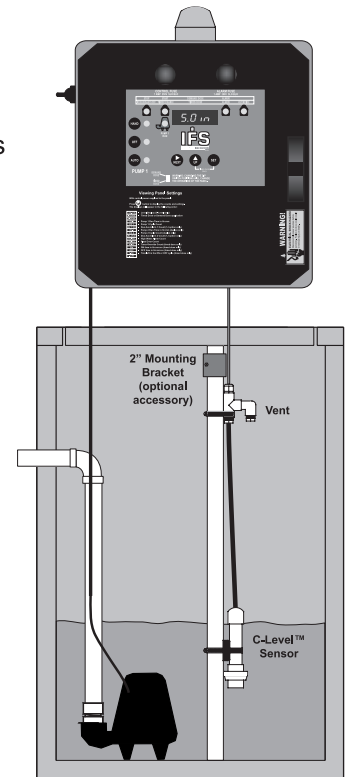
**SJE-Rhombus® introduces the C-Level™ Sensor for use with select Installer Friendly Series® panels.**

The simple and accurate **C-Level™ sensor** converts water pressure in a tank into a **low-voltage electrical signal** and sends it to the IFS control panel, which displays this level (in inches or centimeters) for **easier constant level monitoring** of the system. Pump activation and alarm levels can be adjusted using the **IFS panel touch pad**, eliminating the need to go into the tank for manual adjustment.

### C-Level™ Features:

- Compact design works well in confined space applications
- Operates on low-voltage
- One sensor can take the place of up to 4 floats
- Easy to install and adjust set points
- Works with select IFS panels:
  - IFS Single Phase Simplex Demand/TD
  - IFS Single Phase Duplex Demand/TD
  - IFS In-Site® Simplex Event Monitoring
  - IFS In-Site® Duplex Event Monitoring
- Three-year limited warranty
- Patent pending

**Watch an introductory video on the C-Level™ floatless sensor at [www.sjerrhombus.com](http://www.sjerrhombus.com)!**



Float tree not included.

# SJE Rhombus®

**1-888-DIAL-SJE (1-888-342-5753) ■ Fax: 218-847-4617**  
**www.sjerrhombus.com**



# Tools & Technology

The 2011 Pumper & Cleaner Expo offered installers a look at the latest tools and technology

By Ed Wodalski

The 31st Annual Pumper & Cleaner Environmental Expo International closed a four-year run in Louisville with 3,644 companies, cities and utilities represented and 8,286 total attendees. The Expo moves to Indianapolis for 2012, running Feb. 27 to March 1 at the Indiana Convention Center.

The 2011 Expo offered a full slate of educational seminars spread over three days and included 477 exhibits of new and familiar products and technologies. Here is a sampling of the new products and technologies on display for the onsite industry:

### Septic pump package

**Orenco Systems** introduced its ready-to-install **Biotube ProPak** pump package. Made for filtering and pumping effluent from septic tanks to drainfields or other downstream systems, the pump vault protects the pump from sludge and scum, eliminating the need for a separate pump tank. The package includes a Biotube filter cartridge, 4-inch turbine effluent pump, float switches with quick-connect collars, discharge plumbing assembly, splice box and demand-dosing control panel or timed-dosing panel. 800/348-9843; [www.orenco.com](http://www.orenco.com).



### Automated treatment system

**PekaSys Sustainable Technologies** displayed its **Clear Rex Bubbler** wastewater treatment system. Designed for single-family homes, apartments, restaurants, cluster systems, hotels, golf courses, office buildings and schools, the fully biological system uses no filters or fixed media.



The German-engineered system is fully automated and features a vacation mode that automatically adjusts its cycle to process wastewater until the homeowner returns. Using sequenced batch reaction, water enters the reactor from pretreatment. Intermittent aeration allows for aerobic and anaerobic conditions that break down BOD and nitrogen. Solids settle to the bottom of the reactor, while the top (clear water) portion of the reactor is pumped out. The system then waits for the next cycle to begin. The unit achieves between 94-97 percent BOD reduction, 84-94 percent TSS reduction and 55-67 percent TN reduction. 877/735-2797; [www.pekasys.com](http://www.pekasys.com).

### Submersible pumps

**Hydra-Tech Pumps** introduced its **Model S3SHR** 3-inch hydraulic submersible shredder pump with 360-degree shredding action and its

4-inch hydraulic submersible trash pumps (S4TLP ductile iron body, S4TLPAL aluminum body). The shredder pump weighs 68 pounds, can handle 3-inch solids and stands 18.5 inches tall. It has a 12 gpm input flow and maximum operating pressure of 2,600 psi. Other features include an open-vane shredder impeller with tungsten carbide cutting tip, oil-lubricated seals (can run dry), and variable-speed hydraulic drive. The trash pump, 19.5 inches at its widest point, is designed for use in tight spaces and can be used for tank truck mounting for direct loading/offloading. The two-vane channel impeller will pass 3-inch semisolids. It has an input flow of 10 gpm and maximum operating pressure of 2,800 psi. **570/645-3779; www.hydra-tech.com.**



### Well and septic coverings

**Topscape** introduced its **raised flower garden** well and septic landscape covering. Made of weather-resistant natural cedar, the basket-shaped cover, supported by a metal ring on the inside, holds four drop-in plastic pots, providing a decorative way to camouflage septic tank risers up to 32 inches in diameter. The planter also can serve as a stand-alone raised garden. **608/333-3610; www.discovertopscape.com.**



### Corrugated pipe cover

**Polylok Inc.** introduced its **30-inch corrugated pipe and riser cover**. Adding to the company's 18-, 20- and 24-inch heavy-duty product line, the new reinforced plastic cover is designed to pass static load testing to 1,000 pounds as well as center and off-center impact load testing to 150 ft. lbs. The cover has easy-lift retractable handles, safety hold-down screws and factory-installed gasket to ensure a watertight and airtight fit. **877/765-9565; www.polylok.com.**



### Float-protected sump pump

**Crane Pumps & Systems** displayed the **Barnes SHUR-Switch** sump pump. Available in 1/4 (SU25) and 1/3 hp (SU33) models, the pump float is housed in a shroud to guard against obstruction and wedging. Magnets activate the switch as the float rises and falls. The GFCI-compatible, 120-volt pump operates at 3,450 rpm, has a 9-foot cord, 1 1/2-inch discharge and can handle up to 3/16-inch solids. The



1/4 hp model displaces 35 gpm and has a maximum head of 17 feet. The 1/3 hp model delivers 42 gpm and has a maximum head of 20 feet. **937/778-8947; www.cranepumps.com.**

### Septic system enhancer

**Greenovative Technologies** introduced its **EcoHancer** septic system additive and **TSS** total system solution FOG eliminator. EcoHancer, an organic liquid formula made from peat, accelerates both growth and microorganism activity within the septic system to reduce sludge buildup, improve settling and reduce suspended solids to maximize drainfield performance, enhance long-term efficiency and promote environmental stability. Packaged in a 16-ounce bottle, the additive is sold in a case of 12 for monthly application. Neither an enzyme nor bacteria additive, TSS eliminates the fats, oils and grease that build up in grease traps by strengthening the existing microbes within the lines leading to the grease trap and farther down stream. **856/234-4540; www.greenovativetechnologies.com.**



### Biofilm reactor

**Clewer Clean Water** introduced its **Rotational Bed Biofilm Reactor**. The wastewater treatment system uses centrifugal force to create a greater treatment area. Air pumped in creates both rotation and an oxygen-filled path within the bioreactor. The extended rotating pathway of air feeds the biofilm-laden carriers. Air injected at an angle

into the cylindrical tank causes the carriers inside to rotate. Once in motion, little energy is needed for the carriers to continue rotating, allowing for the use of smaller pumps and reducing energy consumption. Sludge formed in the bioreactor continuously moves to the outside of the tank through the overflow pipe and is returned to the holding tank and repeats for a self-cleaning system. **843/247-6309; www.clewerusa.com.**

### Drainfield restorative

**Septic Drainer** displayed its **drainfield soil restorative**, designed to improve the percolability of soil for better drainage and prevent drainfield replacement. It is formulated to work on all types of septic systems, including conventional systems consisting of a septic tank, distribution box and leachfield, dry well systems and cesspool systems. **518/812-0000; www.septicdrainer.com.**



### Aerobic wastewater treatment

**Tricel Environmental Solutions** introduced its three-stage (primary settlement, aeration and final settlement) **sewage treatment system**. Available in three models, the system has a design flow rate of 235 to

700 gpd and treatment capacity of 1,040 to 1,855 gallons. The unit measures from 102 to 181 inches long, 65.5 inches wide and 87.7 inches tall. It weighs 661 to 1,102 pounds. Wastewater enters the primary settlement chamber, where solids drop to the bottom, are separated from the liquid and anaerobic breakdown begins. Bacteria in the aeration chamber feed on the impurities. Sludge settles in the final chamber where a continuous return system pumps solids back to the primary chamber. The remaining treated liquid is pumped out of the system. **774/413-5116; www.tricelenvironmental.com.**



**Low-rpm aerators**

**Septic Services Inc.**

introduced its **MaxAir500** submersible aerator and **Flagg-Air Model 340HP** aerator. The 2 cfm MaxAir 500 has a built-in handle for quick installation and a 12-foot power cord. Features include a stainless steel and cast-iron frame with high-torque, 2.2-amp, low-rpm motor for long-lasting service.



The top of the impeller is shielded by the motor housing to prevent clogging. Coupled with an effluent filter, the aerator can revitalize slow-draining systems. The Model 340HP aerator has a 1,750 rpm, high-torque, fully enclosed, continuous-duty 1/6 hp motor with pre-lubricated sealed bearings delivering 3.0-3.1 cfm. **800/536-5564; www.septicserv.com.**

**Two-seam plastic septic tank**

**Infiltrator Systems Inc.** introduced the **IM-1060** injection molded, two-piece, mid-seam polypropylene septic tank. The watertight unit has inboard lifting lugs for easy delivery and handling, integral heavy-duty green lids that interconnect with TW risers, reinforced access ports, structural ribbing and fiberglass bulkheads for additional strength. Weighing 320 pounds, the tank can be installed with 6 to 48 inches of cover, pumped dry during pump-outs and is suitable for use as a septic tank, pump tank or rainwater (non-potable) tank. The unit has a 1,070-gallon working capacity and 1,247-gallon total capacity. It measures 127 inches long, 62.2 inches wide and 54.7 inches high. **800/221-4436; www.infiltratorsystems.com.**



**Pump package**

**Duplex grinder pump packages** from **Liberty Pumps** are available in sizes to fit applications from residential to small municipal. The factory-assembled systems are controlled by the IP-Series intelligent panel with floatless technology. The D3648-Series (shown) includes a 36- by 48-inch (depth) fiberglass basin with two 2 hp grinder pumps. **800/543-2550; www.libertypumps.com.** ■



**ON TO INDIANAPOLIS**

In 2012, the 32nd Annual Pumper & Cleaner Environmental Expo International moves to the Indiana Convention Center in Indianapolis, Feb. 27 - March 1. For information visit [www.pumpershow.com](http://www.pumpershow.com) or call 866/933-2653.



Education Day: **MONDAY, FEBRUARY 27, 2012**

Exhibits Open: **TUESDAY, FEBRUARY 28-THURSDAY, MARCH 1, 2012**

**INDIANA CONVENTION CENTER  
INDIANAPOLIS, INDIANA**

Scan this tag for more information



Get the free mobile app at <http://gettag.mobi>

[visitindy.com/pumpershow](http://visitindy.com/pumpershow)



*The most complete line of ...*

- System Alarms**
- Float Switches**
- On-Site Accessories**
- Control Panels**



**Call Today**  
**419-282-5933**  
[www.septicproducts.com](http://www.septicproducts.com)  
[sales@septicproducts.com](mailto:sales@septicproducts.com)



February 27 - March 1, 2012

Indiana Convention Center • Indianapolis, Indiana  
Monday - Education Day • Tuesday - Thursday - Exhibits

# Indianapolis 2012

NEWLY EXPANDED INDIANA  
CONVENTION CENTER

## TOP TEN REASONS INDIANAPOLIS IS THE BEST PLACE FOR THE 2012 PUMPER & CLEANER EXPO

10. David Letterman is from Indianapolis, so Top Ten lists are everywhere.
9. If they can handle 80,000 Super Bowl fans, 15,000 Pumper & Cleaners should be doable.
8. 4,700 hotel rooms connected to the convention center - that's nearly 2,000 more than Opryland.
7. Over 200 restaurants, bars, and entertainment options all within walking distance - close walking distance.
6. Climate controlled skywalks mean never having to wear a coat - or scarf, or mittens, or stocking cap.
5. Send your significant other shopping - the Convention Center is attached to a mall!
4. No matter what state you are from, there's only one way to pronounce "Indianapolis".
3. The last major crime spree in the city was by Indianapolis native John Dillinger in 1931.
2. 35 cities fly non-stop to Indy's brand-new airport - opened in November 2008.
1. Horses don't race there, cars do!

# A Quiet Force for Progress

The Consortium of Institutes for Decentralized Wastewater Treatment supplies the onsite industry with an abundance of educational resources

By Ted J. Rulseh

There's a group of unsung heroes in the onsite wastewater industry. It goes by a somewhat inconvenient name: The Consortium of Institutes for Decentralized Wastewater Treatment.

One can argue whether the group should simply change its name to The Onsite Consortium, which is how you find it on the Web ([www.onsiteconsortium.org](http://www.onsiteconsortium.org)). But there's no debate about the contributions the organization has made for the betterment of the onsite industry.

From an array of full-blown training programs, to a glossary that helps standardize terminology in an industry with many regional differences, to practical, hands-on checklists and graphics for practitioners, to informational material for homeowners, the consortium has an impressive list of achievements to show for its 12 years of existence.

Members George Loomis and John Buchanan spoke on behalf of the consortium in an interview with *Onsite Installer* magazine.

Loomis is a research and extension soil scientist with the University of Rhode Island, director of the New England Onsite Wastewater Training Program, and onsite wastewater focus area program leader for the U.S. Department of Agriculture district that includes New England, New York, Puerto Rico and the U.S. Virgin Islands. He serves on the consortium executive board and chairs the practitioner training program.

Buchanan is an associate professor of biosystems engineering (formerly called agricultural engineering) with the University of Tennessee at Knoxville and has an outreach and research appointment in small wastewater systems

public health and the environment through the transfer of information about residential and small-community wastewater systems. That makes us mission-driven and gives us the responsibility and privilege to work with the onsite industry, which really shares the same mission.

**OI:** How does the consortium influence the various kinds of training that get done in the onsite industry?

**Buchanan:** Our work has heavily influenced the nature of training. Even before there was a consortium, a number of us independently worked on curriculum for our own areas. Since then, organizations like NAWT (National Association of Wastewater Transporters), NOWRA (National Onsite Wastewater Recycling Association) or NEHA (National Environmental Health Association) have adjusted their curriculums based on the programs we put together.

They realized that our materials were created by professional educators who understand the information transfer process. As educators, we can look at a group of people in training and ask ourselves: Are they getting it? When our materials came forward and the industry groups saw the logic and order and quality of the presentations, they began adopting them.

**Loomis:** All the major curriculum projects the consortium has developed are professionally peer reviewed, and that is a huge deal. Each program we developed was pilot-tested four times across the country. After each pilot training, the writers and reviewers went back and revised the information



John Buchanan



George Loomis

**"We have a policy that before we issue someone the slide sets, we want them to come to a Train the Trainer event so that they recognize the areas of emphasis we think are important — the key points and issues that really need to be conveyed."**

John Buchanan

The consortium was founded in 1998 to encourage research, outreach and education about decentralized wastewater treatment. It is an independent group of educational institutions, industry organizations and agencies. Its membership now includes representatives from 33 higher education institutions and 22 training centers, programs and organizations (including state onsite wastewater associations), as well as a group of individual advisory members.

and stormwater. He chairs the consortium's executive board.

**OI:** What would you say is the driving force behind the consortium?

**Buchanan:** The majority of us who consider ourselves consortium academicians are from Land Grant Universities. Those universities have a mission to help develop the economy and technology of their states.

There are about a dozen Land Grant Universities that still have it as part of their mission to protect

and pilot-trained it again.

At times during the process, the material was sent to a list of selected reviewers, typically 12 to 14 people who were essentially the cream-of-the-crop practitioners in their specific areas of expertise.

After all that was done, we sent the material to 50 to 100 people in the industry who were members of NAWT, NOWRA or NEHA. Comments from those people were then addressed in the final curriculum.

**OI:** Do the industry associations actually use the consortium curriculum in their training programs?

**Loomis:** The NAWT Operations



and Maintenance training is largely based on our National O&M Service Provider program. NEHA's national Certified Installer of Onsite Wastewater Treatment Systems credential is closely allied with the consortium's National Installer Training Program, which we developed in conjunction with the NOWRA Installer Academy.

NEHA developed the credential and created the exam separate from our training curriculum, but they use our curriculum as the basis for what credentialing candidates need to know. After the training is delivered, NEHA typically on the same day or the following day offers their credentialing exam. It's very much a coordinated effort by the consortium, NEHA and NOWRA.

Another curriculum the consortium developed was Analyzing Wastewater Treatment Systems for High Strength and Hydraulic Loading. This was created without any outside grant funds. It came together because Bill and Betty Stuth (practitioners from the State of Washington who specialized in that area) wanted to get the information they had developed over several decades out to the rest of the industry. They quite unselfishly shared their knowledge.

It's worth noting that the Analyzing Wastewater and O&M Service Provider training curriculums each received a Blue Ribbon Award for outstanding outreach education materials from the American Society of Agricultural and Biological Engineers. That was quite an honor.

**OI:** What is the philosophy behind the consortium's Train the Trainer program?

**Buchanan:** We have a policy that before we issue someone the slide sets, which are fully scripted, we want them to come to a Train the Trainer event so that they recognize the areas of emphasis we think are important — the key points and issues that really need to be conveyed.

We're also concerned with the actual nuts and bolts of presenting a training program. For example, you really ought to have a backup projector. You ought to make sure the room is properly cooled or heated so that everyone is comfortable, and that the blinds can be

pulled to make sure it's dark enough in the room without it being too dark.

Those are things people who are not educators by training may take for granted, and yet they can make or break a good educational opportunity. We typically hold Train the Trainer sessions over three days in conjunction with one of the training programs we're conducting.

**OI:** Who is authorized to deliver consortium training programs?

**Loomis:** Any consortium members in good standing and having participated in the Train the Trainer events can access the full training materials with all the PowerPoint slides, speaker notes, and electronic materials. Because it's all peer-reviewed and nationally sanctioned material, we don't want people to go in and change the slides to suit their needs, because then it's no longer standardized training. But it's perfectly legitimate for folks to add slides with information that's appropriate to their particular state or region.

**OI:** The consortium's projects include the creation of a glossary of industry terms. Why was this necessary?

**Buchanan:** As we went to meetings across the country and worked with installers and maintenance providers, we found we weren't talking the same language on many issues, and we would have to ask for clarification.

We'd ask someone, "What kind of device is that you're talking about?" They would describe how it works, and we'd say, "Oh, a media filter." In addition, there are plenty of trade names and industry names that are not necessarily appropriate for communicating broadly across the industry.

**Loomis:** When we went to the first meeting with the writers and reviewers for our O&M Service Provider program, we had 25 or 30 people in the room from all over the country. We mentioned the term "drainfield," and we noticed some people with very perplexed looks on their faces. Somebody said, "What is that?"

We thought everybody understood what a drainfield was. But we had to go to the chalkboard and

draw a picture of what we were referring to. And then people said, "Oh, we call that a leachfield," or we call it this, or we call it that. We realized at that moment that we needed a standard glossary if we were going to put together an effective training curriculum. We wanted the terminology to be standard from the first curriculum we created until the last one.

**OI:** Have you actually seen this standard terminology take hold in the marketplace?

**Buchanan:** The response to the glossary has been surprisingly positive. In keeping up with the literature that crosses my desk, and

that helps ensure that they've done the job and documents that they have done it properly.

**OI:** How were these checklists created?

**Buchanan:** We put them together with help from active, working practitioners. We created a first cut as academics, including what we thought was important. That's easy to do sitting at our desks or by going out in the field ourselves, but then we showed them to the folks who do this for a living, who our industry recognizes as the leaders, and they humbled us.

They said "We need our practitioners to be worried about safety,

**"We realized that we needed a standard glossary if we were going to put together an effective training curriculum. We wanted the terminology to be standard from the first curriculum we created until the last one."**

**George Loomis**

in seeing other people's work in the industry, there have been quite frequent references to the glossary. That's a source of pride in that we provided some standardization of the nomenclature across the country.

In another instance, we've gone through some revisions of our code in Tennessee. Some old definitions have been updated and even discarded, and they've been replaced with the more standardized terminology. We've also seen terms from the glossary used in some vendors' brochures and publications.

**Loomis:** Like our training curriculum materials, the glossary went through a review process. We shared it with a number of people from across the country, and they sent back comments that helped us improve it.

**OI:** What was the thought behind the various checklists the consortium created for industry professionals?

**Buchanan:** The checklists are the real power behind the materials we've assembled, especially from the standpoint of someone who's actually in the field, doing the nuts-and-bolts installations and doing the hands-on inspections and maintenance. Now they have a tool

to know how to deal with dogs, to make sure they have lockout/tagout products and materials so that they don't get electrocuted. We need to make sure that when they leave the site they put the system back on automatic and put the hang tag on the doorknob to show the homeowner that they've been there." Those are the kinds of things we didn't know about. The practitioners educated us.

**OI:** What is it about the consortium and its work that makes you the most proud?

**Buchanan:** I would say that in Tennessee, the item that has brought the biggest return on the education investment is the O&M Service Provider program. It gives me great pride to be associated with the organization that put that program together.

**Loomis:** The thing I'm particularly proud of is working with a group of like-minded people who have been effective in developing materials that serve a whole variety of needs for wastewater practitioners. By working with the industry over a number of years, we've been able to take our academic knowledge and apply it to help solve a lot of the industry's problems. ■



**Featured in an article?**

Make the  
most of it!

**REPRINTS  
AVAILABLE**

We offer:  
Hard copy color reprints  
Electronic reprints

Visit [onsiteinstaller.com/order/reprints](http://onsiteinstaller.com/order/reprints)  
for articles and pricing

## SJE-Rhombus Hosts U.S. Senator

Sen. Amy Klobuchar (D-Minn.) visited the SJE-Rhombus headquarters in Detroit Lakes, Minn., in January to learn more about the company's employee ownership program. Klobuchar's visit was part of a tour across northern Minnesota.



Sen. Amy Klobuchar visits with SJE-Rhombus employees.

## Bear Onsite, Jackel Form BEAR-JACK Alliance

Bear Onsite LLC and Jackel Inc. have formed a strategic alliance to offer high-performance filtered basin assemblies for the onsite market under the BEAR-JACK brand. The six assemblies are designed for rainwater harvesting, sanitary wastewater filtration and tertiary filtration following secondary treatment units.



Charles Murphy

## WAYNE Water Systems Names Murphy VP

WAYNE Water Systems has promoted Charles Murphy to vice president of sales. He will oversee the sales staffs for the company's retail pump lines and Blue Angel professional product lines. Murphy joined WAYNE Water Systems in 2004 and had been director of business development.

- ✓ **FREE Subscription**
- ✓ **Product Information**
- ✓ **Used Equipment**
- ✓ **Discussion Forum**
- ✓ **Article Reprints**
- ✓ **Digital Editions**
- ✓ **COLE Mart Superstore**
- ✓ **Editor's Blog**

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

# "Duel Power Lid"

Plugs, Lids & Adaptor Rings

Sizes Available: **18", 24", 30" & 36"**

**Fergus Power Products**  
Providing "Environmental Products"

The Company who maintains a pulse on the environment!

Toll Free **1-800-243-7584**  
E-mail [fpproducts@prtcl.com](mailto:fpproducts@prtcl.com)  
[www.FergusPowerProducts.com](http://www.FergusPowerProducts.com)

# AERATOR

**STA60 - STA80 - STA100**  
Are specifically designed for years of trouble-free service and are a superior replacement for all 60-80-100 Model pumps on the market.

Available with hose bib for low pressure alarm connection.

**Best Value!** STA60...\$220 STA80...\$250 STA100...\$340

**CARRIES A 2-YEAR WARRANTY**

## REDESIGNED Flagg-Air™ Model 340HP

**HAS BEEN SOLD NATIONALLY SINCE 1992 AND HAS A REPUTATION AS THE LEADER IN AERATION!**

- Low 1750 rpm
  - High torque
  - Enclosed motor w/handle
  - Stainless steel shaft
  - Improved high impact plastic parts
  - 2-yr. warranty
  - Fits in place of most original manufacturers' units
  - Replacement parts available
- Improved Design!**
- \$350**
- The Flagg-Air 340HP does not carry the NSF seal. Check local and state regulations for approval in your area.

## R-5760 Blower

57 cfm.....\$375

## BULLET High Head Filtered Effluent Pumps

BP12...12gpm **\$235**  
BP20...20gpm **\$255**

## P101-FA-2 24-Hour Timer

w/mini breaker & warning light increment setting 15 minutes

**New Item!**

## MEDO Piston

LA-60 LA-80 LA-100 LA-120

## SECOH Diaphragm

EL 60 EL 80 EL 100 EL 120

## 50523 1023 Rotary Vane Compressor

## Regenair® R3105-12 Blower

## Hydromatic, Zoeller, ABS, Liberty & Myers Pumps

## Conde SDS 6 Engine Driven

Units available 20 to 180 cfm

## Moro PM80 Turbo 350 cfm

Moro Pumps: from 176 to 1642 cfm

toll free 1-800-536-5564 • local 636-583-5564 • fax 636-583-6432  
sales@septicerv.com • www.septicerv.com

# Septic Services, Inc.

## Aerated batch reactor saves homeowner thousands

### Problem

The Clermont County (Ohio) Health Department discovered effluent surfacing from a failed drainfield and required the homeowner to enter the county's Sewage Nuisance Abatement Remediation Plan. Step 1 includes measures property owners must take to eliminate the failure by assessing the septic tank's structural integrity. Step 2 conserves water to reduce hydraulic loading. If both fail, successive phases add flow control, pretreatment or both. The final phase modifies or replaces the drainfield.



### Solution

The contractor installed a new septic tank, then recommended an effluent pumping system to a modified mound drainfield for more than \$20,000, beyond the owner's budget. The contractor researched alternatives and chose a **Saber Septic system from Advanced Wastewater Systems**.

The system has a control panel, an air pump mounted outside the house, and an air diffuser and submersible pump in the septic tank. The system converts the anaerobic tank into an aerobic treatment system with programable cycles of aeration, settling, and time-dosed discharge. The oxygen-rich effluent facilitates reduction of the biomat, allowing the drainfield to percolate again. Pressure dosing also prevents water from backing up into the tank or house.

The system met Steps 3 and 4 in a single, cost-effective package that took less than three hours to install.

### RESULT

The system is producing effluent with less than 20 mg/l BOD and TSS, the drainfield is accepting it, and the homeowner saved thousands of dollars. **812/528-8784; [www.saberseptic.com](http://www.saberseptic.com)**.

## Alternative passive technology replaces a conventional drainfield

### Problem

The owners of a two-bedroom farmhouse in Whitefield, N.H., had a noncompliant cesspool. They wanted a low-maintenance replacement that could withstand the rigors of tenants, yet would not require electrical and mechanical components or service contracts.



### Solution

Larry Rexford of Wendell Rexford and Sons in Whitefield designed the 300 gpd system using **Advanced Enviro-Septic (AES) combined treatment and dispersal pipes from Presby Environmental**. He chose the technology for its reduction allowance from the water table and its ability to fit into tight spaces, install on slopes without extensive retaining walls, and flex around obstacles.

Treatment occurs in a perforated plastic pipe, a white Bio-Accelerator geotextile fabric along the bottom exterior surface, and a surrounding layer of plastic fiber mat and geotextile fabric. Ridges in the pipe allow effluent to flow uninterrupted around the circumference and cool the liquid to ground temperature. Skimmer tabs at each perforation retain grease and suspended solids, protecting the outer layers from clogging.

The Bio-Accelerator filters additional solids, speeds treatment, facilitates quick startups, provides more surface area for bacterial growth, promotes even distribution, and protects outer layers and receiving surfaces from clogging. The surrounding mat of coarse fibers further filters the effluent as it passes into the outer geotextile layer and grows a protected bacterial surface.

The lightweight pipe is installed in ASTM C-33 sand, which wicks liquid from the geotextile fabric while transferring air to the microorganisms. The technology provides a large bacterial surface to break down solids, while an ample air supply and fluctuating liquid levels increase bacterial efficiency.

### RESULT

The Bureau de Normalisation du Quebec and NSF Standard 40, Class I Certified, confirmed that the system treated effluent to less than 2 mg/l TSS and CBOD and 218 CFU/100 ml fecal coliform. **800/473-5298; [www.presbyenvironmental.com](http://www.presbyenvironmental.com)**.



## Recirculating trickle filter discharges to sensitive waters

### Problem

The conventional onsite system at Offshore Systems, a year-round marine cargo-handling terminal with 40 workers on Amaknak Island, Unalaska, Alaska, had two failed drainfields and compromised septic tanks. The leaking collection system also had inflow and infiltration problems.

Amaknak Island, part of the Aleutians, separates the Northern Pacific Ocean from the Bering Sea. The environment is hostile and corrosion a major concern. The terminal is part of Dutch Harbor, the city's port.

### Solution

The facility hired Garness Engineering Group of Anchorage to design a corrosion-resistant system to produce effluent meeting secondary standards

for discharge to sensitive marine waters. The engineers chose an **AeroCell recirculating trickle filter from Quanics**. They installed the two 5,000 gpd modules on an elevated platform inside a warehouse to protect them from the elements and reclaim valuable drainfield space.

Wastewater from a central lift station flows into two 3,000-gallon settling tanks, then to the 3,000-gallon recirculation tank with alternating duplex pumps. With an alternating motorized valve, the pump circulates liquid between the modules. Nozzles inside the units spray wastewater over foam cube media.

A gravity-flow collection system at the bottom returns treated effluent to the recirculation tank. Gate valves recirculate 80 percent of the liquid and send 20 percent through the chlorination-dechlorination system with two tablet feeders. An automatic valve controls the discharge rate to the ocean.

#### RESULT

Plastic tanks and components solved the corrosion issue. Operation and maintenance costs are minimal and the system has a small footprint. **877/782-6427; [www.quanics.net](http://www.quanics.net)**.

## Passive biofilter comes ready to install

#### Problem

An aerobic treatment unit failed on a property in Van Meter, Iowa. Lack of space and clay soils limited replacement options. The homeowner wanted a system with minimal maintenance and operating costs.



#### Solution

River to River Onsite Septic Solutions in Waukee, Iowa, chose the closed-bottom, pre-assembled **Ecoflo unit from Premier Tech Aqua** for an in-ground installation with minimal visual impact. RD McKinney Plumbing and Excavating in Waukee installed the system, the first of its kind in the state.

Wastewater from the septic tank enters the top of the polyethylene shell and runs into a bucket that tips back and forth, evenly dispersing the effluent onto distribution plates. After passing through holes in the plates, the liquid percolates down through peat moss for purification.

The treated water then disperses into an absorption bed of clean stone and natural soil downstream. If soil conditions allow, a bottomless version is available.

#### RESULT

Effluent is treated to surface discharge levels without UV disinfection, a space-saving step. Sampling is required annually. Results of third-party studies showed TSS at 3 to 6 mg/l, CBOD<sub>5</sub> at 4 to 8 mg/l, and fecal coliform at 413 to 1,571 CFU/100 ml. **800/632-6356; [www.premiertechaqua.com](http://www.premiertechaqua.com)**.

## Robust solution for a coffee shop

#### Problem

High-strength wastewater caused the premature failure of onsite systems at a coffee shop chain store in New Hampshire. The owner sought a more robust solution for a new shop in Newfields.

#### Solution

The designer sized the system to handle 1,000 gpd of combined sanitary and high-strength kitchen waste. **The Clean Solution aerobic treatment system from Wastewater Alternatives** provides secondary treatment.



Kitchen waste flows into a 1,000-gallon grease trap, then to a 1,000-gallon single-chamber BioCon aerobic grease trap without media. Kitchen and sanitary flows combine in a 2,000-gallon single-chamber septic tank.

Effluent flows from the septic tank to a 2,000-gallon dual-chamber Bio-Con aerobic treatment tank with biological contact media, then to a 2,750-gallon triple-chamber settling tank before being pumped to a pipe-and-stone leachfield. Six small 4.5 cfm linear piston air compressors aerate the three aerobic chambers. Air bubbles keep the media in suspension and provide dissolved oxygen for biological activity.

#### RESULT

After 18 months, grab samples of septic tank effluent had levels of 930 mg/l TSS, 1,000 mg/l BOD<sub>5</sub>, 220 mg/l FOG, and a pH of 6.0. Grab samples from the final settling tank had TSS and BOD<sub>5</sub> levels of less than 5 mg/l and 6 mg/l, a 99.5 percent reduction. FOG levels were less than 5 mg/l — a 98 percent reduction — and pH increased to 7.3. **603/783-8042; [www.thecleansolution.com](http://www.thecleansolution.com)**.

## ATU resolves a problem on a confined lot

#### Problem

A more than 50-year-old septic system had completely biomatted the leachfield, and there was no room left on the small lot to install a replacement field. The household was also low income. Officials in the Clermont County (Ohio) Department of Health wanted a new treatment system that could solve the problem.



#### Solution

Hydro-Action and Green Excavating came up with a plan to donate all the time and material to the family. The designer sized the system to handle 500 gpd and chose a **Hydro-Action aerobic treatment unit from Green Excavating**. The Set-N-Go tank design has an anaerobic septic chamber, aerobic chamber with a clarifier cone, and a pump tank with a Salcor 3G UV disinfection unit with re-aeration. The system exceeds Ohio EPA NPDES standards, allowing Green Excavating to do direct discharge and avoid installing more leachfield chambers on an already extremely small lot.

#### RESULT

The system produces effluent with less than 15 mg/l BOD and TSS, greater than 6.0 mg/l dissolved oxygen, and fewer than 40 fecal coliform colonies per 100 ml. It meets the Ohio EPA environmental standards. **574/936-2542; [www.Hydro-Action.com](http://www.Hydro-Action.com)**.



## Packed-bed filter replaces a failed sand filter

### Problem

The U.S. Army Corps of Engineers had to replace a failing 6,000 gpd sand filter at a recreational day-use facility in Sutton Lake, W.Va., before the summer season. The new system had to start up immediately, meet NPDES permit requirements of 30 mg/l BOD5 and TSS, and discharge directly into the lake.

### Solution

The Corps chose the **AdvanTex AX100 commercial treatment system from Orenco Systems**. Workers installed three 5,000 gpd pre-engineered modules on top of the sand filter. The compact design of the 16-by-8-by-3.5-foot units expedited installation, minimized disruption, and reduced the overall footprint. The modules have telemetry monitoring and draw 3 kWh/1,000 gallons.

The system starts up quickly because the textile media provides a large surface for microbial attachment, producing immediate filtration TSS/BOD

reduction. The microbes, permanently affixed to the media, never have to regrow if the system is idle for a time. The media allows loading rates up to 50 gpd per square foot and is easily serviced.

### RESULT

The system produces effluent with less than 2 mg/l BOD5 and less than 7 mg/l TSS. It is discharged into Sutton Lake after UV disinfection. **800/348-9843; [www.orenco.com/systems](http://www.orenco.com/systems).**

## Aerobic packed-bed bioreactor treats high-strength wastewater

### Problem

The onsite system at a wholesale meat packing plant in Homedale, Idaho, failed. The plant, a quarter-mile from the Snake River, produces 2,000 gpd of wastewater with seven times the domestic levels of BOD and nitrogen.

### Solution

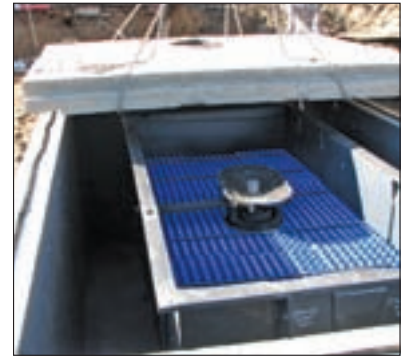
Material from the kill floor filters through a sand and grease trap, then into a 2,200-gallon holding tank. Domestic wastewater flows directly to three 1,500-gallon pre-cast concrete septic tanks. The two streams converge in a poured-in-place 10,000-gallon tank with a **HighStrengthFAST 9.0 fixed-activated sludge treatment unit from Bio-Microbics Inc.** Two combined 1,500-gallon dose chambers with duplex pumps send the water to the one-acre drainfield.

The technology uses a hybrid submerged and attached growth process in an integrated fixed-film system that has the stability of attached growth without the need for controls to keep the media wet.

Because multiple biological, biochemical, chemical, and physical processes occur simultaneously within the aerobic packed-bed bioreactor, nitrification and denitrification projects are easier and achieve high percentage reduction rates.

### RESULT

Sampling required by the local health department confirmed a reduction in BOD and nitrogen levels of more than 90 percent. **800/753-3278; [www.biomicrobics.com](http://www.biomicrobics.com).** ■





## LARGE PRECAST TANKS TO 40,000 GALLONS

- ◆ Septic, Grease Interceptors, Holding Tanks
- ◆ Available in Sizes 750 to 40,000 Gallon
- ◆ Extra Heavy Duty Tanks—HS20 Loading
- ◆ Bituminous Coating, Fast, Efficient Setting
- ◆ Vacuum Tested, Water Tight Structures
- ◆ Tanks for Bio-Microbics and Nibblers, Sand Filters
- ◆ Nationwide Delivery • Custom Sizes for Any Project





**WIESER**  
CONCRETE PRODUCTS, INC.  
**1-800-325-8456**

Join Us On the Web:  
[www.wieserconcrete.com](http://www.wieserconcrete.com)





## 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](http://www.alita.com) e-mail: [sales@alita.com](mailto:sales@alita.com)

# ARE YOU COVERED?

Don't lose your business and life earnings to spotty insurance coverage



**The majority of insurance brokers don't know your business as well as we do.**

With an estimated 26 million septic systems serving U.S. residences, there's a considerable amount of work in the pipeline for septic contractors. However, until now, septic contractors haven't had an all-lines insurance solution that would cover all of their business exposure from design and installation to the rental of portable toilets.

To address this need, Sanitation Insurance Services specializes in offering a comprehensive insurance program specifically for septic contractors and portable restroom operators. While some policies provide coverage for pumping or portable toilet rental, our program addresses design, installation, inspection, service and repair, vandalism as well as pumping and portable toilet rental.

You need an insurance program that addresses the specific exposures you face, such as errors and omissions (E&O) coverage for the various services you provide.

**WE HAVE YOU COVERED.**



 **SANITATION**  
INSURANCE SERVICES

**1-877-877-1555**  
[www.SanitationIns.com](http://www.SanitationIns.com)

# Zero Discharge

A bio-engineered system harnesses the natural process of evapotranspiration to treat wastewater in a closed system at a Parks Canada lock in Ontario

By **Scottie Dayton**

**L**ake Simcoe, the largest inland lake in southern Ontario, suffers from acute nutrient loading. Environment Canada was concerned about contamination even from the restroom used by motorists and boaters enjoying the park at Lock 41 Station.

Although the conventional onsite system with tile lines in a sand filter was working, Environment Canada chose the site for a pilot project to test a technology that could provide long-term protection of the watershed. Centre for Sustainable Watersheds, a nonprofit environmental organization in Portland, Ont., provided the engineered ECOCYCLET ZeroDischarge closed-loop evapotranspiration bed.

“It’s not a wetland cell because the recirculated wastewater either evaporates or is drawn up by plants,” says president Bob Sneyd. “There is absolutely no discharge.”

The system will go online in mid-May when the lock opens for the season.

### Site conditions

Soils are clay with a percolation rate of 50 minutes per inch. Operating the lock raises and lowers the water table 10 feet. The system parallels the canal. The lock, owned by Parks Canada, is part of the Trent-Severn Waterway National Historic Site of Canada.

### System components

Robin Smith, P.E., of Robin Smith Engineering in Hillsdale, Ont., designed the system to handle 172 gpd based on a peak of 75 toilet activations per day. The major components are:

- Existing 2,000-gallon two-compartment concrete septic tank.
- Existing 430-square-foot sand



**Kirk Hastings adds the final layer of aggregate above the distribution piping while his assistant rakes and levels it. (Photos courtesy of Centre for Sustainable Watersheds)**

filter with gravity-fed 3-inch tile distribution lines.

- 2,000-gallon two-compartment concrete recirculation tank from Wyevale Precast.
- Biotube simplex pump vault and simplex control panel from Orenco Systems.
- Two distribution valve chambers from Rain Bird Corp.
- Two aeration injectors from Mazzei Injector Co.
- ECOCYCLET ZeroDischarge Wastewater Systems.

### System operation

Wastewater flows into the septic tank, then to the recirculation tank. Because the evapotranspiration rate in the vegetation bed varies, pump cycles depend on the amount of water recirculated back to the tank.

If all the water evapotranspired in one cycle, the alternating pump would run four times a day for 0.82 minutes to soak the two zones with 43 gallons. The bed, filled with coarse sands and gravels, grows moisture- and nutrient-loving plants such as willows, cattails, and ferns that depend on photosynthesis and transpiration to survive. Various media layers enable aerobic microorganisms to assist the treatment process.

Wastewater that is not evapotranspired trickles down to the 4-inch slotted recirculation pipe in three hours. A 2 percent slope on the bed gravity-feeds the liquid back to the recirculation tank.

Levels of TSS, BOD, and other pollutants are irrelevant in a closed-loop cycle. Water-quality parameters

## System Profile

<b>Location:</b>	Gamebridge, Ont.
<b>Facility served:</b>	Park restroom
<b>System designer:</b>	Robin Smith, P.E., Robin Smith Engineering, Hillsdale, Ont.
<b>Installers:</b>	Onsite Septic Solutions, Wyevale, Ont.
<b>Site conditions:</b>	Clay with percolation rate of 50 minutes per inch
<b>Type of system:</b>	ECOCYCLET ZeroDischarge Wastewater Treatment Systems, Centre for Sustainable Watersheds
<b>Hydraulic capacity:</b>	2,000 gpd



**“High-efficiency differential injectors with internal mixing vanes pressurize the wastewater, while creating a venturi that draws in air through an inlet tee to aerate the recirculated wastewater and provide dissolved oxygen for the plant roots and to enhance bacterial action.”**

**Kirk Hastings**

will be monitored to demonstrate the effectiveness of bed design and components and to gather data that could guide process improvements.

**Installation**

Onsite Septic Solutions, a preferred contractor in Wyevalle, Ont., donated products and services. Owner Kirk Hastings and his team retrofitted the septic tank with a Polylok A100 effluent filter in the second compartment.

“We didn’t test the tank for watertightness because the scum was at the proper level,” he says. “The sand in the sand filter is six feet above

the grade to achieve the required separation from the native clay.”

Hastings left the dividing wall in the recirculation tank for structural integrity, but cut an 18-inch-square transfer hole in the upper half. To compensate for heavy rains or system failure, he added a gravity overflow port connected to a tee that directs effluent to the sand filter. “The tee is 12 inches above the high-water alarm,” he says. “Because this is a pilot project, we needed a fail-safe procedure.”

The crew decommissioned the outlet line from the septic tank, connected it to the recirculation



The long sides of the bed have a 2 percent inward slope of compacted sand. Centre for Sustainable Watersheds interns from EPF School of Engineering, France, and wastewater program coordinator, Étienne Bordeleau, unfold and center the low-density 40 mil polyethylene liner.

tank bedded on six inches of sand, and installed the pump vault. “During pre-construction, we learned that the inlet of the vault is two feet from the bottom of the tank and that Orenco specifies locating the controls above it,” says Hastings. “In addition, the high-water alarm must be one foot from the top of the tank. Had we overlooked those specifications, we would have lost three feet of tank volume.” They compensated by switching from a 1,500-gallon to a 2,000-gallon tank.

Workers ran two 2-inch SDR 26 Schedule 40 pressure lines from the pump vault to distribution valve chambers housed in an insulated 24-inch Polylok riser. When the dosing pump activates, a mechanical process inside the chamber automatically switches to another zone. The riser, functioning as a service port, is located between the recirculation tank and the vegetation bed.

“These systems are pressurized at the distribution valves,” says Hastings. “High-efficiency differential injectors with internal mixing vanes pressurize the wastewater while creating a venturi that draws in air through an inlet tee to aerate the recirculated wastewater and provide oxygen for the plant roots and to enhance bacterial action.”

The vegetation bed site was at the toe of a 3:1 slope. After stripping the topsoil for the 62- by 16-foot footprint, Hastings back-filled with six feet of sand and soil to elevate the low end of the bed.

Installing the assembled liner was the most difficult part of the job. “We had to form and fit the



Étienne Bordeleau (left) and Kirk Hastings verify the placement of the Biotube pump vault and final location of the float level alarms.

square corners, which I wouldn’t do again,” says Hastings. “I would ask the manufacturer to do it.” The low-density 40 mil polyethylene liner, which prevents root intrusion, is level with the top of the bed.

The crew outlined the liner’s footprint with string, then created a 2 percent backslope of compacted sand from the long sides of the bed toward the center. After positioning the liner over it, they simultaneously backfilled with screened sand outside, and laid the slotted recirculation drain line in six inches of leveled 3/4-inch washed round stone inside. They used sheets of plywood as temporary formers.

“We avoided crushed stone because, with sufficient pressure, the sharp edges could potentially damage the material,” says Hastings. “In hindsight, I should have built a frame for the liner. That would have protected it and eliminated importing as much sand.”



Kirk Hastings lowers the top half of the recirculation tank as workers guide its descent. The perimeter of the bottom half is covered with mastic sealant.

To prevent contamination from fines, the crew covered the stone with three inches of pea gravel before adding 15 inches of coarse sand (percolation rate less than 60 seconds per inch) topped by six inches of 3/4-inch washed stone. The finished bed is 2.5 feet high.

"The 1.25-inch distribution piping came predrilled with 1/8-inch orifices and flush ball valves on the ends," says Hastings. "The system has two zones, each with eight 29-foot-long laterals on two-foot centers."

Electricians installed the control panel. Centre for Sustainable Watersheds will work with Parks Canada to plant the vegetation. The lock station is closed from mid-October to mid-May.

#### Maintenance

No maintenance contract is required. Centre for Sustainable Watersheds gave Parks Canada an owner's manual that recommends cleaning the effluent filter at the end of each season and pumping the septic tank every three to five years. Parks employees will prune

the plants and rake the gravel as necessary. Data collection, analysis, and further research will provide additional proof of concept for the technology to replace traditional drainfields and manage communal treatment systems. ■

#### MORE INFO:

**Mazzei Injector Company**  
661/363-6500  
www.mazzei.net

**Orenco Systems, Inc.**  
800/348-9843  
www.orenco.com  
(See ad page 3)

**Polylok, Inc.**  
877/765-9565  
www.polylok.com  
(See ad page 40)

**Rain Bird**  
877/727-8772  
www.rainbird.com

**Wyevale Precast**  
705/322-2845  
www.wyevaleprecast.com



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



#### 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

# One Complete Package

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

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

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

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

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

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

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

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

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

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

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

**COLE Publishing | 1.800.257.7222 | 715.546.3346**



# BUSINESS BROKERAGE Marketing & Brokering

## TRYING TO SELL YOUR BUSINESS?

We can effectively market your business to more than 60,000 potential buyers in the liquid waste industry, your local markets, and other venues. No upfront fees – you don't

pay anything unless your business sells. To learn more about brokering your business through B<sup>2</sup>, call 800-257-7222.

## LOOKING TO BUY?

Call us, and we can add you to our VIP Buyer List

## LISTINGS

### Established portable restroom and septic service business located in central Virginia.

Excellent gross each of the past 3 years with no decline in revenue makes this business recession-proof. Steady work including many contracts and repeat customers. Extensive equipment inventory, good revenue, and owner willing to train. Great opportunity for expansion or a new career. **Asking price \$775,000.**

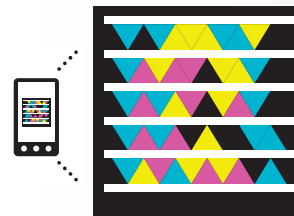
**New Jersey VIP Restroom/ Portable Toilet Business.** Servicing Metro Philadelphia and Southwest New Jersey with VIP restroom trailers and portables. Many late model assets including 2 nice service trucks, 1 back-up service truck, pick-up truck, 4 VIP restroom trailers, nearly 300 restrooms, sinks, holding tanks, slide-in unit, 2 forklifts, and more. Assets worth over \$300,000 - priced to sell at **\$399,000.**

**Dallas/Fort Worth Texas Area Sewer/Rehab Business For Sale.** Drain Cleaning, TV inspection, Pipeline & Manhole Rehab/Relining, Municipal Cleaning and Maintenance business for sale. Excellent opportunity to expand or start your own business. Good revenue history and priced to sell. Includes all equipment to get started. **Asking \$195,000.**

**Successful business with a large amount of equipment and inventory.** Profitable sewer and septic business in central Pennsylvania. Increasing revenue over the past 3 years and a large amount of equipment and inventory. Equipment is a mix of old and new, but all is working and making money. **Selling price \$250,000.**

**Well-Established and Profitable Texas Septic, Sewer & Installation Business For Sale.** **Price reduced.** Grossing in excess of \$600,000 annually, customer list of nearly 2,000 accounts and 430 contracted customers. Includes nice late model equipment, most are 2007, 2008 model years. Owner retiring after nearly 40 years in business. Real estate available upon request. **Reduced to \$450,000.**

**Amarillo, Texas sewer, drain & plumbing business established in 1976.** Owner wants to retire, so take the keys to a 2004 Sprinter outfitted with all of the equipment you'll need to run this business. Price includes real estate with 80x100 shop/office on two city lots. Good gross, good profit, financials available with signed non-disclosure. **Offered at \$495,000.**



Get the free mobile app at <http://gettag.mobi>

**New Jersey/Pennsylvania drain cleaning and pipe service business has all the elements for an ample start to a new foundation or an addition to your existing business.** Established in 1994, well-rounded client base, customer contracts, and owner is willing to train. Modern equipment and inventory. Real estate optional. **Reasonably priced at \$425,000.**

**Chicago-Area Biosolids, Land Application, Dredging and Industrial Services Business.** Established in 1985, owner is retiring. Reputable business includes real estate servicing the entire Chicagoland area with sludge and biosolids disposal and treatment services. Real estate and shop included with sale valued at \$750,000, business grosses in excess of \$3 million annually, \$6.3 million in equipment and assets including several TerraGators, Vac Trailers, dump trailers, loaders and much more. **\$4,900,000.** Huge potential, good profit and priced right. Non-disclosure Agreement required, all P&L statements, list of assets, and financials available to qualified buyers.

**WANTED.** Very serious and well qualified buyer looking for sewer, septic or industrial business in Dallas, Texas area. Must be grossing between \$500,000-\$1,000,000. All inquiries are kept confidential.

## North of the Border

Saskatchewan Health asked the Western Canada Onsite Wastewater Management Association (WCOWMA) to edit the Onsite Wastewater Practitioner training program for onsite installers and designers to ensure that the material addressed differences in the Saskatchewan regulatory framework from other provinces.

The program was developed by the organization and Manitoba Alberta Municipal Affairs and Housing. Manitoba Conservation has not reviewed the program, but recognizes it on a federal agreement that allows for cross-border transfer of certain certified professionals.

In 2010, WCOWMA held several training sessions in British Columbia and formed relationships with provincial and regional regulatory bodies, highlighted by significant input on a provincial training review study.

Last year, installers reported to the Alberta Onsite Wastewater Management Association (AOWMA) that the updated provincial Standard of Practice magnified some long-standing permitting, inspections and enforcement issues.

The association developed an ad hoc task force with key officials in Alberta Municipal Affairs and the Safety Codes Council to address them. Task force members called for changes, especially development of a standardized permitting process and a more efficient and accountable enforcement structure. Dale McLure, president of AOWMA, represents the association on the Alberta Septage Advisory Committee.

The Ontario Onsite Wastewater Association (OOWA) began a Registered Professional Program as part of an ongoing education initiative and became a Certified Delivery Agent for the Ministry of Municipal Affairs and Housing to deliver onsite installer courses through various partners.

The association is working with regulators to update the Ontario Building Code. One revision includes mandatory inspections of onsite

systems in areas where source water protection is required. OOWA is developing the inspection procedures and protocols, stressing that inspectors have proper liability insurance coverage.

The Onsite Wastewater Systems Installers of Manitoba hired Trisha Baldwin as a part-time training facilitator. Baldwin will plan training sessions and coordinate efforts with the Continuing Education Committee.

## Battling Ban

The Florida Onsite Wastewater Association created a Septage Land Application Committee chaired by Ellen Vause of Florida Septic Inc. in Hawthorne, in response to state legislation that bans land-applied biosolids in 2016.

Besides providing the state Department of Health with comments on the ban, the committee provided industry expertise and support for a report to the governor on methods and alternatives for improving land application requirements. The committee states that a few rule upgrades would ensure that the practice of land application meet the requirements to protect public and environment.

## On the Move

The Iowa Onsite Wastewater Association will take over the state's credentialing process for the Certified Installer of Onsite Wastewater Treatment Systems. Iowa has 207 certified professionals. The association received a \$100,000 U.S. Department of Agriculture Technical Assistance and Training grant to develop training materials on installing, maintaining, and sampling advanced treatment systems. Members will work with various manufacturers to develop the program. Darwin Bengford of Municipal Supply in Des Moines was elected to a three-year term as president.

## Level Playing Field

The Nebraska On-site Waste Water Association is monitoring how the state Department of Environmental Quality applies the Title

124 onsite wastewater standards, as violations continue to threaten ground and surface waters.

Members working with the Onsite Wastewater Advisory Committee are waiting for the department's preliminary plans for a mound endorsement program. If accepted, it would allow common mound systems for 3- to 5-bedroom homes with high groundwater. The systems, following a basic design, would not require an engineer of record.

The association also is working through the committee to keep the code current, to clarify gray areas, and to develop more challenging tests for certification based on new products, methods, and code changes.

## New Local Chapter

Hill Country is a new chapter of the Texas Onsite Wastewater Association. Officers are Greg Johnson, president; Miguel Arreola, vice president; and Wiley Cloud, secretary.

## Lift and Signal

The January Wisconsin Onsite Water Recycling Association newsletter states that the OSHA requirement for crane operator licensing on construction sites will mean liability for installers, as a certified signal person must be on site when contractors deliver and set septic tanks. The regulations do not say who provides the signal person, so installers must clarify that detail with crane owners or operators before delivery.

Installers who modify their excavators to lift items and set their own tanks also fall under the licensing rules and must be operator, rigging and signalmen certified. Crane operators have until 2013 to certify; the signal person requirements are in effect.

## CALENDAR OF EVENTS

### April 3-5

Ontario Onsite Wastewater Association Conference and Exhibition, Deerhurst Resort, Huntsville. Call Denis Orendt at 905/372-2722 or visit [www.oowa.org](http://www.oowa.org).

### April 27-29

Georgia F.O.G. Alliance Conference and inspector training course, Merle Manders Conference Center, Stockbridge. E-mail Kemetta Pillette at [kpillette@atlantaga.gov](mailto:kpillette@atlantaga.gov) or visit [www.georgiafog.com](http://www.georgiafog.com).

### June 9-10

Arizona Onsite Wastewater Recycling Association Onsite Wastewater Educational Conference, Radisson Suites, Tucson. E-mail Suzanne Ehrlich at [suzanne.ehrlich@co.yavapai.az.us](mailto:suzanne.ehrlich@co.yavapai.az.us).

### June 18-20

National Environmental Health Association, National Onsite Wastewater Recycling Association, and State Onsite Regulators Alliance joint Onsite Wastewater Summit and NEHA 75th Annual Educational Conference and Exhibition, Columbus, Ohio. Visit [www.neha2011aec.org/wastewater.html](http://www.neha2011aec.org/wastewater.html).

## TRAINING & EDUCATION

### Small Flows Online

The cover story of the fall/winter *Small Flows* from the National Environmental Services Center examines wastewater reuse. Other articles include the continued use of honey buckets in Alaska, an overview of services provided by university-based extension services, a report about meth labs and their impact on environmental health, information about water-efficient plumbing and how these fixtures can prolong the life of onsite septic systems, and a humorous look at luxury toilets. The issue is available only in PDF format at [www.nesc.wvu.edu/smallflows.cfm](http://www.nesc.wvu.edu/smallflows.cfm).

### NAWT

The National Association of Wastewater Transporters has these training sessions:

- June 8 – Inspector Training and Recertification, Tucson, Ariz.
- July 21-22 – Inspector Training and Certification, Sonora, Calif.

For Arizona classes, call Kitt Farrell-Poe at 520/621-7221. For New

Mexico classes, call Coda Omness at 575/257-3012. For California classes, call Kit Rosefield at 530/513-6658 or visit [www.cowa.org](http://www.cowa.org).

## Alabama

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

- May 4-6 – Advanced Installer II
- June 1-3 – Basic Installer
- June 23-24 – Continuing Education, Dothan

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

## Arizona

The Arizona Onsite Wastewater Recycling Association is sponsoring the NAWT Inspection Training and Recertification course on June 8 at the Radisson Suites Hotel in Tucson. Call Kitt Farrell-Poe at 520/621-7221 or e-mail [kittfp@ag.arizona.edu](mailto:kittfp@ag.arizona.edu) or visit [www.ag.arizona.edu/waterquality/onsite](http://www.ag.arizona.edu/waterquality/onsite).

## California

The California Onsite Wastewater Association is offering these NAWT classes:

- May 13 – Science of Soils, San Luis Obispo
- July 21-22 – NAWT Onsite Inspector Training and Certification, Sonora

Call Kit Rosefield at 530/513-6658 or visit [www.cowa.org](http://www.cowa.org).

## Florida

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

- May 4 – High-Strength Wastewater Treatment Systems, Daytona Beach
- May 10 – Installer Program III, Jacksonville
- May 11 – Installer Program III, Tallahassee
- May 16 – Master I: Onsite Wastewater Concepts, Mats, Regs, and App Process
- May 17-18 – Master II: Intro to Soils and the Evaluation Process
- May 19-20 – Master III: Onsite System Construction Permits and Inspections

Contact FOWA at 321/363-1590 or [www.fowaonsite.com](http://www.fowaonsite.com).

## Iowa

The Iowa Onsite Wastewater Association has these courses:

- May 16 – Sand Filters At-Grades and Mounds, Mason City
- June 17 – Site Evaluations and Soils, Emmetsburg

Call Alice Vinsand at 515-225-1051, e-mail [execdir@iowwa.com](mailto:execdir@iowwa.com), or visit [www.iowwa.com](http://www.iowwa.com).

## Minnesota

The University of Minnesota Extension has these classes:

- May 2-4 – Pumping and Maintaining Onsite Systems, Mankato
- May 2-6 – Pumper/Maintenance and Service Provider, Mankato
- May 3-6 – Service Provider, Mankato
- May 10-12 – Basic Design of Onsite Systems, Mankato
- May 18 – Soils Continuing Education, Farmington
- May 24-27 – Advanced Design on Onsite Systems, Mankato
- June 1-3 – Soils, Alexandria
- June 7-8 – Inspecting Onsite Systems, Waseca
- June 15 – Soils Continuing Education, Forest Lake
- June 21 – Soils Continuing Education, Worthington
- June 22-24 – Soils, Mankato
- June 29 – Soils Continuing Education, St. Cloud

Call Nick Haig at 800/322-8642 or visit [www.septic.umn.edu](http://www.septic.umn.edu).

## Missouri

The Missouri Smallflows Organization is offering these CEU courses:

- May 10-11 – Operations and Maintenance, Springfield
- June 28 – Selling the System to the Site Conditions, Sedalia
- June 29 – Media Filters, Sedalia

Call Tammy Yelden at 417/739-4100 or visit [www.mosmallflows.org](http://www.mosmallflows.org).

## New England

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

- May 5 – Functional Inspections
- May 12 – Innovative & Alternative Technologies
- May 19 – All About Series: Sand Media

- May 26 – Installing Conventional Onsite Systems
  - June 2 – Installing Advanced Onsite Systems
  - June 2 – Innovative and Alternative Technology Field Training, Peckham Farm
  - June 8 – Soil Basics for the Onsite Wastewater Contractor
  - June 16 – Hands-On Component Installation
  - June 23 – Bottomless Sand Filter Design and Installation
- Call 401/874-5950 or visit [www.uri.edu/ce/wq](http://www.uri.edu/ce/wq). For soil course information, call Mark Stolt at 401/874-2915 or e-mail [mstolt@uri.edu](mailto:mstolt@uri.edu).

## New Hampshire

The Granite State Designers and Installers Association is offering Certified Septic Evaluator training May 3-7 in Bow. Call 603/228-1231 or visit [www.gsdia.org](http://www.gsdia.org).

## Virginia

The Virginia Center for Onsite Wastewater Training has these classes:

- May 9-13 – Soils (Site Evaluation), Ashland

- May 23-27 – Onsite Design Camp II, Farmville
- Contact Lydia Shepherd at 434/292-3101, e-mail [lydia.shepherd@southside.edu](mailto:lydia.shepherd@southside.edu), or visit [www.southside.edu](http://www.southside.edu).

## Washington State

The Washington On-Site Sewage Association and Washington State Department of Health in cooperation with Washington State University are offering these certification courses at the training center in Puyallup:

- May 3-4 – Basics of Electrical Applications in Onsite Systems
- May 11 – Basics of Installing, Part 3
- May 25 – Electrical Control Panels

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

## Wisconsin

The Wisconsin Onsite Water Recycling Association is holding a Private Onsite Wastewater Treatment System Evaluator Course May 16-17 in Manitowoc. Call 608/256-7757 or visit [www.wowra.com](http://www.wowra.com). ■



# 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)

## BLOWERS

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

## BUSINESSES

**Well-Established and Profit able Texas Septic, Sewer & Installation Business For Sale. PRICE RECENTLY REDUCED.** Grossing in excess of \$600,000 annually, customer list of nearly 2,000 accounts and 430 contracted customers. Includes nice late model equipment, most are 2007, 2008 model years. Owner retiring after nearly 40 years in business. Real estate available upon request. Reduced to \$450,000. E-mail [jeffb@colepublishing.com](mailto:jeffb@colepublishing.com) or call 800-257-7222 and ask for Jeff Bruss for more details. **A B2 Business Brokerage Listing - www. BTwo.biz.** (IBM)

## BUSINESSES

**Chicago-Area Biosolids, Land Application, Dredging and Industrial Services Business.** Established in 1985, owner is retiring. Reputable business includes real estate servicing the entire Chicagoland area with sludge and biosolids disposal and treatment services. Real estate and shop included with sale valued at \$750,000, business grosses in excess of \$3 million annually, \$6.3 million in equipment and assets including several TerraGators, Vac Trailers, dump trailers, loaders and much more. Offered at \$4,900,000 - huge potential, good profit and priced right. Non-Disclosure Agreement required, all P&L statements, list of assets, and financials available to qualified buyers. E-mail [jeffb@colepublishing.com](mailto:jeffb@colepublishing.com) or call 800-257-7222 and ask for Jeff Bruss for more details. **A B2 Business Brokerage Listing. www. BTwo.biz.** (IBM)

## BUSINESSES WANTED

**WANTED:** Looking to acquire septic businesses in Massachusetts. All inquiries will be confidential. 508-868-7627. (IBM)

## DRAINFIELD RESTORATION

**Soil Shaker 2000.** Universal skid steer attachment for drainfield restoration. Buy factory direct \$6,250. [www.soilshaker.com](http://www.soilshaker.com) or call 320-293-6644. (P1-12)

## DRAINFIELD RESTORATION

DO YOU OWN A TERRALIFT MACHINE? We have the beads in stock and we also have heavy duty 6' probes. Wanted: Used Terralift machines, working or not. Toll Free 1-888-252-1006. (107)

2009 Terralift TL-2000 Style w/PS 180 Hammer in new condition. A new trailer with stainless steel tool box is included. \$45,000. 828-696-3370 NC. (P04)

## HAND TOOLS

**Crust Busters** - 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)

## MISCELLANEOUS

Finally! One-man septic lid lifter. Lifts lids with incredible ease. Free shipping, lifetime warranty. Send check or money order for \$230.00 to Brindlee Mtn. Rooter, 130 Co. Rd. 1829, Arab, AL 35016. 256-586-5948. (P03)

## 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)

1996 International Chemical Recirculator. Has (2)-1000 US gallon steel tanks, 3 axle unit. Mission Magnum Sand Master pump. \$38,000 IBI. Call 609-859-3100 or [bedelin@haasenv.com](mailto:bedelin@haasenv.com). (P04)

## TRUCKS, MISC.

1981 Mack 10-ton crane (wire remote). Needs TLC. \$8,000. Ph. 225-647-4851 LA. (106)



**1990 International Boom Truck:** 4900 series, 7 1/2 ton Delzotto boom. Excellent working condition.....\$27,000  
**920-336-1551, DePere, WI** P04

1984 Autocar Conventional tractor, 511,000 miles, 3406 DI 400 Cat, 13 speed transmission, tag axle. \$30,000. Call JD at 775-825-1595, email [jd@watersvacuum.com](mailto:jd@watersvacuum.com). (P04)

1981 IH 1554 Agri-Truck. Large floater tires, Cat 3208, auto trans, low range gearbox, air brakes, tires good, 1500 gal. stainless tank, hyd. driven vacuum/pressure pump. Four shank on back. 12K miles, starts, runs real good. \$8,500 OBO. 410-459-0045 MD.(P04)

2004 International. 14/40. 2010, 3600 gallon steel tank with hoist and 36" rear door. 350 Masport. Powerwash. All hydraulic. Heated valves. Paint 2010. 335 Cummins. 10-spd. \$90,000. Lease option possible. Call Dave 314-277-7005 MO. (P05)

1998 Chevrolet C7500. Caterpillar 3116, 2500 gallon with a Masport H400W. Onboard jetter, hoses. Strong truck! 191k miles. \$35,000. 678-520-6161 GA. (P04)

It's *Quick* and *Secure!*

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

SUBMIT YOUR CLASSIFIED AD NOW!!

Just click on "Classifieds" — "Place a Classified Ad"

Fill in the online form!

ONSITE installer

View Latest Issue

SUBSCRIBE NOW

NEW EQUIPMENT

CLASSIFIEDS

ARTICLES

ADVERTISING

INTERACT

SUBSCRIBE

Septic System Problems?

[www.Aero-Stream.com](http://www.Aero-Stream.com)

My Septic Guy Told Me I Needed A New

Inventory Blowout

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

Yes Equipment & Services Equipment

Ads by Google

**BUSINESS FOR SALE**

VIDEO INSPECTION • MUNICIPAL SEWER CL  
PHILADELPHIA AREA • GREAT REVENUE  
ASKING \$330,000 - TURN-KEY BL

**Rates: \$25 minimum charge (up to 20 words) - \$1.00 per each additional word. Include a photo for an additional \$125.**



Beyond Digging Holes  
Cover Story



# Pagoda™

Brand Products

## Septic Vents Odor Filters



MADE IN USA

1-888-864-1468

**Pagoda Products Company**  
[www.pagodaavent.com](http://www.pagodaavent.com)

Easy Install | Economical | Natural  
Landscape Colors | Heights 1' to 14'

US & Canadian  
Patents Pending

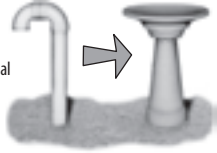
Used on Presby,  
FAST and other  
alternative  
systems



## THE DIRTY BIRD™ Septic Vent Concealer

### Features:

- Pedestal or Optional Birdbath Basin
- Durable
- Fade Resistant
- Stainless Steel Hardware
- Several Colors Available
- Recyclable
- 5 Year Warranty
- Meets or Exceeds All Regulations
- Made in the USA



Converts your ugly septic vent into an attractive bird bath and controls odor with our included charcoal filtering system!

 **866.968.9668**  
**781.793.9334**  
[www.thedirtybird.com](http://www.thedirtybird.com)

## THE SHADDIX COMPANY



4-1000 gal.  
Rebuilt Septic  
Tank forms  
**\$7,000 Ea**

FOB Cullman, Alabama



2002 Non-CDL **\$33,000**  
equipped with almost new  
hydraulic set bed  
Will build forms to your specifications.  
We build hydraulic set beds.

**256-338-4987 or**  
**256-737-0051**

# MARKETPLACE advertising

## One Complete Package

<a href="http://onsiteinstaller.com">onsiteinstaller.com</a>	<a href="http://gomcmag.com">gomcmag.com</a>
<a href="http://promonthly.com">promonthly.com</a>	<a href="http://pumpershow.com">pumpershow.com</a>
<a href="http://mswmag.com">mswmag.com</a>	<a href="http://pumpertrader.com">pumpertrader.com</a>
<a href="http://cleaner.com">cleaner.com</a>	<a href="http://septicyellowpages.com">septicyellowpages.com</a>
<a href="http://pumper.com">pumper.com</a>	<a href="http://sewerpages.com">sewerpages.com</a>

**COLE Publishing Inc.**  
1.800.257.7222 • 715.546.3346

# ONSITE installer™ MARKETPLACE advertising

Onsite Installer Marketplace gives you nationwide exposure to thousands of industry professionals.

Layout and design is included **FREE**,  
and we can fax or e-mail you a proof for final approval!

## Now Available In 4-Color Or Spot Colors

*Choose a size that works best for you!*

# Call 1.800.994.7990

\*Black and white prices,  
call for 4-color pricing.

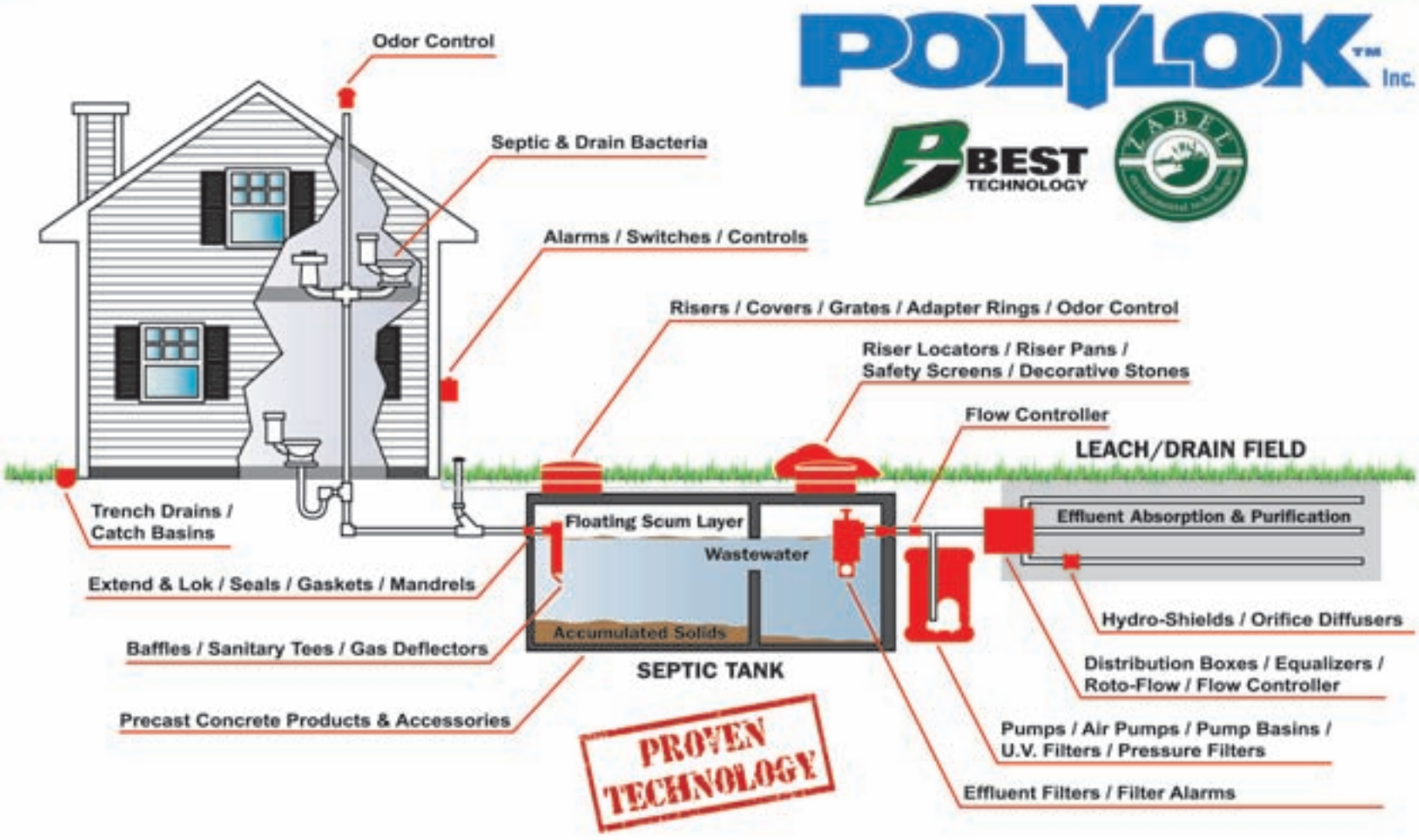
**Size C:**  
**\$109<sup>00\*</sup>**  
**1.875" W x 1.5" H**  
A great value!

**Size B:**  
**\$209<sup>00\*</sup>**  
**1.875" W x 3.2" H**  
Perfect size for  
one photo!

**Size A:**  
**\$309<sup>00\*</sup>**  
**1.875" W x 4.875" H**  
This size is great  
for two photos!

Send ad materials and payment to:  
**COLE PUBLISHING INC. • P.O. Box 220 • THREE LAKES, WI 54562**

There is more to a septic system than meets the eye...



To view our interactive version of this diagram visit: <http://www.polylok.com/PolylokSystem/PLsystem.html>

## THAT'S WHY THERE IS POLYLOK

With almost 100 years of combined experience Polylok, Zabel & Best offer a complete line of products to keep your customer's septic system working at its peak performance.

1.800.701.3946 / [www.polylok.com](http://www.polylok.com)

